

Countries, regions and territories participating in Regeneron ISEF 2025

LEGEND

- Each # next to the finalist's name indicates previous ISEF participation
- An * identifies non-competing projects
- T precedes the name of a Teacher-Sponsor of the project
- T after the project ID indicates a team project

AMERICAN SAMOA

Pago Pago, American Samoa, TEAS01, American Samoa Science Fair

CHEM044 Eco-Adhesives: Transforming Waste Polystyrene Into High-Performance Glues Using Natural Solvents and Emulsifiers

<https://isef.net/project/199125>

Damin Pyo, 15, Freshman, Manumalo Academy, Pago Pago, American Samoa,

T: Marissa Adolfo

ENEV075 Science of Autonomy: Optimal Path Planning

<https://isef.net/project/198749>

Amelie Ruo Yi Chen, 18, Senior, Pacific Horizons School, Pago Pago, American Samoa,

T: Karen Dizon

PLNT052 Evaluation of an *in vitro* Salt Tolerance Screening Method for *Colocasia esculenta* (Taro) Cultivars in Terms of Reliability and Efficiency Through Comparison With ex vitro Methodology

<https://isef.net/project/198750>

Kim Gerald Doca Garcia, 16, Junior, Fa'asao Marist High School, Pago Pago, American Samoa, T: Cristy Dizon

TMED083 Tourism and Public Health: New Illnesses and Increased Sickness in American Samoa

<https://isef.net/project/199146>

Sialevene Victor Lutali, 17, Junior, Pacific Horizons School, Pago Pago, American Samoa,

T: Cassandra Garcia

AUSTRALIA

Oatlands, Australia, AUS004, Australian Science and Engineering Fair

ANIM044 The Tree Hugger Nesting Box: Designing and Field-Testing the World's First Concave Backed Tree Nesting Box Which Utilises the Thermoregulatory Properties of Trees

<https://isef.net/project/197876>

Oluwayemisi Oluwatobiloba Olaitan, 18, Senior, Redeemer Baptist School,

North Parramatta, NSW, Australia, T: Stuart Garth

BEHA056 Building a Better Backseat Driver - Emulating the Human Condition to Improve and Democratise Road Risk Intervention Technology

<https://isef.net/project/198507>

Jesse Rumball-Smith, 17, Junior, Wellington College, Wellington, Wellington,

New Zealand, T: Phil Kendon

CHEM007 Power-Up With Produce: Repurposing Produce Loss to Develop Eco-Friendly Dye-Sensitized Solar Cells

<https://isef.net/project/192682>

Isabelle Sionzon Aduna, 15, Freshman, Wellington Girls' College, Wellington,

New Zealand, T: Louise Gartside

FINALIST DIRECTORY

- EAEV015** **Solving the Sulfur Problem: Box Modelling Sulfur Transfer on Mars Using Earth as a Geochemical Analogue**
<https://isef.net/project/192300>
 Cathy Yuling Zhang, 17, Junior, James Ruse Agricultural High School, Sydney, NSW, Australia, T: Carina Dennis
- MATS019** **Functionality of Bioplastics: Investigating the Physical and Mechanical Properties of Algal Bioplastics for Sustainable Applications**
<https://isef.net/project/193254>
 Chloe Yaan Yuit Yew, 15, Freshman, Norwood International High School, Magill, South Australia, Australia, T: Stuart Garth
- PHYS022** **Visualising Potential Atmospheres on LHS 1140 b Through NIRISS/SOSS Transmission Spectroscopy for Future JWST Analysis**
<https://isef.net/project/192893>
 Jonathon Zhong, 18, Senior, James Ruse Agricultural High School, Sydney, NSW, Australia, T: Carina Dennis
- PHYS041** **Taking Shark Skin for a Spin! Can Shark-Denticle-Inspired Vortex Generators Reduce Heavy Vehicle Fuel Consumption?**
<https://isef.net/project/196051>
 Lily Demiana Rofail, 16, Sophomore, Presbyterian Ladies' College, Sydney, Sydney, NSW, Australia, T: Maria-Luisa Gutierrez
- PLNT009** **Fractal Fingerprinting: Utilizing the Fractal Dimension to Height Ratio of Leaf Venation Structure as a Novel Morphological Characteristic for Plant Taxonomy**
<https://isef.net/project/192298>
- #** **Anubhav Dhruv Ammangi, 18, Senior, Redeemer Baptist School, North Parramatta, NSW, Australia, T: Stuart Garth**
- ROBO025** **Cuddle and Comfort Chimp: An Innovative Soft Robotic Sleep Aid**
<https://isef.net/project/193772>
 Timothy Henry Wilson, 18, Senior, Barker College, Sydney, New South Wales, Australia, T: David Cowley
- SOFT055** **AutoFlow: Rapidly Minimizing Traffic Congestion and Emissions With Prioritized Path Planning and Predictive Simulation**
<https://isef.net/project/198735>
 Naman Doshi, 18, Senior, North Sydney Boys High School, Sydney, New South Wales, Australia, T: Vladimir Tosic

AZERBAIJAN

Baku, Azerbaijan, AZR001, Azerbaijan Science and Engineering Fair

- BMED058T** **Investigation of the Effect of Metformin, Sulfonylurea, and *Galega officinalis* on the Development of Oxidative Processes in Erythrocytes Under Insulin Resistance**
<https://isef.net/project/197228>
 Leyla Alizada, 15, Sophomore, Gulay Guluzade, 16, Sophomore, Bilasuvar Kindergarten-School-Lyceum Complex Named After M.Ibrahimov, Bilasuvar, Azerbaijan, T: Vefa Khankishiyeva
- EGSD023T** **SmartMetro: Creating a Sustainable Transport Strategy With Energy Efficiency and Congestion Management**
<https://isef.net/project/196794>
 Sharif Sharifzade, 16, Sophomore, Nigar Safarova, 15, Sophomore, School Lyceum Complex, Baku, Azerbaijan, T: Orkhan Gulahmadov
- ENEV050** **Urban Fresh: A Smart Solar-Powered Air Purification System With Multi-Stage Filtration in Urban Areas**
<https://isef.net/project/197227>
 Timur Mustafazade, 15, Sophomore, The International School of Azerbaijan, Baku, Azerbaijan, T: Namig Heydarov
- SOFT031T** **Fire Radiative Power Prediction Using Ensemble and Deep Learning Models With Explainable AI Integration**
<https://isef.net/project/197226>
 Nijat Taghizada, 16, Junior, Tural Abdinli, 16, Sophomore, European Azerbaijan School, Baku, Sabayil, Azerbaijan, T: Etibar Vazirov

SOFT042T Low-Cost Eye-Gesture Control System for Mobile Devices Using Reinforcement Learning for Paralyzed Patients

<https://isef.net/project/197913>

Tunar Mammadli, 17, Junior, Huseyn Ismayilov, 17, Junior, School No. 42, Baku, Azerbaijan, Lyceum No. 27, Ganja, Azerbaijan, T: Sarkhan Badirli

BELGIUM

Brussels, Belgium, EUB001, European Union Contest for Young Scientists (EUCYS)

PHYS005 Theoretical and Experimental Investigation of Ship Wakes

<https://isef.net/project/191548>

Aleksandra Konstantinova Petkova, 18, Senior, National High School of Mathematics and Natural Sciences "Acad. Luybomir Chakalov", Sofia, Bulgaria, T: Neli Mihaylova

TECA020 VerifyMe: A New Approach to Authorship Attribution in the Post-ChatGPT Era

<https://isef.net/project/191165>

Sean O'Sullivan, 18, Senior, Colaiste Chiarain, Limerick, Munster, Ireland, T: Edel Farrell

BRAZIL

Novo Hamburgo, Brazil, BRA001, International Fair of South America - MOSTRATEC

BEHA003 Palliative Care: A Behavioral Resource for Healthcare Professionals Promoting Humanity and Dignity in End-of-Life Patients - A Pilot Study

<https://isef.net/project/191114>

Ana Beatriz Tsuboi, 15, Junior, Colegio Interativa de Londrina, Londrina, Puerto Rico, Brazil, T: Maria Valoto

BMED001T Therapeutic Application of Agomirs and Antagomirs in Gastric Cancer Based on Transcriptomic Analysis, Phase 2

<https://isef.net/project/190679>

Luiza Zaiter Costa#, 17, Senior, Raul Sarria Viana Brandao, 18, Senior, Colegio Degraus, Jundiai, Sao Paulo, Brazil, T: Clarissa Basso

BMED003 Amazon Chibata: Aria - A Food Alternative to Combat Food Insecurity in the Brazilian Amazon Amid Climate Change

<https://isef.net/project/190733>

Eli Minev Benzecry, 17, Senior, Colegio Connexus, Manaus, Amazonas, Brazil, T: Ruby Vargas Isla Gordiano

ENBM002 Formulation of Low-Cost Artificial Skin for Cellular Regeneration and Severe Burns Treatment

<https://isef.net/project/190732>

Sofia Mota Nunes, 16, Junior, Escola Santa Teresinha, Imperatriz, Maranhao, Brazil, T: Carlos Sampaio

ENEVO12T MeMo3D: Membranes Decorated With Self-Assembling 3D Metal Organic Frameworks - From Design to Selective Purification of Water Bodies

<https://isef.net/project/191544>

Pedro Guerra Peixoto Acioli Marques, 17, Senior, Vivian Maria do Nascimento Azevedo, 17, Junior, Colegio Militar do Recife, Recife, Brazil, T: Maria Goretti Cabral de Lima

MATS001T Synthesis and Characterization of Cellulose Acetate Polymer From *Pinus spp.* Pine Cones

<https://isef.net/project/190680>

Clara Mittmann Bonato, 19, Senior, Eduarda Hullen Leonhardt, 19, Senior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brazil, T: Rosane Santos

MCRO009T Assessment of Chemical and Biological Soil Composition in Cerrado Using Fourier Transform Infrared Spectroscopy

<https://isef.net/project/191838>

Tailaine Gomes Felix de Lima, 18, Senior, Jose Vitor Ferreira Balasso, 17, Senior, Instituto Federal de Mato Grosso do Sul campus Nova Andradina, Nova Andradina, Mississippi, Brazil, T: Gazileli Suszek de Lima

FINALIST DIRECTORY

- PLNT005** **K+: Analysis of Flour From the Carcass of the Crab (*Ucides cordatus*), as an Organic Use for Fertilizer in Soybean Farming**
<https://isef.net/project/191542>
 Ana Clara Rodrigues de Souza, 17, Sophomore, E. E. Dr. Alexandre Vaz Tavares, Macapa-AP, Brazil, T: Aldeni De Oliveira
- TMED001** **A Novel Method for Cancer Whole Slide Image Processing Utilizing a Multi-Scale Convolutional Residual Neural Network for Regression**
<https://isef.net/project/190731>
 Vitor Ivan Wagner, 18, Senior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brazil, T: Marco Sauer
- Sao Paulo, Brazil, BRA002, FEBRACE - Feira Brasileira de Ciencias e Engenharia**
- CELLO39** **Salinomycin as a Molecular Trojan Horse for Targeting Mn-Induced Malignancy in Aggressive Tumors**
<https://isef.net/project/198103>
- #** Carolina de Araujo Pereira da Silva, 19, Senior, Instituto Federal de Educacao, Ciencia e Tecnologia do Rio de Janeiro, Rio de Janeiro, RJ, Brazil, T: Mariana Paranhos Stelling
- ENEV060T** **What-A-Filter! Biopolymeric Membrane for Water Treatment**
<https://isef.net/project/198090>
 Miguel Ribeiro da Silva, 17, Senior, Isabelle de Sousa Battocchio, 17, Senior, EEMTI Marconi Coelho Reis, Cascavel, Ceara, Brazil, T: Heloína Lopes Capistrano
 T: Guilherme Maciel do Nascimento
- ENEV061** **Tamm Project: Low-Cost Mineral Filter for Water Treatment, Made From Reusing Ochre Granite Waste From the Ornamental Stone Industry**
<https://isef.net/project/198092>
 Lucas Cavalcante Silva, 17, Senior, EEEP Antonio Rodrigues de Oliveira, Pedra Branca, Brazil, T: Francisco Moreira da Silva
- MATS040** **SUSTAINWARE: A Sustainable Alternative for Stoneware Production**
<https://isef.net/project/198084>
 Victoria Gomes, 18, Senior, Instituto Federal do Rio Grande do Sul - IFRS - Campus Feliz, Feliz, Rio Grande do Sul, Brazil, T: Cinthia Zimmer
- MATS041T** **Formulations of Bioactive Films Based on Babassu Coconut Starch Added with Cellulose Nanofibers and *Curcuma longa* L. Essential Oil**
<https://isef.net/project/198094>
 Guilherme Pinesso, 18, Senior, Rennzo Rodrigues Diedrichs, 17, Sophomore, Federal Institute of Tocantins, Araguaina, TO, Brazil, T: Ricardo de Sousa
- MCRO049T** **Nanocare: Innovative Silver Nanoparticle Mouthwash for Oral Mucositis Treatment in Cancer Patients**
<https://isef.net/project/198102>
 Joao Victor Ribeiro Bizarri, 16, Senior, Maurillo de Nez Souza, 16, Senior, Instituto Federal do Parana Campus Umuarama, Umuarama, Parana, Brazil, T: Giselle de Oliveira
- ROBO055T** **Unfake: A Solution for Detecting Audio Deepfakes Using Artificial Intelligence**
<https://isef.net/project/198152>
 Marcos Godinho Filho, 18, Senior, Eric Carvalho Figueira, 18, Senior, Colegio Tecnico de Campinas, Campinas, São Paulo, Brazil, T: Guilherme De Oliveira Macedo
- SOFT048** **Sirius: Simulating X-Ray Images Through Computational Mathematics**
<https://isef.net/project/198093>
 Maria Eduarda Magalhaes da Silva, 18, Senior, E.E Hedy Madalena Bocchi, Hortolandia, Sao Paulo, Brazil, T: Thais Alves
- TMED057T** **Antimicrobial Potential of the Hydroalcoholic Extract of *Myracrodruon urundeuva* (Aroeira)**
<https://isef.net/project/198091>
 Otavio da Costa Nogueira, 18, Senior, Rita Izabely Lopes da Costa, 17, Junior, Gabriel Lopes Fernandes Filho, 17, Junior, Escola Estadual Professor Abel Freire Coelho., Mossoro, Rio Grande do Norte, Brazil, T: Michael Silva de Souza

FINALIST DIRECTORY

BULGARIA

Sofia, Bulgaria, BGRO01, Bulgarian Science and Innovation Fair

BEHA002 Towards Transparent Voting Power: An Analysis of Fixed Systems of the Shapley-Shubik and Banzhaf Power Indices
<https://isef.net/project/190839>

Demira Nedeva, 19, Senior, Model High School of Mathematics "Akademik Kiril Popov", Plovdiv, Bulgaria, T: Veselina Karapeeva

MATH005 Squarefullness of Factorial Products of Polynomials
<https://isef.net/project/190838>

Dimana Miroslavova Pramatarova, 18, Junior, Model High School of Mathematics "Akademik Kiril Popov", Plovdiv, Bulgaria, T: Veselina Karapeeva

TMED004 Inhibition of Salivary α -Amylase by a *Bistorta major* (S. F. Gray) Extract as a Therapeutic Strategy for the Treatment of Diabetes Mellitus
<https://isef.net/project/191435>

Aleksandra Chavdarova Nikolova, 19, Senior, High School of Mathematics and Natural Sciences "Acad. Nikola Obreshkov", Burgas, Bulgaria, T: Todorka Volkova

CANADA

Trenton, Canada, CANO02, Youth Science Canada - Team Canada

CBIO050 Sticky States and the Adhesion Effect: A Novel Model of Directional Evolution Without Darwinian Selection
<https://isef.net/project/197554>

Rayne Wallace, 17, Senior, London Central Secondary School, London, Ontario, Canada, T: Helen Underwood

EAEV046 Saponin Surfactants: Novel Extraction of Environment Friendly Natural Saponins and Their Effect on Bacterial Inhibition and Plant Histology
<https://isef.net/project/197558>

Tanvir Kaur Mundra, 16, Sophomore, St. John's School, Vancouver, British Columbia, Canada, T: Helena Glanville

EBED029 SynaptiQ: Detection and Prevention of Hospital Induced Delirium
<https://isef.net/project/197552>

Gurnoor Kaur, 16, Sophomore, Cameron Heights Collegiate Institute, Kitchener, Ontario, Canada, T: Lisa Drekić

ENBM049 A Novel Approach To Using Artificial Intelligence to Aid the Hearing and Vision Impaired
<https://isef.net/project/197556>

Yurui Qin, 17, Senior, Centennial Collegiate, Saskatoon, Saskatchewan, Canada, T: Brooklyn Janzen

ENEV054T Dual-Purpose Biological Photovoltaic: Optimizing Power Output and Wastewater Treatment
<https://isef.net/project/197553>

Yu Han Guo, 18, Senior, Yu Chen Guo, 16, Junior, York House School, Vancouver, St. George's School, Vancouver, British Columbia, Canada, T: Yung Ming Liu

ETSD038 JETSTREAM: Building the World's Fastest Drone
<https://isef.net/project/197555>

Jason Zhao, 18, Senior, Collingwood School, West Vancouver, British Columbia, Canada, T: Edel Vo

PHYS055 NEPTUNE: N-body Exoplanet Prediction Using TTV for Unseen Exoplanets
<https://isef.net/project/197551>

Arushi Nath, 15, Sophomore, Bloor Collegiate Institute, Toronto, Ontario, Canada, T: Benjamin Stevenson

FINALIST DIRECTORY

CHINA

Chengdu, China, CHN008, Sichuan Science Fair

CELL007 Enhancing Base Editing by DNA Gap Induction

<https://isef.net/project/191543>

Arianna Xie, 17, Junior, Shanghai High School International Division, Shanghai, China,
T: Hui Liao

EGSD004 A Novel Hybrid-Powered Low-Cost System for Volcanic Hazard Detection

<https://isef.net/project/190841>

Ruixuan Yang, 17, Junior, Harrow International School Beijing, Beijing, China,
T: Kelvin Chin

ENEV001 A Digital and Portable Integrated Apparatus for Dynamic Monitoring and Highly Efficient Catalysis of Trace Formaldehyde Using Fe-Based TiO₂ Single-Nanoparticle Photocatalyst

<https://isef.net/project/190688>

XinYan Chen, 17, Junior, Shanghai High School International Division, Shanghai, China,
T: Hui Liao

ETSD003T A Fully Self-Developed and Completely Open-Sourced, Affordable Rocket Module Featuring an Interchangeable Secondary System for Versatile Mission Adaptability

<https://isef.net/project/190813>

Ruihan Zhao, 18, Junior, Yuyang Lin, 17, Junior, BASIS International School Hangzhou, Hangzhou, Zhejiang, China, T: Chantal Rudman

MCRO004 AI-Guided Design and Preliminary Validation of Anti-Tuberculosis Subunit Vaccine

<https://isef.net/project/190815>

Jeffrey WeiZheng Li, 17, Junior, Fudan International School, Shanghai, China,
T: Tingyu Zhao

CHINA, HONG KONG SPECIAL ADMINISTRATIVE REGION

Hong Kong, China, Hong Kong Special Administrative Region, HKG001, Hong Kong

S&T Invention Contest

BMED005T Novel Fusion Protein Approach to Cardiovascular Disease With Computational Modelling

<https://isef.net/project/190834>

Chung Kiu Wong, 17, Junior, Ka Kit Chung, 17, Junior, Jed Yan Kit Yim, 17, Junior, Pui Ching Middle School, Hong Kong, China, Hong Kong Special Administrative Region,
T: Wai Lok Yeung

EAEV004 New Cyclophoridae Species in Hong Kong: Investigation on Its Taxonomy Identity and Functionality of Their Periostracal Hairs

<https://isef.net/project/190835>

Chi Yuen Lui, 16, Junior, Han Academy, Hong Kong, China, Hong Kong Special Administrative Region, T: Muhua Yang

EAEV007T Insect's Plastic Feast

<https://isef.net/project/191549>

Sum Yiu Ko, 16, Junior, Tsz Ching Sham, 16, Junior, Ka Yiu Chan, 16, Junior, Queen Elizabeth School Old Students' Association Secondary School, Tin Shui Wai, China, Hong Kong Special Administrative Region, T: Yuen Ting Chan

EBED002 Spherical Robot Based on Double-Pendulum Drive System: Structural Design and Motion Control Function Research

<https://isef.net/project/190830>

Leo Mingze Fan, 15, Sophomore, French International School, Hong Kong, China, Hong Kong Special Administrative Region, T: Sebastien Paris

EGSD003T Dual Functional Catalyst for Green Hydrogen Production

<https://isef.net/project/190829>

Cho Fung Woody Tai, 16, Sophomore, Tanliang Ge, 16, Sophomore, The Chinese Foundation Secondary School, Hong Kong, China, Hong Kong Special Administrative Region, T: Chun Man Ho

CHINA, MACAO SPECIAL ADMINISTRATIVE REGION

Macao, China, Macao Special Administrative Region, MAC001, Macao Region Science Fair

EGSD008T Black Phosphorus Anode: Realizing Fast Charging Lithium-ion Batteries

<https://isef.net/project/192488>

Pok Hei Leong, 17, Senior, Chi Kin Pun, 17, Junior, Pui Ching Middle School, Macao, China, Macao Special Administrative Region, T: Ka Kong Chan

ETSD013T A Bio-inspired, Flexible, and Retractable Robotic Tail Exoskeleton

<https://isef.net/project/192569>

Seng Chon Chang, 17, Senior, Chon Man Tam, 17, Senior, Instituto Salesiano, Macao, Macao, China, Macao Special Administrative Region, T: Chon Mou Lok

PHYS018 Observation Plan for (101955) Bennu Using Astronomical Parameter Computations

<https://isef.net/project/192683>

Yuhan Zheng, 17, Junior, Premier School Affiliated to Hou Kong Middle School, Macao, China, T: Yat Yeung

ROBO010 Intelligent Acanthaster Planci Robot for Gastrointestinal Residency Treatment

<https://isef.net/project/192296>

Ziheng Xu, 17, Senior, Pui Ching Middle School, Macao, China, Macao Special Administrative Region, T: Leng Leng Leong

ROBO018T Deep High-Resolution U-Net Latent Diffusion Model for Histopathological Image Synthesis

<https://isef.net/project/192746>

Ka Chon Sun, 19, Senior, Ian I Xiao, 15, Sophomore, Hang Kin Chan, 16, Sophomore, Kao Yip Middle School, Macao, China, Macao Special Administrative Region, T: Chi Chon Ng

CHINESE TAIPEI, TWN001, TAIWAN INTERNATIONAL SCIENCE FAIR

ANIM003 Circadian Evolution in Action: How Latitude Shapes the Genetic and Behavioral Divergence of *Drosophila*

<https://isef.net/project/191161>

Man-Ling Lin, 18, Senior, Taipei First Girls High School, Taipei City, Chinese Taipei, T: Chau-Ti Ting

CHEM003 Enhanced Exciplex Formation on Triphenylamine-Benzothiazole (TPA-BT) Derivatives

<https://isef.net/project/191152>

Yun-Jen Chen, 16, Junior, Taipei First Girls High School, Taipei City, Chinese Taipei, T: Ming-Chih Hsu

EAEV009T Investigating the Effects of Carbon Dioxide and Temperature on *Nannochloropsis oceanica* Using a Hemocytometer Counting Method

<https://isef.net/project/191729>

Tsai-Yu Yao, 15, Freshman, Wei-Wei Chiang, 15, Freshman, Kang Chiao International School - Hsinchu Campus, Hsinchu City, Taiwan, Chinese Taipei, T: Sheila Sistrunk

ENEV017T EcoNanoGuard: Energy-Efficient Nanosilver Sensor for Early-Stage VOC Leakage Detection

<https://isef.net/project/192156>

Hsin-He Tien, 17, Junior, Tzu-Ting Wu, 16, Junior, Taipei First Girls High School, Taipei, Taiwan, Chinese Taipei, T: Chia-Jung Lu

MATH004T Expected Dispatches of Firefighting Helicopters Under the Optimal Strategy

<https://isef.net/project/190827>

I-Hsiang Wang, 17, Junior, Chang-Yu Wu, 17, Junior, National Tainan First Senior High School, Tainan City, Chinese Taipei, T: Ying-Yan Chen

MATH006 Exploration of the Ninja Path

<https://isef.net/project/191160>

Chia-Ray Lee, 18, Senior, Kaohsiung Municipal Kaohsiung Senior High School, Kaohsiung, Taiwan, Chinese Taipei, T: Hsin Yuan Wang

FINALIST DIRECTORY

- MCRO011T** **A K47 *Klebsiella pneumoniae* Phage and Its Capsule Depolymerase in Therapeutic Applications**
<https://isef.net/project/192157>
 Zhong-Yue Fan, 17, Junior, Hsiang-Cheng Shih, 17, Junior, Taipei Municipal Chien Kuo High School, Taipei City, Taiwan, T: Jin Town Wang
- PHYS008** **Quantized States in Centrifugal Fluid**
<https://isef.net/project/192054>
 Ta-Chao Lo, 17, Junior, Kaohsiung Municipal Kaohsiung Senior High School, Kaohsiung, Taiwan, Chinese Taipei, T: Cheng-Liang Lu
- PLNT004T** **Halotolerant Bacteria Oc2 Enhance Plant Salt Tolerance**
<https://isef.net/project/191441>
 Yu-Jin Lai, 15, Freshman, Yu-Chun Chung, 15, Freshman, You-Yu Guo, 15, Freshman, Kaohsiung Municipal MingHua Junior High School, Kaohsiung City, Taiwan, Chinese Taipei, T: Yu-Hung Su
- ROBO007T** **Rip Current Detection and Early Warning System Based on AI Object Detection Model**
<https://isef.net/project/191730>
 Yi-Hsuan Lu, 17, Junior, Hsu-Chien Chen, 17, Junior, Kaohsiung Municipal Kaohsiung Girls' Senior High School, Kaohsiung, Taiwan, Chinese Taipei, T: Wei-Ta Chu
- SOFT004** **Enhancing Finger Vein Recognition With Feature Frequency Decoupling**
<https://isef.net/project/191440>
 Yi-Chen Lin, 18, Senior, National Yilan Senior High School, Yilan, Taiwan, Chinese Taipei, T: Chih-Hsien Hsia
- TMED003** **Dynamic Glucose-Enhanced MRI of Metabolic Connectivity in Huntington's Disease Mouse Models**
<https://isef.net/project/191153>
 Hao-Tian Lu, 17, Junior, Taipei Digital Experimental High School, Taipei City, Taiwan, Chinese Taipei, T: Yu-Hsuan Liao

CZECH REPUBLIC

Srch, Czech Republic, CZE001, Students' Professional Activities (SPA)

- BCHM001** **Role of Rothmund-Thomson Syndrome Helicase in DNA Replication Initiation**
<https://isef.net/project/190816>
 Anna Cerna, 18, Junior, Klvana's Grammar School, Kyjov, Kyjov, Cesko, Czech Republic, T: Zdenka Synkova
- BEHA001** **Application of the Key Person Value Within Company Valuation**
<https://isef.net/project/190817>
 Simon Spilar, 19, Junior, Gymnazium Pardubice, Dasicka 1083, Pardubice, Czech Republic, T: Alexandr Prokop
- CBIO001** **Above and Beyond the Autism of Today: Exploring a Retroelement Regulatory Hypothesis in Autism Spectrum Disorder**
<https://isef.net/project/190818>
 Leonard Wallezky, 19, Senior, Gymnazium Matyase Lercha, Brno, Moravia, Czech Republic, T: Martin Krejci
- Praha 4, Czech Republic, CZE002, AMAVET Czech Republic Science Fair**
- CHEM045** **Synthesis of New HIPK Inhibitors Based on furo[3,2-b] pyridine Motif**
<https://isef.net/project/199145>
 Simon Jaros, 18, Junior, Gymnazium Brno-Reckovice, Brno, Jihomoravsky Kraj, Czech Republic, T: Kamil Paruch
- EBED045T** **Development of Assistive Technologies for the Visually Impaired Using AI**
<https://isef.net/project/199236>
 David Daniel Safrata, 17, Junior, Jan Pavel Safrata, 19, Senior, Gymnazium Evolution, Prague 2, Czech Republic, T: Vít Bocek
- ROBO068** **Procedural 3D Object Generation for Novel Contrastive Learning in Computer Vision**
<https://isef.net/project/198938>
 Vaclav Knapp, 17, Junior, Smichov Secondary Technical School, Prague, Czech Republic, T: David Eghazi

DENMARK

Kobenhavn, Denmark, DNK001, Unge Forskere

BMED037 Investigating Gender and Ethnic Bias in Body Mass Index and How Body Fat Percentage Can Improve AI Diagnoses Across Age, Sex and Ethnicity
<https://isef.net/project/193774>

Ridhima Pal, 18, Senior, Copenhagen International School, Oesterbro, Copenhagen, Denmark, T: Garry McIntyre

EGYPT

North Coast & West of Egypt, Egypt, EGY002, Bibliotheca Alexandrina Science and Engineering Fair – Alexandria

BEHA067T Nightingale: Panic Attacks Treatment
<https://isef.net/project/198742>

Mariem Mohamed Elkady, 17, Junior, Malak Maged Abowady, 17, Junior, STEM School of Alexandria, Alexandria, Egypt, T: Eman Ali

CHEM039T Design and Synthesis of a Novel MIL-101(Fe)/GQDs/PPy Nanocomposite for High-Performance Hybrid Energy Storage Applications
<https://isef.net/project/198744>

Habiba Mohamed Gomaa, 17, Junior, Mariam Ahmed Elsounbaty, 17, Junior, Dakahlia STEM School in Egypt, Gamasa, Dakahlia, Egypt, T: Rabab Shalof

EBED042T Drone for 3D Radiation Mapping With Radioactive Source NaI-Spectroscopy Identification, and Polyurethane Decontamination & LiPo Battery Neutron-Shielding Using 5% Borated Polyethylene
<https://isef.net/project/198931>

Youssef Emad Harby Wannas Sharmoukh, 19, Senior, Ahmed Mohammed Abdelkhalek Mohammed, 19, Senior, Applied Technology School for Nuclear Energy in El-Dabaa, El-Dabaa, Matruh, Egypt, T: Tarek Mohamed Ali Nagla

MATS068 Arab Plastic
<https://isef.net/project/198740>

Eslamah Ahmed Abdu El-Ouf, 17, Junior, Nour Al Maaref, New Damietta, Damietta, Egypt, T: Eman Ebrahim ElDhsha

SOFT056T Self-Supervised Metric-Scaled Monocular 3D Perception Framework for Low-Cost Autonomous Systems
<https://isef.net/project/198930>

Mohamed Yasser Dahman, 19, Senior, Ahmed Hazem Ahmed Mohamed Ali, 18, Senior, Applied Technology School for Nuclear Energy in El-Dabaa, El-Dabaa, Matruh, Egypt, T: Tarek Nagla

TMED075T HarmonyHeal A-VR: Enhancing Cognitive Rehabilitation in Alzheimer's Patients Using VR/AR Technologies
<https://isef.net/project/198743>

Sama Muhammed Leila, 17, Junior, Tabarak Alaa Zidan, 18, Junior, STEM School of Alexandria, Alexandria, Egypt, T: Eman Ali

TMED079 Comparative Evaluation of Gum Rosin-Based Ointment and Betamethasone-Salicylic Acid in Treating Imiquimod-Induced Psoriasis in Rabbits
<https://isef.net/project/198929>

Ibrahim Ali Badran, 17, Junior, Dakahlia STEM School, Gamasa, Dakahlia, Egypt, T: Alaa Abdelghafar

Cairo, Egypt, EGY001, Egypt Science and Engineering Fair - Cairo & Upper Egypt

BEHA062 Harmony Plus: A User-Adaptive System for Neurocognitive Rehabilitation With Genetic Personalization and Real-Time Cognitive Load Monitoring in Bipolar Disorder
<https://isef.net/project/198604>

Sahar Ashraf Mahmoud Ahmed, 16, Junior, City Schools, Sohag, Egypt, T: Moshira Ragi

BEHA063T OICshift: A Mobile & VR Game With Integrated Multi-targeted Application for Detection of Aggression Behavior in Arab Children and Adolescents, Assessment of Game Intervention and Insights Into Parental Behavior
<https://isef.net/project/198605>

Badr Muhammad Anttar, 19, Senior, Mohamed Hatem Hashish, 17, Junior, Obour STEM School, Obour, Kalubya, Egypt, T: Eman Aboseif

FINALIST DIRECTORY

- BMED078T** **Kera Treatment: Treating Advanced Cases of Keratoconus**
<https://isef.net/project/198600>
 Judy Mohamed Eldeeb, 17, Junior, Rana Taha, 16, Junior, Soliman Abdelmoneam Badawy, Badrashin, Giza, Egypt, T: Mostafa El-Gabry
- BMED079T** **Tonsillar Mesenchymal Stem Cells Derived Cream for Muscular Dystrophy in Rats**
<https://isef.net/project/198737>
 Malak Abdelrazek Khamis, 18, Senior, Mirna Haytham Wageeh, 18, Senior, Sharkya STEM School, Zagazig, Sharkia, Egypt, T: Mohamed Abdelaziz
- EGSD047T** **Development of a High-Efficiency Ultraviolet (UV) Energy-Harvesting Cell Using Zinc Oxide (ZnO) and Nanotechnology: Integration of TiO₂ Nanocoating, SiO₂ Nanoparticles, and Piezoelectric Devices With Polysilicon Cooling System for Enhanced Renewable Energy Conversion and Sustainability**
<https://isef.net/project/198736>
 Soha Ahmed Shawki, 17, Junior, Omar Alaa Abdrabo, 17, Junior, STEM October11th District High School, Giza, Egypt, T: Mohamed Elsheikh
- ENBM073T** **RhythmTrack AI- A Cost-Effective Stationary Monitoring Device for the Detection of Atrial Fibrillation (AF) Using a Three-Electrodes Configuration on Einthoven's Triangle by CNN-LSTM-Based AI Model**
<https://isef.net/project/198603>
 Youssef Emad Salah, 16, Junior, Ammar Abdelrahman Salem, 16, Junior, Sharkya STEM School, Zagazig, Sharkia, Egypt, T: Mohamed Abdelaziz
- ENEV072** **The Golden Seeds: Substituting Guava (*Psidium guajava* L.) Seeds for Sustainable Applications: Baked Goods, Animal Feeds and Organic Fertilizers**
<https://isef.net/project/198552>
 Amena Yasser Bata, 17, Junior, Menofya STEM School, Sirs Eel Lian, Menofya, Egypt, T: Amany Gaber
- SOFT052T** **CO-Sign Language**
<https://isef.net/project/198601>
 Yassin Mohamed Khalaf, 16, Junior, Sharl Michael Effat, 17, Junior, Obour STEM School, Obour, Kalubya, Egypt, T: Amin Helmy
- TMED074T** **Dimensional Psychoscope: A Hierarchical Taxonomy of Psychopathology (HiTOP) - Based AI Screening Tool for Enhanced Diagnostics**
<https://isef.net/project/198739>
 Omar Ahmed Zahi, 18, Junior, Abdullah Atef Dokhan, 16, Junior, Obour STEM School, Obour, Kalubya, Egypt, T: Rehab Alzeiny

ESTONIA

- Tartu, Estonia, EST001, Estonian Young Scientist Contest**
- PHYS003** **Development and Calibration of a Portable Muon Telescope for Balloon-Borne Atmospheric Muon Flux Studies**
<https://isef.net/project/190836>
 Saskia Poldmaa, 18, Senior, Tallinn Secondary Science School, Tallinn, Harjumaa, Estonia, T: Mart Kuurme
- TECA001T** **Tactile Vision: A Low-Cost Haptic Interface for Image Perception in Visually Impaired Users**
<https://isef.net/project/190837>
 Robin Ounamagi, 18, Senior, Lennart Luud, 17, Sophomore, Ralf Saarmets, 17, Sophomore, Kiili Gümnaasium, Kiili, Harju Maakond, Tallinn Secondary School of Science, Tallinn, Harjumaa, Estonia, T: Liia Tammes

GERMANY

- Hamburg, Germany, DEU001, Jugend Forscht**
- ANIM004T** **Tube-Worm Hunters: Ecological Aspects of *Ficopomatus enigmaticus* (Polychaeta) in Estuaries of the Baltic Sea**
<https://isef.net/project/192161>
 Luise Koball, 17, Senior, Luca Steven Sauck, 19, Senior, Arian Niclas Wulf, 18, Senior, Gymnasium Reutershagen, Rostock, Germany, T: Peter Schmedemann

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- BCHM004T** **Microbial Fuel Cells: A Bioelectrochemical Respiration Assay Using *S. oneidensis* Cytochrome Complex mtrCAB**
<https://isef.net/project/192164>
Anthony Eliot Striker, 19, Senior, Tina Thao-Nhi Schatz, 19, Senior, Herder-Gymnasium, Berlin, Germany, T: Alexander Beller
- BMED026T** **On the Hunt for Free Radicals With a Blue Light Reaction**
<https://isef.net/project/192849>
Elisabeth Marie Fischermann, 17, Junior, Tom Kressbach, 17, Junior, Julius-Echter-Gymnasium Elsenfeld, Elsenfeld, Bavaria, Germany, T: Roland Full
- MATH011T** **General Theory of the Occurrence of Pi in the Mandelbrot Set and First Proof of Its Occurrence at the Parameter-3/4**
<https://isef.net/project/192481>
Thies Johann Brockmoeller, 18, Senior, Nedim Srkalovic, 19, Senior, Oscar Levin Scherz, 19, Senior, Gymnasium Meiendorf, Wichern-Schule, Marion Donhoff Gymnasium, Hamburg, Germany, T: Dierk Schleicher
- PHYS009T** **New Insights on Antibubbles: Investigation of the Physical Properties of Antibubbles Using an Original Systematic Experimental Setup**
<https://isef.net/project/192159>
Julius Martin Gutjahr, 18, Senior, Maja Antonia Leber, 17, Senior, Goethe Gymnasium Emmendingen, Emmendingen, Baden-Wuerttemberg, Germany, T: Carsten Munchenbach
- PHYS010** **The New Exoplanet TOI1147b: A Hot Jupiter Orbiting Its Subgiant-Class Star in a Highly Elliptical Orbit**
<https://isef.net/project/192166>
Anna Maria Weiss, 19, Senior, Einstein-Gymnasium, Neuenhagen, Brandenburg, Germany, T: Eliana Amazo-Gomez
- ROBO008T** **Analyzing the Optimization of Mechanical Neural Networks**
<https://isef.net/project/192162>
Alexander Reimer, 18, Senior, Matteo Roman Friedrich, 17, Junior, Gymnasium Eversten Oldenburg, Oldenburg, Lower Saxony, Germany, T: Ulf Glade
- TECA015** **simpleTuner: An Automatic Violin Tuner**
<https://isef.net/project/192158>
Reinhard August Josef Koecher, 17, Junior, Hermann Hesse-Gymnasium, Calw, Baden-Wuerttemberg, Germany, T: Harald Weissel

GHANA

Accra, Ghana, **GHA001, MISE Research Program**

- ROBO026T** **Machine Learning-Based Malaria Parasite Detection in Thin Blood Smear Images**
<https://isef.net/project/193775>
Paul-Allen Papa Kobina Fedu Mensah, 17, Junior, Jatin Mahesh Punjabi, 17, Junior, Ghana International School, Accra, Greater Accra, Ghana, T: Pravish Sainath
- ROBO035T** **Towards Sustainable Agriculture: Deep Learning Based Cocoa Disease Detection**
<https://isef.net/project/195806>
Dhruv Jain, 15, Sophomore, Jigar Mahesh Punjabi, 17, Junior, Rohan Sharma, 17, Junior, Lincoln Community School, Ghana International School, Accra, Greater Accra, Ghana, T: Ronny Polle

GUAM

Piti, Guam, **TEGU01, Guam Island-Wide Science Fair**

- ENEV076** **Repurposing Plastic Bottles in Concrete Mixtures: Study on the Strength and Displacement Performance**
<https://isef.net/project/198753>
Ghislaine Lexine J. Desacula, 17, Junior, George Washington High School, Hagatna, Guam, T: Ernesto Guades
- TMED076** **Evaluating Convolutional Neural Networks for Multi-Label Chest X-ray Diagnosis: Model Complexity, Hardware Efficiency, and Radiologist Comparison**
<https://isef.net/project/198751>
Alexander Cruz, 15, Sophomore, Father Duenas Memorial School, Chalan Pago, Guam, T: Colin Perez

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HUNGARY

Budapest, Hungary, HUN001, National Scientific and Innovation Olympiad

CHEM001 Application of Carbon Aerogels in Lithium-Air Batteries

<https://isef.net/project/190695>

Balint Zsolt Raposa, 17, Senior, Lutheran Petofi High School Aszod, Aszod, PE, Hungary,
T: Marta Osgyanine Nemeth

ETSD001 Modulating Z-Axis Movement to Increase the Layer Adhesion of 3D Printed Parts

<https://isef.net/project/190694>

Akos Kalman Vida, 18, Senior, Korosi Csoma Sandor Bilingual Baptist High School,
Budapest, Hungary, T: Aniko Hormann

INDIA

NEW DELHI, India, INDO01, IRIS (Initiative for Research and Innovation in STEM)

ANIM005 PawPath: An IMU-Based Gait Detection and Disease Screening Tool for Canines

<https://isef.net/project/192217>

Anshul Bhatt, 16, Junior, Dhirubhai Ambani International School, Mumbai, Maharashtra,
India, T: Rajeev Verma

ANIM006 Tailsense: Classifying Dogs' Emotions Using Barks and Images Based on Breed

<https://isef.net/project/192225>

Arwan Manil Makhija, 17, Junior, JBCN International School Oshiwara, Mumbai,
Maharashtra, India, T: Vinay Vishwakarma

BCHM009 Pertuzumab MMAE: A Novel ADC to Treat Drug-Resistant Breast Cancer Patients

<https://isef.net/project/192394>

Shaurya Sharvil Patel, 14, Freshman, Adani International School, Ahmedabad, Gujarat,
India, T: Pankaj Kalita

BEHA004T SoundKraft: A Gamified, Sensory-Adaptive Screening System for Geriatric Cognitive Impairment

<https://isef.net/project/191169>

Keyaan Deven Shah, 16, Junior, Vanya Karan Gupta, 16, Junior, Dhirubhai Ambani
International School, Mumbai, Fravashi International Academy, Nashik, Maharashtra,
India, T: Priyanka Nagare

BMED006 Efficacy of the "Popliteal Compression Test" in Detecting Intraoperative Popliteal Artery Injury During Knee Arthroplasty

<https://isef.net/project/191119>

Sadhika Arumilli, 16, Junior, The Future Kids Global School, Rajamahendravaram, Andhra
Pradesh, India, T: Harshini Devi Devalla

CBIO002 A Deep Residual Learning-Based Framework for Cancer Metastasis Detection Using Autoencoders and Limited Tumor Data With Whole-Slide Imaging

<https://isef.net/project/191171>

Aditya Kumar Jha, 16, Junior, VIBGYOR High - Borivali, Mumbai, Maharashtra, India,
T: Sushil Pandey

CBIO003 A Prediction Model for Detecting Colorectal Cancer and Identifying Biomarkers From the Gut Microbiome

<https://isef.net/project/191381>

Ananya Ganapathy, 17, Junior, The International School of Bangalore (TISB), Bangalore,
Karnataka, India, T: Mayilvahanan Bose

EAEV014T LocustTrack: Forecasting the Impact of Climate Change and IOD on the Distribution of *Schistocerca gregaria* (Desert Locust)

<https://isef.net/project/192279>

Abhimanyu Singh, 16, Junior, Aarav Rastogi, 15, Sophomore, Dhirubhai Ambani
International School, Oberoi International School - JVLR Campus, Mumbai, Maharashtra,
India, T: Manjiri Diwanji

ENBM004 A Multi-model Experiment to Develop End-to-End Speaker-Independent Automatic Speech Recognition Solutions for Dysarthric Speech in Low-Resource Languages

<https://isef.net/project/191167>

Pranet Khetan, 16, Sophomore, Shiv Nadar School, Gurugram, Haryana, India,
T: Nitesh Kumar

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ENBM005	MetaMotion Meter: IoT-Driven Biomechanical Device for Enhanced Hand Rehabilitation and Recovery Monitoring https://isef.net/project/191380 Zara Namjoshi, 17, Junior, Ecole Mondiale World School, Mumbai, Maharashtra, India, T: Koelia Ojha
ENBM008	RespiraScan: Using Breathing Patterns as a Biomarker to Diagnose Restrictive Lung Disorders https://isef.net/project/192280 Jayveer Sachin Kochhar, 16, Junior, Dhirubhai Ambani International School, Mumbai, Maharashtra, India, T: Shalini Ghosh
#	
ENBM012	ClearSight: Gamified Eye Muscle Exercise System https://isef.net/project/192482 Yash Jain, 15, Freshman, Dhirubhai Ambani International School, Mumbai, Maharashtra, India, T: Reetu Jain
ENEVO18	Application of AI for the Identification, Tracking and Investigation of Migratory Bird Populations in India https://isef.net/project/192219 Hridank Bhagath, 17, Junior, The International School of Bangalore (TISB), Bangalore, Karnataka, India, T: Priya Gupta
ETSD005	Hinged Threading: A Novel Method to Deploy Convex Polyhedral Nets https://isef.net/project/191115 Suhani Sharma, 17, Senior, Delhi Public School, Chandigarh, Chandigarh, India, T: Timothy Gomez
MATH009	Revisiting the Collatz Conjecture: Analysing Strings, Discovering Bounds and Computing Distributions in Binary Collatz Orbits https://isef.net/project/192218 Ashwat Prasanna, 17, Junior, The International School of Bangalore (TISB), Bangalore, Karnataka, India, T: Nupur Gupta
MCRO005	Physicochemical and Structural Characterisation of Cation-Mediated Polysaccharide Aggregation in Microbial Capsules and Its Implications for Therapeutic Targeting https://isef.net/project/191166 Sindhoora Raja, 16, Junior, National Public School, Indiranagar, Bangalore, Karnataka, India, T: Radha Rajesh
ROBO009	Drone Dynamometer https://isef.net/project/192224 Aarav Manish Seksaria, 16, Sophomore, Podar International School, Mumbai, Maharashtra, India, T: Hitendra Vaishnav
TMED002	CervNet: A Novel Multimodal Neural Network to Diagnose Cervical Spondylosis From X-ray Images https://isef.net/project/191118 Srivatsav Kannan, 17, Junior, The Indian Public School, Kovilpalayam, Tamil Nadu, India, T: Valliappan Raman
TMED009T	VitalEdge: A Novel Non-Invasive Quadruple Biosensor and Health Risk Evaluation System for Early Disease Screening https://isef.net/project/192215 Raajaditya Mohan, 17, Junior, Raajal Achlawat, 16, Junior, Jayshree Periwal International School, Jaipur, Rajasthan, India, T: Minal Jain
TMED010	RetinoScan: A Portable Fundus Imaging Device With Integrated Machine Learning for Automated Diabetic Retinopathy Detection https://isef.net/project/192216 Anushka Manoj, 16, Junior, Amity International School, Noida, Noida, Uttar Pradesh, India, T: Radha Chauhan

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IRAQ

Erbil, Iraq, IRQ001, INPO (Iraq National Project Olympiad)

BMED080 The Effect of Sleep Deprivation on the Brains' Function

<https://isef.net/project/198745>

Lamar Abdulrahman Naser Alrddam, 13, Freshman, Basra Ishik Girls' College, Basra, Iraq, T: Firdaws Rahid

CBIO049T Decoding Molecular Shifts in Late-Stage ALD: Opposing Gene Expression and Metabolic Trends Revealed Through RNA-Seq Analysis

<https://isef.net/project/197512>

Dina Sami Weli, 16, Junior, Hiba Amer Hasan Al-Somarli, 17, Junior, Nilufer Girls' High School, Erbil, Iraq, T: Yesim Fidan

EGSD033T The Harmony Device

<https://isef.net/project/198043>

Fatimah Qayssar Yahya Al-Saeed, 17, Junior, Fairouz Khaldoun Ghazi, 16, Junior, Baghdad Ishik Girls School, Baghdad, Iraq, T: Hajir Jamal

ENEV077T Smart Rainwater Harvesting With Concrete Yard Design for Flood Prevention

<https://isef.net/project/198932>

Wareen Blind Sulaiman, 17, Junior, Dilan Haji Hussein Aldoski, 17, Junior, Ronaki Duhok Ishik Girls College, Duhok, Iraq, T: Bayram Isik

ETSD031 Heat-Sensing Electrical Outlets With Thermochromic Paint for Early Hazard Detection

<https://isef.net/project/196053>

Mohamedezuldin Naser Ibrahim Albayati, 18, Senior, Baghdad Ishik Boys College, Baghdad, Iraq, T: Zanyar Ahmed

ROBO047 Home Security Alarm System for Remote Monitoring and Automation

<https://isef.net/project/197699>

Yousif Ahmed Mudheher Altalabani, 12, Freshman, Kirkuk Cag Boys College, Kirkuk, Iraq, T: Ozhin Saeed

IRELAND

Dublin, Ireland, IRL002, SciFest

ENBM010 A Device for Detecting Fast Moving Objects for Use by the Vision Impaired

<https://isef.net/project/192301>

Maura Jane Moore-McCune, 17, Junior, The King's Hospital, Dublin 20, Leinster, Ireland, T: Ciaran O'Connor

Dublin, Ireland, IRL001, BT Young Scientist & Technology Exhibition

EGSD010T Compost Immersion

<https://isef.net/project/192845>

Matthias Schazmann, 16, Sophomore, St Mary's Diocesan Secondary School Drogheda, Lagavoreen, Drogheda, Louth, Ireland, T: Sophie Caine

ISRAEL

Jerusalem, Israel, ISR001, The Israeli Young Scientists Contest

BCHM026 Towards a Breakthrough HSV-1 Treatment: Targeting Key Proteins To Halt Viral Propagation

<https://isef.net/project/197723>

Aner Sharan, 17, Junior, Blich, Ramat Gan, Israel, T: Inna Kalt

CHEM028 Enhancing Brightness of Microelements Through Plasmonic Nanostructure Coupling With Fluorescent Molecular Systems

<https://isef.net/project/197724>

Inbal Atzmon, 17, Senior, Makif Yehud, Yehud Monosson, Israel, T: Ilya Olevsko

PHYS058 Confirmation and Characterization of the Exoplanet Candidate TOI-5770.01 Using Ground-Based Observations

<https://isef.net/project/197725>

Yael Statter, 17, Senior, Branco Weiss Eitan, Sitria, Kibutz Na'an, Israel, T: Einat Hasson Lazar

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ITALY

Milano, Italy, ITA001, I Giovani e le Scienze

EGSD025T CaPo: Innovative Mobile Protection System for Solar Panels Against Hailstorms

<https://isef.net/project/197206>

Manuel Vanoni, 18, Senior, Andrea Bellini, 18, Senior, Istituto Superiore "Enrico Fermi", Mantova, Mantova, Italy, T: Mauro Grandi

EGSD026T HYDROCULT: Traffic? A Resource!

<https://isef.net/project/197463>

Tommaso De Santa, 18, Senior, Francesco Petralia, 18, Junior, Paul Vasile Ples, 18, Senior, ITIS "Alessandro Volta", Alessandra, Alabama, Italy, T: Giorgio Lagana

PHYS045 Environmental Radioactivity and Meteorological Variables: Statistical Relationships and Machine Learning Regression

<https://isef.net/project/197207>

Nicola Trucco, 16, Sophomore, Deutsche Schule Genua, Genova, Liguria, Italy, T: Arnt Waldow

JAPAN

Tokyo, Japan, JPN001, Japan Students Science Awards

ANIM041T Roles of Diploid Male Bumblebees in the Maintenance of Their Colonies

<https://isef.net/project/197557>

Ayame Tsunoda, 17, Junior, Haruto Nagata, 17, Junior, Yasuda Gakuen Junior and Senior High School, Sumida-ku, Tokyo, Japan, T: Naoki Kojima

BEHA019 Can Equine-Assisted Activities Contribute to the Welfare of Horses?

<https://isef.net/project/193776>

Rico Fukuda, 17, Junior, Kawawa High School, Yokohama-shi, Kanagawa-ken, Japan, T: Kenji Ogasawara

CBIO030 Decoding a Variety of Concepts Including Abstract and Non-Existent Objects From Brain Activity During Mental Imagery

<https://isef.net/project/195855>

Risa Takeuchi, 18, Senior, Tottori Nishi High School, Tottori City, Japan, T: Kosuke Hayashi

EAEV050 How To Form Columnar Jointing: The Effect of Crystallization

<https://isef.net/project/197821>

Genki Nakatake, 17, Junior, Miyazaki Nishi High School, Miyazaki, Japan, T: Shigehiro Nakahara

PHYS039 Theory and Experiments of Damped Oscillation With Sliding Friction

<https://isef.net/project/195856>

Koji Yamasaki, 17, Junior, Kochi Kokusai Senior High School, Kochi, Japan, T: Kazuki Kitaoka

Tokyo, Japan, JPN002, Japan Science & Engineering Challenge

ANIM024 Reproductive Strategies and Adaptive Evolution of Japanese Newts

<https://isef.net/project/193264>

Ami Okubo, 18, Senior, Yamawaki Senior High School, Minato-ku, Tokyo, Japan, T: Shigeharu Akiyama

ANIM025 Research on the Conservation, Growth Conditions and Ecology of Unionoida

<https://isef.net/project/193370>

Katsuki Ono, 18, Senior, Kosei Gakuen High School, Suginami-ku, Tokyo, Japan, T: Gaku Man

EAEV025 Effect of Biochar on Carbon Budget of Forest Ecosystems and Long-Term Verification of Carbon Sequestration

<https://isef.net/project/193372>

Yoshifumi Kudo, 17, Junior, Asano High School, Yokohama-shi, Kanagawa-ken, Japan, T: Yuta Koyama

EGSD015T A Novel Energy-Saving Peltier Cooler Using Thermoelectric Conversion From Low-Temperature Waste Heat

<https://isef.net/project/193357>

Kaho Takeshita, 17, Junior, Sakura Furui, 17, Junior, Masa Sato, 16, Sophomore, Shizuoka Kita High School, Shizuoka-City, Shizuoka-Pref., Japan, T: Yuji Takagi

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- EGSD022T** **Development of Fuel Cells for Medium- and High-Temperature Operation**
<https://isef.net/project/193369>
 Ai Kawata, 17, Junior, Mizuki Hirao, 17, Junior, Mao Inoue, 18, Junior, National Institute of Technology, Yonago College, Yonago-City, Tottori-Pref., Japan, T: Naoki Tanifuji
- ENBM020T** **Elucidation of the Benham's Top Illusion Using Artificial Eyes**
<https://isef.net/project/193381>
 Manasa Uruguchi, 17, Junior, Risa Niikura, 16, Sophomore, Yurika Tsuji, 18, Senior, Tamagawa Academy, Machida, Tokyo, Japan, T: Takanori Yazaki
- ENEV033** **Biofuels and Fertilizers Utilizing Filamentous Algae: A Proposal for a Globally Regenerative Business With Reduced Production Costs**
<https://isef.net/project/193263>
 Yumina Nishida, 18, Senior, Yokohama Municipal Minami High School, Yokohama, Kanagawa, Japan, T: Masato Sotome
- MATS020T** **Development of Organic/Inorganic Hybrid Surface Layer With Double Layered Structure for Corrosion Protection of Aluminum With Self-Healing Property**
<https://isef.net/project/193368>
 Reina Shibata, 18, Senior, Noe Hatakeyama, 19, Senior, National Institute of Technology, Asahikawa College, Asahikawa, Hokkaido, Japan, T: Makoto Chiba
- MATS021** **Development of Water Purification System Using Magnetic Photocatalytic Particles**
<https://isef.net/project/193373>
 Haruka Kimura, 18, Senior, National Institute of Technology, Niihama College, Niihama, Ehime, Japan, T: Hideyuki Hirazawa
- PHYS031** **Deformation of Water Bells When Breaking the Membrane**
<https://isef.net/project/193380>
 Yoshihiro Tanaka, 19, Senior, Senior High School at Komaba, University of Tsukuba, Setagaya-ku, Tokyo, Japan, T: Takuya Imaizumi
- PLNT021** **Comparative Study of Traits and Texture in Japonica×Indica Rice Hybrids and Their Parents**
<https://isef.net/project/193371>
 Nanako Ueno, 16, Sophomore, Notre Dame Seishin Gakuen Seishin Girls' High School, Kurashiki, Okayama, Japan, T: Fukuto Tanaka
- ROBO024** **Revolutionizing Medical Drone Delivery: A Robust, Highly Autonomous System Using K-Means and TSP to Reduce Delivery Time and Energy Consumption by 50%**
<https://isef.net/project/193265>
 Yuto Kuroki, 18, Senior, Waseda University Senior High School, Tokyo, Japan, T: Kenji Yoshida
- JORDAN**
- Amman, Jordan, JOR001, Science Fair of The Jordanian Ministry of Education**
- ANIM008T** **Full Observation System for Monitoring Animal Health and Behavior Using Advanced Artificial Intelligence in Farms**
<https://isef.net/project/192483>
 Ahmmad Fadi Fawzi Abu-Khamsaha, 16, Sophomore, Nabil Walid Nabil Lutfi, 15, Sophomore, Abdallah Issa Hussein Abusadeh, 16, Sophomore, International Proficiency Academy and Schools (IPAS), Amman, Jordan, T: Mousa Alrjoob
- BEHA011** **Developing a Screening Instrument for Arabic Speaking Children With Reading Dyslexia**
<https://isef.net/project/192281>
 Sima Omar Saleh Al-Shaghnobi, 14, Freshman, Bunat Alghad Academy, Amman, Jordan, T: Liza Aladwan
- BEHA012T** **Detection of Electronic Game Addiction Through Blink Rate and Staring Time Analysis**
<https://isef.net/project/192293>
 Tuleen Abdallah Mohammad Makhlof, 16, Sophomore, Lina Abdelrahim Yousef Abdelsalam, 16, Sophomore, Jubilee School, Amman, Jordan, T: Sawsan Abu-Jamma'ah

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- BMED033T** **A Novel Eco-Friendly Approach for Eliminating *E. coli* Using Natural Materials Without Chemicals to Promote Environmental and Human Health**
<https://isef.net/project/193242>
 Maha Haitham Dekaidek, 15, Sophomore, Celeen Mo'Ath Salah Baker, 16, Sophomore, Saba Ma'Mon Ahmad Abdullah, 15, Sophomore, King Abdullah II for Excellence - Muqabilin, Amman, Jordan, T: Alaa Momani
- EAEVO23T** **Utilization of Gel and Fiber Extracts From *Opuntia ficus-indica* Cactus as an Innovative and Sustainable Approach for Water Purification: An Eco-Friendly Solution for Reducing Turbidity and Enhancing pH Balance in Water Treatment Processes**
<https://isef.net/project/193241>
 Omar Tahsee Mohammed Almomani, 16, Sophomore, Layan Aser Dakhalalah Alfuqara, 15, Sophomore, King Abdullah II School for Excellence, Aqaba, Jordan, T: Rania Alfuqara
- EBED018T** **Advancing Underwater Exploration: The Integration of Augmented Reality Technology in Smart Snorkeling Masks for Enhanced Safety and Marine Environmental Awareness**
<https://isef.net/project/193240>
 AbdalRahman Ayman Mansour Basyoni, 17, Junior, Mohammad Moayad Mamoun Alkabarity, 16, Junior, King Abdullah II School for Excellence, Aqaba, Jordan, T: Rania Alfuqara
- EGSD006** **Graphene-Based Solar Fuel Generator: Utilizing Sunlight and a Graphene-Based Solar Panel to Air Captured Convert Carbon Dioxide and Water Into Renewable Hydrocarbon Fuels Through a Catalytic Process**
<https://isef.net/project/192291>
 Omar Abdelqader Abdelrazzaq Alhourani, 13, Freshman, Islamic Educational College - Jubeiha, Amman, Jordan, T: Khaled Khader
- EGSD014T** **Solara: A Self-Sustaining, Solar-Powered Heating System Utilizing Parabolic Reflection, Thermal Conductivity, and Automated Airflow Regulation for Energy-Efficient and Electricity-Free Climate Control**
<https://isef.net/project/193243>
 Antone Hamada Anton Qasir, 16, Sophomore, Yara Lawrence Mohideen AlRousan, 15, Sophomore, Modern Montessori School, Amman, Jordan, T: Raed Al Shami
- ENBM013T** **Ulcer Shield: An AI-Powered Intelligent Foot Care System for Diabetics, Integrating Image Analysis and Sensor Technology for Personalized Prevention, Early Detection, and Continuous Monitoring of Foot Ulcers**
<https://isef.net/project/192484>
 Tala Omar Turki Kamel, 16, Sophomore, Salma Dirar Alqasem, 15, Sophomore, Jubilee School, Amman, Jordan, T: Sawsan Abu-Jama'ah
- ENEVO19** **Sustainable Recycling of End-of-Life Solar Panels: Utilizing Recovered Glass in Concrete for Sand Reduction and Waste Minimization**
<https://isef.net/project/192486>
 Yousef Iyad Issa Altarawneh, 15, Freshman, Aqaba International School, Aqaba, Jordan, T: Sara ALKhatib
- MATH020** **Geometric Hyperplane Intersection Solver: A Matrix-Inversion-Free Framework Enhanced by Quantum and Evolutionary Algorithms**
<https://isef.net/project/193238>
 Tawfiq Abdullah Tawfiq Jallad, 16, Junior, Firas Al-Ajlouni School, Amman, Jordan, T: Yazan Qwaqenah
- PLNT008** **Boosting Food Security in the World With Multispectral Drones**
<https://isef.net/project/192290>
 Ahmad Khalil Hussein Fatafta, 16, Junior, Islamic Educational College-Jubeiha, Amman, Jordan, T: Khaled Khader
- PLNT020** **An Intelligent System for Automated Detection and Monitoring of *Phloeotribus scarabaeoides* in Olive Orchards Using High-Resolution Cameras and Image Analysis**
<https://isef.net/project/193239>
 Gana Ra'ed Amin Aldhmour, 17, Junior, International Proficiency Academy and Schools (IPAS), Amman, Jordan, T: Aniseh Bani Odeh

FINALIST DIRECTORY

- TMED023T** **Parkinson's Disease Detection in Early Stages Through Screening of Hand Tremor by Measuring the Vibrations in Hertz and the Difference Between Angles of Arm Swing**
<https://isef.net/project/193237>
Ghassan Majed Mahmoud Mahmoud, 17, Junior, Ahmad Firas Fathi Rawashdeh, 16, Junior, Jubilee School, Amman, Jordan, T: Sawsan Abu-Jama'ah

KAZAKHSTAN

- Astana City, Kazakhstan, KAZ001, DARYN National Junior Science Projects Competition**
- MATH033** **Prime Numbers of the Form $x^2 + ny^2$ and Thue's Lemma**
<https://isef.net/project/198154>
Alikhan Serik, 17, Sophomore, Astana Bilim Innovation Lyceum for Gifted Boys, Astana, Kazakhstan, T: Ruslan Umbetov
- PLNT044** **Phytochemical Profile, Antioxidant and Antimicrobial Potential of *Chamaenerion latifolium***
<https://isef.net/project/198321>
Batyrbkhan Dulatovich Satybaldin, 16, Junior, School-Gymnasium No. 4 Named After Zhambyl Zhabayev, Nur-Sultan, Kazakhstan, T: Akmaral Kozhantayeva
- ROBO050** **WeCAViT: Weighted Ensemble of CNN, Attention, and a Visual Transformer—A Novel Ensemble Neural Network Architecture for Accurate Pneumonia Diagnosis From Chest X-Rays**
<https://isef.net/project/197842>
Arnur Jumabekov, 18, Senior, Haileybury Almaty, Almaty, Kazakhstan, T: Vladimir Zhuk

KENYA

- Nairobi, Kenya, KEN001, Kenya Science and Engineering Fair**
- ENEVO36T** **An Eco-Friendly Biodegradable Fishing Gear From Fish Scales and Crustacean Shells: A Novel Approach to Combat Marine Pollution**
<https://isef.net/project/193802>
Dhrishti Devendra Kunvarji, 14, Sophomore, Yash Devendra Asher, 13, Freshman, Nikki Ahadi Buya, 15, Freshman, Shree Cutchi Leva Patel Samaj School, Nairobi, Kenya, T: Laban Machooka T: Laban Chweya
- ENEVO37T** **A Sustainable and Efficient Hybrid Carbon Capture Gel Made From Monoethanolamine, Bovine Gelatin and Carboxymethyl Chitosan: Taking Care of Industrial Emissions and Purification of Air**
<https://isef.net/project/193803>
Bhavishyanjali Bora, 15, Sophomore, Keshav Ramesh Shiyani, 15, Freshman, Hasti Khimji Patel, 15, Freshman, Shree Cutchi Leva Patel Samaj School, Nairobi, Kenya, T: Laban Machooka T: Laban Chweya
- ETSD020T** **A Heat-Sensitive, Self-Activating, Easy-To-Launch Fire Grenade Device**
<https://isef.net/project/193818>
Tina Mukai Mutiso, 14, Freshman, Prachi Gaurav Patel, 15, Sophomore, Yashvi Vinod Halai, 15, Freshman, Shree Cutchi Leva Patel Samaj School, Nairobi, Kenya, T: Laban Machooka, T: Laban Chweya
- MATS028T** **Bio-Inspired Shape-Shifting Material to Reduce Plastic Pollution in the Coastal Regions of Kenya**
<https://isef.net/project/195717>
Diya Nayan Chouhan, 16, Sophomore, Khushi Nilesh Patel, 15, Freshman, Kavya Kaushal Shah, 14, Freshman, Shree Cutchi Leva Patel Samaj School, Nairobi, Kenya, T: Laban Machooka

KUWAIT

- Kuwait, Kuwait, KWT001, Kuwait Science and Engineering Fair**
- BEHA070T** **A Comprehensive Study Into the Impact of External Pressure on High School Students' Cognition and Performance**
<https://isef.net/project/199013>
Shaikhah F. S. H. AlFadhel, 17, Senior, Galiah A. A. J. Jamal, 18, Senior, American Baccalaureate, Khaitan, Kuwait, T: Eman Gamil

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ROBO064 AI-Driven Adaptive Robot for Micro-Crack Detection and Predictive Structural Health Intelligence

<https://isef.net/project/198599>

Husain Al Saleh, 17, Senior, The Universal American School, Hawally, Kuwait, Kuwait,
T: Eman Gamil

MALAYSIA

Putrajaya, Malaysia, MYS001, National Schools Science Innovation and Engineering Competition

CELL006 Molecular Insights Into M.L.C.E Larvicide: *Garcinia mangostana* Pericarp and *Citrus aurantifolia* Leaves Combined Extracts as a Novel Natural Larvicide for *Aedes aegypti* Larvae

<https://isef.net/project/191382>

Yee Jia Chuah, 17, Junior, Sekolah Menengah Kebangsaan Sultan Ismail, Johor Bahru, Johor, Malaysia, T: Norida Md Dalhar

EGSD005T Optimization of a Microbial Fuel Cell System for Practicality, Versatility and Affordability: The Future of Green Energy Production

<https://isef.net/project/191442>

Nur Qistina Yuzrinoor, 17, Junior, Omanah Jeyagobi, 17, Junior, Hana Qistina Danial, 17, Junior, Sekolah Menengah Kebangsaan Jalan Empat, Bandar Baru Bangi, Selangor, Malaysia, T: Sumathy Raghavan

ENEVO10T Mush N' Pack: Mycelium-Based Composite for Greener Packaging

<https://isef.net/project/191445>

Muhammad Airil Wafri Mohd Khairi, 17, Senior, Nabil Fadhil Nor Faizal, 17, Senior, Muhammad Naufal Mu'az Mohd Shahneezam, 16, Senior, Sekolah Menengah Sains Sultan Mohamad Jiwa, Sungai Petani, Kedah, Malaysia, T: Mohd Nafis Bin Md Soleh

ENEVO11T Integrated Robotic System To Clean Flood Tunnels, Divert Flood Water and Generate Electricity

<https://isef.net/project/191448>

Yan Hao Teh Jared, 14, Freshman, Lim Keat Hao, 14, Freshman, Hong Zher Yew Jayden, 13, Freshman, Sekolah Menengah Kebangsaan Katholik, Petaling Jaya, Selangor, Malaysia, T: Siti Binti Nazari

MATS005T Tiny Titans: Utilizing Bacteria-Produced Nanoparticle in Water Purification System

<https://isef.net/project/191436>

Adam Fardeen Mohd Farris, 16, Junior, Muhammad Aqil Muhaimin Mohd Azrirudin, 18, Senior, Sekolah Sultan Alam Shah, Putrajaya, Wilayah Persekutuan, Malaysia, T: Samsiah Radiman

SOFT003T Last Chance Groceries

<https://isef.net/project/191437>

Amir Rayyan Muhammad Shaifuddin, 15, Freshman, Anas Rayyan Muhammad Shaifuddin, 15, Freshman, The Malay College of Kuala Kangsar, Kuala Kangsar, Perak, Malaysia, T: Fairuz Yahaya

NORTHERN IRELAND

Lisburn, Northern Ireland, NFK001, Sentinus Young Innovators

TECA014 Interactive Real-Time Actions Learning System

<https://isef.net/project/192913>

Mykyta Telychko, 15, Sophomore, Saint Joseph's Boy School, Londonderry, Ulster, Northern Ireland, T: Sergiy Telychko

NORTHERN MARIANA ISLANDS

Saipan, Northern Mariana Islands, NMIO01, Northern Mariana Islands Science & Engineering Fair

CBIO070 A Two-Stage Machine Learning Approach for Enhancing ADHD Diagnostic Accuracy: Optic Disc Segmentation and Symptom Severity Classification

<https://isef.net/project/198525>

Irene J. Park, 17, Sophomore, Saipan International School, Saipan, Northern Mariana Islands, T: April Liske-Clark

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EAEV067T **TASI - Transplantation of Corals Using Automated Mechanism for Sustainable Marine Forest and Coral Reef Conservation: An Integrated Approach**
<https://isef.net/project/198746>

Ja Young Kim, 17, Junior, Jiho Kong, 19, Junior, Saipan International School, Saipan, Northern Mariana Islands, T: April Liske-Clark

PLNT047T **Magnetopriming to Enhance Sugar Snap Pea Germination for Future Space Agriculture**
<https://isef.net/project/198534>

Dong Gyu Lee, 17, Junior, Lya Kim, 15, Freshman, Dong Hyun Lee, 17, Junior, Saipan International School, Saipan, Northern Mariana Islands, T: April Liske-Clark

OMAN

Muscat, Oman, OMN001, The Omani National Science Faire

BMED009T **Innovative Energy Drink Formulated With Natural Extracts for Diverse Demographics and Occupational Needs**

<https://isef.net/project/191158>

Ryan Nasser Al Siyabi, 16, Junior, Skhaa Ahmed Al Bulushi, 15, Junior, Al Amal School, Muscat, Oman, T: Fakhriya Al Shibani

ENEV016T **Development of a Real-Time Solar UAV With a Smart System for Measuring of Air Pollution Levels in Industrial Areas, Oman**
<https://isef.net/project/192056>

Ahood Khalid Al Shaqsi, 16, Junior, Ebaa Hilal Al Mufarji, 16, Junior, Aisha Riyamiyah, Bahla, Al Dakhiliah Governorate, Oman, T: Rawan Al Humaimi

SOFT002 **A Hybrid Learning-Driven Approach for Lung Enhancement, Tumor Detection and Fibrosis System**
<https://isef.net/project/191041>

Fay Salim Al Mahrouqi, 17, Junior, Dohat al Adab, Bousher, Muscat, Oman, T: Iman Al Rahbi

PAKISTAN

ISLAMABAD, Pakistan, PAK001, National Science and Engineering Fair Pakistan

EBED009 **ML & IOT Based Child Monitoring & House Protection System**
<https://isef.net/project/192057>

Umair Ahmed, 17, Junior, Fazaia Inter College Jinnah Camp, Rawalpindi, Punjab, Pakistan, T: Nazir Malik

ENEV045T **Degradation of Polyvinyl Alcohol and Polyethylene Glycol Plastics by Fungi Isolated From Soil Samples of Lahore, Pakistan**
<https://isef.net/project/196052>

Khadija Noor, 16, Junior, Hadia Usman, 16, Sophomore, Beaconhouse School System: Canal Side Campus, Lahore, Punjab, Pakistan, T: Saima Shahzad

PLNT012 **Expression of Ros1/Del Anthocyanin Biosynthetic Gene in *Gossypium hirsutum***
<https://isef.net/project/192570>

Hifza Ejaz, 18, Sophomore, Govt. Girls High School Wassanpura, Lahore, Punjab, Pakistan, T: Ujala Nasir

SOFT009T **VoiceAuth: Differentiating AI-Generated Voices from Real Human Speech Using Machine Learning**
<https://isef.net/project/192485>

Zohaib Khan, 16, Junior, Umer Kashif, 16, Junior, Beaconhouse School System Valencia Town Campus, Lahore, Punjab, Pakistan, T: Waqar Ahmad

SOFT014 **EvolveUI: User Interfaces that Learn and Evolve With User Proficiency**
<https://isef.net/project/192741>

Ali Saif, 17, Junior, Aitchison College, Lahore, Punjab, Pakistan, T: Muhammad Kamran

FINALIST DIRECTORY

PALESTINE

Ramallah, Palestine, PSE001, Palestine Science and Technology Fair

BEHA064T From the Womb of My Suffering, My Life Is in Colors

<https://isef.net/project/198686>

Mais Ibrahim Abu Rahma, 14, Sophomore, Layan Shareef Suliman, 18, Sophomore, Al-Aqsa Girls Elementary, Hebron, Palestine, T: Dina Namoor

ENBM074 LiberaNex : A Novel Brain-Computer Interface Utilizing EEG and Eye-Tracking for Assistive Communication and Device Controlling

<https://isef.net/project/198685>

Ameer Omar, 16, Junior, Islamiya Secondary School, Nablus, Palestine, T: Anwer Subuh

ENEV074T COMPOTECH: A Smart Composting Machine for Sustainable Food Waste Management

<https://isef.net/project/198747>

Mohammed Omar Shelleh, 17, Junior, Hamad Mohammed Hamad, 17, Junior, Qimam Academy, Ramallah, Palestine, T: Mai Abuhilal

SOFT053 BlockQ : Development of QyberShield: A Quantum-Resistant Blockchain Algorithm for Enhanced Transaction Speed and Security

<https://isef.net/project/198687>

Rama Mohammed Bsharat, 16, Junior, Taher Al-Hudhud Mix Secondary Vocational School, Nablus, Palestine, T: Walaa Shahrori

TMED070T Cardiovascular Diseases Prediction Using Machine Learning: Advancing Early Diagnosis and Prevention

<https://isef.net/project/198688>

NoorAlhuda Imad Sabbah, 15, Sophomore, Wisal Mohammed Shokeh, 16, Sophomore, Alawda Secondary School for Girls, Bethlehem, Palestine, T: Rana Khair

PHILIPPINES

Pasig City, Philippines, PHL001, Philippines Science Fair

BMED070 Neuroprotective Potential of Premna odorata (Alagau) Leaf Ethanolic Extract Against Alzheimer's Disease Using Deltamethrin-Induced Neurotoxicity in Drosophila melanogaster (Fruit fly): In silico and in vivo Analyses

<https://isef.net/project/198165>

Earl Johven Calamohoy Luna, 17, Senior, Bansud National High School Regional Science High School for MIMAROPA, Bansud, Philippines, T: Mischelle Puntod

CBIO063T MAPS: Mangrove Analytics and Prediction System

<https://isef.net/project/198162>

Edric Valenzuela Magana, 18, Senior, Jaycil Robert Reyes Sta. Rosa, 18, Senior, Mark Niño Sanchez Asis, 17, Senior, Jose Panganiban National High School, Camarines Norte, Philippines, T: Ronalyn Opeda

EGSD034 KISLAP PILIPINAS: Kinetic in situ Characterization of Reinforced Composite Assembly of Cathode and Anode Materials Derived From Musa textilis (Abaca) Fibers and Carbonized Perna viridis (Green Mussel Shells) as Potential Integrated Layers Ion Electrode Plugged-in Coin Cell Based Battery for Energy Application Storage

<https://isef.net/project/198167>

Marc Fritzter Villas Tamayo, 17, Junior, Bansud National High School Regional Science High School for MIMAROPA, Bansud, Philippines, T: Lorie Malaluan

ENBM057 SKIMP: Artificial Intelligence- Convolutional Neural Network (CNN) Portable Skin Cancer Detection Device With Skin Cancer Notifier Python-Based Program

<https://isef.net/project/198166>

Margareth Jalandon Ac-ac, 16, Junior, Sumaliring High School, Siaton, Negros Oriental, Philippines, T: Cherish Mae Abingayan

MATH037T Spheres Inscribed Within a Ring Torus

<https://isef.net/project/198582>

Alex Huan Karl Ajel Ascura, 17, Senior, Benedicto Romero Lambonao III, 17, Junior, Dave Matthew Castellano Alcaez, 18, Senior, Ormoc City Senior High School, Ormoc City, Leyte, Philippines, T: Ramil Lauron

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- MATS053** **Geometric Investigation of Quasicrystals: Analyzing Diffraction Patterns With de Bruijn's Multigrid Lattices**
<https://isef.net/project/198524>
Kyle Anthony Jalova Roberto, 17, Junior, Valenzuela City School of Mathematics and Science, Valenzuela, Manila, Philippines, T: Dioscoro Lumogdang
- ROBO057** **Project SEAS: Smart Environmental Awareness System via Buoy Monitoring for Marine Sanctuaries**
<https://isef.net/project/198164>
Trisha Kaye Fabunan Mesana, 17, Junior, Leuteboro National High School, Socorro, Oriental Mindoro, Philippines, T: Aldrin Magtibay
- TMED058T** **EDAD: Early Diagnosis of Alzheimer's Disease Utilizing Low-Cost Plasma Peptide Extraction, Atmospheric Pressure Mass Spectrometer, and Support Vector Machine-Based Classification of Amyloid-Beta Species**
<https://isef.net/project/198168>
Klein Gunneries Rarang Bubos, 16, Junior, Charly David Tawatao Manuel, 16, Junior, Rey Alfred Sevilla Quiam, 17, Junior, Alaminos City National High School, Alaminos City, Pangasinan, Philippines, T: Kris Cristhopher Dela Cruz

POLAND

Warsaw, Poland, PLD001, E(x)plory Science Fair

- BMED019** **Effect of Statins and Flozins on Cardiomyocytes Contacted With COVID-19 Spike Protein**
<https://isef.net/project/192287>
Laura Klaudia Adamkiewicz, 17, Senior, Sevenoaks School, Sevenoaks, Kent England, United Kingdom, T: Paulina Koczurkiewicz-Adamczyk
- ENBM009** **TherapieZ: A Piezoelectric System in a Wearable Medical Device for Accelerated Wound Healing Therapy**
<https://isef.net/project/192284>
Julia Maksimowicz, 17, Junior, Princess Anna Jablonowska nee Sapieha II High School, Bialystok, Podlaskie, Poland, T: Boguslaw Butrylo
- SOFT008** **Gate OS: A Secure Rust Exokernel Based on Preventive Static Code Analysis With Process Domain Isolation**
<https://isef.net/project/192286>
Franciszek Leon Lopuszanski, 18, Senior, I Liceum Ogólnokształcące Dwujęzyczne im. Edwarda Dembowskiego w Gliwicach, Gliwice, Slaskie, Poland, T: Anna Bul

PORTUGAL

Porto, Portugal, PRT001, Portuguese Contest for Young Scientists

- MCRO015T** **Applications of Chitosan in Dental Cements**
<https://isef.net/project/192571>
Lara Sofia Sousa Petada, 18, Senior, Rodrigo Avila Conde Gomes, 18, Senior, Magda Camila Rodrigues da Mota Oliveira, 18, Senior, Escola Secundaria da Maia, Porto, Portugal, T: Luisa Santos

PUERTO RICO

Mayaguez, Puerto Rico, TEPR01, Puerto Rico Math Fair

- MATH016** **On a Tau-Divisor Topology**
<https://isef.net/project/192915>
Luis Francisco Duran-Rivera, 17, Senior, Centro Residencial de Oportunidades Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Edwin Benvenuti
- MATH017** **Exploring Optimal Learning Rates and Convergence in Coded Federated Learning Using Lyapunov's Theorem**
<https://isef.net/project/193067>
Sarah Lu, 17, Senior, Centro Residencial de Oportunidades Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Edwin Benvenuti

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- MATH018** **Improving Atrial Fibrillation Prediction With Recurrence Matrix Analysis**
<https://isef.net/project/193069>
 Sergio Luis Santiago-Ortiz, 16, Junior, Escuela Superior Isidro A. Sanchez, Luquillo, Puerto Rico, T: Miguel Delgado-Fernandez
- Ponce, Puerto Rico, TEPRO2, Arecibo Regional Science Fair**
- EBED025** **FRAS: FRAS: Preventive Alert System for Active Shooters in Schools**
<https://isef.net/project/195682>
 Daniel Felipe Munoz Valenzuela, 17, Senior, Esc. Superior Vocacional Antonio Lucchetti, Arecibo, Puerto Rico, T: Paola Castello Torres
- ENEVO39** **GACPETE-ECO**
<https://isef.net/project/195683>
 Jesus Giovan Santiago, 17, Junior, Padre Aníbal Reyes Belen, Hatillo, Puerto Rico, T: Nyhad Shaban
- ETSD022** **Clothesline With Rain Sensors**
<https://isef.net/project/195681>
 Daila Gonzalez, 18, Sophomore, Colegio Evangelico Capitan Correa, Arecibo, Puerto Rico, T: Jose Candelaria
- Ponce, Puerto Rico, TEPRO3, Bayamon Regional Science Fair I**
- ENBM029** **Home Security Innovation: Designed a Prototype to Access High Spaces in the Kitchen**
<https://isef.net/project/195685>
 Marieliz Naima Soto, 17, Junior, Escuela Bilingue Especializada en Ciencias y Matematicas Papa Juan XXIII Secundaria, Bayamon, Puerto Rico, T: Christian Rosado Adorno
- MCRO034** **Efficacy of Colostrum in the Inhibition of Common Pathogens: Comparison With Conventional Antibiotics**
<https://isef.net/project/195713>
- #** Amanda Isabel Cabrera Santos, 17, Senior, Escuela Bilingue Especializada en Ciencias y Matematicas Papa Juan XXIII Secundaria, Bayamon, Puerto Rico, T: Monica Pagan Ortega
- ROBO034** **Development and Evaluation of a New Sargassum Collection Design for Beaches**
<https://isef.net/project/195762>
 Ian Sebastian Malaret Lopez, 17, Junior, Escuela Bilingue Especializada en Ciencias y Matematicas Papa Juan XXIII Secundaria, Bayamon, Puerto Rico, T: Monica Pagan Ortega
- Ponce, Puerto Rico, TEPRO4, Caguas Regional Science Fair**
- EBED026** **Active Shooter Security System**
<https://isef.net/project/195764>
 Daríel Omar Díaz Rodríguez, 15, Junior, Escuela Especializada en Tecnología Gerardo Selles Sola, Caguas, Puerto Rico, T: Margarita Alejandro Lora
- ENEVO43T** **Regolith Bioremediation for the Cultivation of *Medicago sativa***
<https://isef.net/project/195767>
 Axel Javier Roman Flores, 16, Junior, Gabriela Hernandez, 17, Junior, Colegio Bautista de Caguas, Caguas, Puerto Rico, T: Ivelisse Gonzalez
- SOFT024** **Small-Scale Wind Energy: Arduino for the Generation of Wind Energy**
<https://isef.net/project/195712>
 Kelvin Isaac Hernandez Vazquez, 16, Sophomore, Specialized School of Science and Mathematics Genaro Cautino Vazquez, Guayama, Puerto Rico, T: Glorivée Guzman
- TMED032** **The Incidence of Myeloma vs. Mortality**
<https://isef.net/project/195766>
 Arienid Santiago, 16, Junior, Specialized School of Science and Mathematics Genaro Cautino Vazquez, Guayama, Puerto Rico, T: Haydee Laporte
- Ponce, Puerto Rico, TEPRO5, Humacao Regional Science Fair**
- EAEVO33** **Biodegradation of Polystyrene by *Tenebrio molitor* for Produce Compost Amendment**
<https://isef.net/project/195711>
 Feydie Lee Miranda, 18, Senior, Santiago Iglesias Pantin, Deiba, Puerto Rico, T: Angel Ortiz Roman

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- ETSD024** **Analysis and Evaluation of an Axial Flux Magnetic Transmission for Eolic Turbines**
<https://isef.net/project/195691>
 Derick Kennyel Rivera, 16, Junior, Centro Residencial de Oportunidades Educativas de Ceiba, Ceiba, Puerto Rico, T: Wilmayris Alvira Concepcion
- MATS029** **Simulation of the Dynamics of Particles in Fluids Through a Narrow Channel**
<https://isef.net/project/195768>
 Sophia Lorein Martinez, 17, Senior, Petra Mercado Bougart, Humacao, Puerto Rico, T: Helnery De Jesus
- Ponce, Puerto Rico, TEPR06, Ponce Regional Science Fair**
- CELLO21** **Temporary Inhibition of "Polo Like Kinase-1" Using the siRNA Technique in Triple-Negative Breast Cancer Cells To Reduce the Expression of Mesenchymal Markers**
<https://isef.net/project/195688>
 Paula Sophia Mendez-Torres, 18, Senior, Dr. Pedro Albizu Campus, Ponce, Puerto Rico, T: Kathia Rodriguez
- EGSD017** **Sustainable Energy Conversion: A Solar Cell Chip With Built-In DC to AC Transformation**
<https://isef.net/project/195687>
 Jose Julian Rodriguez Munoz, 17, Junior, Dr. Pedro Albizu Campus, Ponce, Puerto Rico, T: Miguel Rodriguez Oliveras
- ETSD023** **Modification of a Single-Cylinder Internal Combustion Engine of an Electric Generator Using Hydrogen as Fuel**
<https://isef.net/project/195690>
 Marcos Yadiel Yadiel Echevarria Burgos, 18, Senior, Dr. Pedro Albizu Campus, Ponce, Puerto Rico, T: Jonatan Plaza Plaza
- TMED031** **Photodynamic Therapy Based on Protoporphyrin IX-loaded Boron Nitride Nanotubes as Photosensitizing Solutions To Induce Apoptosis in A375 Cells**
<https://isef.net/project/195689>
- #** **Gianna Iriel Rios Garcia, 17, Senior, Dr. Pedro Albizu Campus, Ponce, Puerto Rico, T: Jonatan Plaza Plaza**
- Sabana Grande, Puerto Rico, TEPR08, Mayaguez Regional Science Fair**
- BEHA027** **GABAergic Neurons Correlate to Auditory-Induced Stress Behavior in Mice**
<https://isef.net/project/195770>
 Juliana Torres-Rodriguez, 17, Senior, Centro Residencial de Oportunidades Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Brenda Cabrera
- CBIO028** **Designing Enhanced DNAJB6 Variants: A New Approach to Prevent Alzheimer's Disease by Inhibiting Amyloid-beta 42 Clumping**
<https://isef.net/project/195769>
 Amanda Mirelis Reyes-Nieves, 17, Senior, Centro Residencial de Oportunidades Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Brenda Cabrera
- EGSD019** **Optimization of a Compressed Air Turbine Design for CAES Systems and Grid Stability**
<https://isef.net/project/195771>
 Adrian Josue Carrero, 16, Junior, Dr. Carlos González High School, Aguada, Guaniquilla, Puerto Rico, T: Edmarian Ayala
- Ponce, Puerto Rico, TEPR09, San Juan Regional Science Fair**
- CBIO029** **Characterization of Overexpressed Neural-Related Genes Based on Single-Cell mRNA Sequencing Data in Regenerated Intestines of Sea Cucumbers *Holothuria glaberrima***
<https://isef.net/project/195772>
 Aliris Fontanez, 17, Senior, University Gardens High School, San Juan, Puerto Rico, T: Xavier Pagan
- TMED033** **The Effect of Leaf, Fruit and Root Extract of Noni Plant (*Morinda citrifolia*) on Triple Negative Breast Cancer Cell Growth**
<https://isef.net/project/195773>
 Paola Sofia Valcarcel Ares, 17, Senior, University Gardens High School, San Juan, Puerto Rico, T: Sonya Reyes Sánchez

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Cayey, Puerto Rico, TEPR11, Radians Science & Engineering Fair

PLNT030 Investigating Tissue Regeneration in *Kalanchoe laetivirens* (Mother of Thousands) Using Bioactive Compounds From *Musa paradisiaca* (Plantain) and *Psidium guajava* (Guava)

<https://isef.net/project/197002>

Adriana Sofia Lebron, 16, Junior, Radians School, Cayey, Puerto Rico, T: Carla Caceres

TMED041 Exploring Disparities in Pediatric Cancer Outcomes Among Hispanic Children in Puerto Rico

<https://isef.net/project/197007>

Delimar Colon-Burgos, 16, Junior, Radians School, Cayey, Puerto Rico, T: Carla Caceres

Carolina, Puerto Rico, TEPR12, Puerto Rico Metropolitan Science Fair

BCHM018 Synthesis and Biological Evaluation of Benzoylferrocene as an Anti-Cancer and Antioxidant Agent

<https://isef.net/project/197021>

Ricardo Antonio Rovira - Denton, 17, Junior, Colegio San Ignacio de Loyola, San Juan, Puerto Rico, T: Maria Ortiz

BMED053 Phytochemical Intervention for Neuroinflammation: Quercetin in Modulating Macrophage Dynamics at the Blood-Brain Barrier

<https://isef.net/project/196056>

Lorena Pachiaridi, 15, Sophomore, Cupeyville School, San Juan, Puerto Rico, T: Keishla Crespo

CELLO25 A Tale of Two Cities: eIF4G1 and eIF4G2's Mechanisms in Translation Initiation

<https://isef.net/project/196055>

Siona A. Pramoda, 16, Junior, Baldwin School of Puerto Rico, Guaynabo, Bayamón, Puerto Rico, T: Zacha Ortiz

EBED028 IoT-Based Multi-Sensor Disaster Prevention System With Real-Time Local and Remote Alerts via SMS and Web Dashboard

<https://isef.net/project/196057>

Luis Carlos Collazo, 14, Freshman, Colegio San Ignacio de Loyola, San Juan, Puerto Rico, T: Maria Ortiz

ENBM035T Revolutionizing Eye Care: AI-Assisted Detection of Choroidal Melanoma

<https://isef.net/project/196058>

Normarie Martinez-Flores, 17, Senior, Adriana Marie Garcia-Antuna, 18, Senior, Escuela Secundaria Especializada en Ciencias, Matematicas y Tecnologia, Caguas, Puerto Rico, T: Jose Molina Vazquez

ENBM075 Ultra-Low-Cost, Integrated Sensor, Markerless, Comprehensive 3D Measurement of Spatiotemporal Gait Parameters

<https://isef.net/project/196054>

Shanti Rajeshwari Isaac, 17, Junior, Baldwin School of Puerto Rico, Guaynabo, Bayamón, Puerto Rico, T: Zacha Ortiz

ENEVO46 WasteMeter: AI-Driven Route Optimization in Waste Management for Pollution Prevention

<https://isef.net/project/196059>

Alvaro Daniel Villafuerte - Gonzalez, 16, Sophomore, Colegio San Ignacio de Loyola, San Juan, Puerto Rico, T: Laura Rosado

MATS033T EcoReishiFlex: An Innovative Sustainable Biodegradable Plastic Alternative Made From *Ganoderma lucidum* (Reishi Fungi) Polysaccharides

<https://isef.net/project/197022>

Kamila Zoe Rotger - Costas, 17, Junior, Miranda Sanz - Alvarez, 16, Junior, Colegio Rosa-Bell, Guaynabo, Puerto Rico, T: Yajaira Torres De Jesus

SOFT027T A-TACT App: Alzheimer's Tracking, Assistance, Communication and Technology Support for Caregivers

<https://isef.net/project/196064>

Mikael Camacho Casiano, 16, Sophomore, Mateo Camacho Casiano, 16, Sophomore, Colegio Rosa-Bell, Guaynabo, Puerto Rico, T: Yajaira Torres De Jesus

FINALIST DIRECTORY

Mayaguez, Puerto Rico, TEPR10, SESO Regional Science Fair

TMED007 **A Platform to Test the Therapeutic Impact of p53 Restoration**

<https://isef.net/project/192059>

Valentina Socorro Muniz, 15, Sophomore, Southwestern Educational Society, Mayaguez, Puerto Rico, T: Melissa Segarra

QATAR

Doha, Qatar, QAT001, The National Student Research Fair

BEHA009 **Social Media's Impact on University Students' Mental Health: An AI Prediction Model**

<https://isef.net/project/192207>

Aya Elgosrani, 18, Senior, Al-Kawthar Secondary School for Girls, Alwaab, Alwaab, Qatar, T: Besma Eddhay

BMED016T **Possible Role of VEGF-B/VEGF-A Relationship in Ischemic Coronary Artery Disease**

<https://isef.net/project/192205>

Omar Ali Awad, 15, Junior, Faisal Abdulla Al-Muhannadi, 16, Junior, Jassim Bin Hamad Secondary School, Doha, Qatar, T: Sheriff El Serwy

EBED012T **Drone-enabled H2S Gas Leak Detection With Geofencing for Enhanced Worker Safety**

<https://isef.net/project/192282>

Nawaf Alammari, 18, Senior, Khalid Alsulaiti, 18, Senior, Qatar Science and Technology Secondary School for Boys, Doha, Ain Khalid, Qatar, T: Iyad Salameh

ENEVO20T **Production of Super-Absorbent Material From Polystyrene Wastes for Qatari Soil Improvement**

<https://isef.net/project/192554>

Bashar Ali Albaadani, 18, Senior, Abdulmohsen Alathbah, 17, Senior, Ashahanyia Preparatory and Secondary School for Boys, Ashahanyia, Qatar, T: Atia Mahmoud

ENEVO23T **AquaCare: A Real-Time Drinking Water Quality Monitoring System to Reduce Contamination Compared to Traditional Periodic Testing Methods**

<https://isef.net/project/192703>

Omar Alemadi, 17, Senior, Jassim Essa Al-Shamiri, 17, Senior, Qatar Science and Technology Secondary School for Boys, Doha, Ain Khalid, Qatar, T: Ahmad Tubishat

ENEVO58T **Recycling Construction Waste Along With Some Treated Polymer Waste to Produce Water and Heat Insulating Materials Used in Roofs**

<https://isef.net/project/198033>

Bashar Shaar, 18, Senior, Ali Abdulaziz Al-Mahmoud, 16, Junior, Tariq Bin Ziyad Independent Secondary School, Doha, Qatar, T: Shady Bakr

MATS009 **Silver Nanoparticle Hydrogels: Optimizing and Stabilizing Silver Nanoparticles for Potential Industrial and Commercial Use**

<https://isef.net/project/192208>

Abdulla Khalifa Al-Abdulla, 17, Senior, Qatar Science and Technology Secondary School for Boys, Doha, Ain Khalid, Qatar, T: Suleman Miah

MCRO013T **Development and Evaluation of a Novel Smart Automated System for Chromogenic Bacterial Detection in Water Samples**

<https://isef.net/project/192283>

Fahad Al-Tamimi, 17, Senior, Ali Hamad Al Hamadi, 17, Senior, Qatar Science and Technology Secondary School for Boys, Doha, Ain Khalid, Qatar, T: Ahmed Faris

REPUBLIC OF MOLDOVA

Chisinau, Republic of Moldova, MDA001, Moldova Science and Engineering Fair

EBED020 **Echo-Feather: A Controlled Acoustic Levitation Platform for Electronics Manufacturing**

<https://isef.net/project/193797>

Anton Bulancea, 18, Junior, Liceul Teoretic Orizont, Chisinau, mun. Chisinau, Republic of Moldova, T: Fatih Seren

ENEVO35T **Water Surface Remediation Using Liquid Marbles Formed by Self-Assembled ZnO Micro-Nanostructures**

<https://isef.net/project/193798>

Ruslan Gaitur, 18, Senior, Laurentiu Palii, 18, Senior, Liceul Academie de Stiinte a Moldovei, Aristotle Republican Theoretical Lyceum, MD-2028, Chisinau, Republic of Moldova, T: Tudor Braniste

ROMANIA

Suceava, Romania, ROM001, Romania Science and Engineering Fair

ENBM003T Study of Irreversible Electroporation of Potato Tissue by EIS Spectroscopic Analysis With the Aim of Optimizing Pulse Protocol Testing Methods for Cancer Treatment
<https://isef.net/project/190840>

Maria-Karina Ionita, 19, Senior, Albert-Octavian Lupu, 18, Junior, Mihai-Bogdan Ciocarlan, 17, Junior, Colegiul National Mihai Viteazul, Bucharest, Romania, International Computer High School of Bucharest, Bucharest, Romania, T: Pericle Varasteanu

ENEVO15 Experimental Station for Monitoring Climatic Activities and the Electromagnetic Field Using Oml Multi-Gaussian Model

<https://isef.net/project/192055>

Bogdan Alex Bora, 16, Freshman, National College Emil Racovita, Cluj-Napoca, Cluj, Romania, T: Gabriel Teodorescu

ETSD004T Completely Autonomous UAV Capable of Detecting Anti-Personnel Land Mines With Minimal Radar Interception

<https://isef.net/project/190866>

Filip Buscu#, 18, Senior, Luca Stefan Nicolae, 18, Junior, International Computer High School of Bucharest, Bucharest, Romania, T: Alexandru Peticaru

MCRO006 A Model for Studying Mycobacterial Nutrient Uptake

<https://isef.net/project/191575>

Iris Stefania Ionescu, 18, Junior, Colegiul National Zinca Golescu, Pitesti, Arges, Romania, T: Catalin Bunduc

TECA002 RestART: An AI-Driven Restoration System for High-Fidelity in Artwork Revival Across Multiple Surfaces, Damage Types, and Eras Through Metadata-Enriched, Style-Conscious, Explainable and Interactive Artist Approaches

<https://isef.net/project/191679>

Andrei Baci, 17, Junior, Informatics Liceum Grigore C. Moisil, Iasi, Romania, T: Mirela Tibu

SAUDI ARABIA

Riyadh, Saudi Arabia, SAU001, Mawhiba Science & Engineering Fair

BCHM036 A Novel Synergistic Approach: Combining AMOX Antibiotic or Kigelia Extracts With AgZn NPs as a Potent and Efficient Strategy to Combat Antibiotic-Resistant Bacteria
<https://isef.net/project/198786>

Rand Ibrahim Almahboob, 18, Senior, Alkifah Academy, Al Hufuf, Eastern Province, Ahsaa, Saudi Arabia, T: Reda Hammad

BEHA053 3D Printing Hollow Micro-Needle Patches for Caring Terminal Cancer

<https://isef.net/project/198323>

Hala Alshehri, 17, Senior, Alhussan International School- Riyadh, Riyadh, Saudi Arabia, T: Raed Felimba

CBIO065 Targeting the HSP90AA1-MCM6 Complex in Angiogenesis in Diabetic Breast Cancer Patients

<https://isef.net/project/198206>

Talal Fahad Alsahly, 17, Senior, Trbyh Namouthajiyah Schools, Riyadh, Saudi Arabia, T: Ahmed Alhishom

CBIO066 AI-Driven Predictive Modeling and Therapeutic Optimization for Respiratory Diseases
<https://isef.net/project/198219>

AlJawharah Saud Alqahtanai, 17, Junior, Misk Schools, Riyadh, Saudi Arabia, T: Mohammed Alkhalifah

CELLO41 Withaferin A Inhibits the Pro-Inflammatory Effect of Active Breast Adipocytes
<https://isef.net/project/198181>

Lina Sattam Almutairi, 17, Senior, Al Rowad International School, Riyadh, Saudi Arabia, T: Huda Alkhalaf

CELLO42 Using Bee Venom and Natural Nanoparticles as an Effective Treatment for PFOS and PFOA Induced Carcinogenesis

<https://isef.net/project/198201>

Juan Rayan Hindi, 16, Junior, Dar Alfikr Schools, Jeddah, Makkah, Saudi Arabia, T: Rawiah Hafiz

FINALIST DIRECTORY

- CHEM030** **Metal-Organic Framework-Derived Cobalt Photothermal Catalysts for Sustainable CO₂ Conversion**
<https://isef.net/project/198184>
 Fahad Rayan Alhendi, 18, Senior, Al Faris International School, Riyadh, Saudi Arabia,
 T: Anastasiya Bavykina
- CHEM031** **Highly Selective Carbon Nanosheets Decorated With Ag-Cu Nano Alloys for Enhanced Electrochemical CO₂ Reduction to C2 Products**
<https://isef.net/project/198186>
 Raghad Yasser Alshaikh, 17, Senior, AlBassam Schools, Dammam, Saudi Arabia,
 T: Mona Alghamdi
- CHEM032** **Atomically-Precise Cu Nanoclusters to Electrochemically Reduce CO₂ Into Valuable Chemicals**
<https://isef.net/project/198194>
 Mesk Hamad Almutairi, 17, Senior, Fatima Bint Almonthir, Jubail Industrial City, Eastern, Saudi Arabia, T: Osman Bakr
- CHEM041** **Mimicking Rock Chemistry for White Hydrogen Production: A Deep Dive Into Serpentinization Reaction Chemistry and Scalable White Hydrogen Generation**
<https://isef.net/project/198784>
- # Fatima Abdullah Alarfaj, 17, Senior, Alanjal Private School, Al Hofuf, Eastern Province, Saudi Arabia, T: Safyan Khan
- EAEV059** **Integrated System for Simultaneous CO₂ Source Detection and Plume Forecasting Using Doppler Radar and Satellite Imagery**
<https://isef.net/project/198203>
- # Yara Mohammed Albakri, 17, Senior, Andalus International School Ash Shati Girls Section, Jeddah, Makkah, Saudi Arabia, T: Sahar Faznani
- EAEV060** **Using Novel Natural, Eco-Friendly Materials to 3D Print and Mold Coral Skeleton for Coral Reef Restoration**
<https://isef.net/project/198209>
 Abdulaziz Waleed Alharbi, 17, Senior, Ibn Khaldun High School, Yanbu, Madinah, Saudi Arabia, T: Ali Alghamdi
- EAEV061** **Transforming Desert Sand Into Fertile Land Using Amine-Functionalized Diatomite Rocks and CO₂ Adsorption**
<https://isef.net/project/198210>
 Raneem Saeed M. Fenais, 17, Senior, Al Rowad International School, Riyadh, Saudi Arabia, T: Shahid Ali
- EAEV062** **Magnetic Nanowire-Guided Delivery of BMCs to Prevent Coral Bleaching**
<https://isef.net/project/198211>
 Abdullah Mazin Halawani, 17, Senior, Dar Althikr Private School, Jeddah, Mecca, Saudi Arabia, T: Hisham Muhammed
- EBED036** **Metasurface-Based Refractive Index Sensors: Navigating Functional Limits**
<https://isef.net/project/198196>
 Zainab Abdulghaffar Al-Mutawa, 18, Senior, Rowad Alkhaleej International School, Dammam, Eastern Province, Saudi Arabia, T: Hassna Alomari
- EBED037** **Intelligent Laser-Based Sensor in the Mid-Infrared Region for Precise Trace Detection of Benzene**
<https://isef.net/project/198197>
 Sama Ahmed Bukhamsin, 17, Senior, Dhahran Ahliyya School, Dammam, Eastern Province, Saudi Arabia, T: Mohamed Sy
- EGSD036** **Developing a Hydrazine Seawater-Based Hydrogen Production System Using a Highly Efficient Pd-Ni(OH)₂ Catalyst**
<https://isef.net/project/198182>
 Imran Omar Alturkistani, 16, Junior, Misk Schools, Riyadh, Saudi Arabia,
 T: Saeed Alzahrani
- EGSD037** **Synergistic HI and Ag Doping Strategies for Efficient Lead-Free Perovskites in Indoor Photovoltaics**
<https://isef.net/project/198190>
 Jomanah Talal Belal, 16, Junior, Al-Hussan Modern National School for Girls–Al-Jubail, Al Jubail Industrial City, Eastern Province, Saudi Arabia, T: Seham Al-Mutairi

FINALIST DIRECTORY

- EGSD038 Hydrogen Safety Through Advanced Gas Chromic Coatings for Leak Detection in Next-Generation Storage and Transportation Infrastructure**
<https://isef.net/project/198207>
 Mariam Abdulaziz Almohaish, 17, Senior, Alkifah Academy, Al Hufuf, Eastern Province, Ahsaa, Saudi Arabia, T: Reda Hammad
- EGSD039 Boosting Aluminum-Air Battery Performance Through Nano-Based Additives**
<https://isef.net/project/198208>
 Jamal Mohammed Al Logmani, 18, Senior, King Fahd University of Petroleum and Minerals (KFUPM) Boys High School, Dhahran, Eastern Province, Saudi Arabia, T: Ime Obot
- EGSD042 Sustainable Self-Charging Aqueous Zinc-Ion Battery Using CaVO Nanostructures Prepared From Recycled Mortar**
<https://isef.net/project/198322>
 Hanin Mohammed Alhassan, 17, Senior, Alkifah Academy, Al Hufuf, Eastern Province, Ahsaa, Saudi Arabia, T: Reda Hammad
- ENBM058 Metabolic Engineering of Cyanobacteria for Efficient Production of Carotenoids**
<https://isef.net/project/198183>
 Abdulraouf Mohammed Zahran, 17, Senior, Dar Althikr Private School, Jeddah, Mecca, Saudi Arabia, T: Hisham Hussain
- ENBM059 A Novel Spintronics-based Circulating Tumor Cell Biosensor for Early Metastasis Detection**
<https://isef.net/project/198191>
 Mahmood Mazin Shafi, 17, Senior, Advanced Generations International School–Boys, Jeddah, Makkah, Saudi Arabia, T: Muhammad Channa
- ENEV063 Selective Formic Acid Dehydrogenation Under Neat Conditions With Ruthenium-Hydrazine Carboxamide Catalysts**
<https://isef.net/project/198192>
- # Saleh Abdulaziz Alangari, 17, Senior, Riyadh School for Boys and Girls, Riyadh, Saudi Arabia, T: Shoaib Asif
- ENEV064 Innovative Application of Low GWP Refrigerants in Hydrate-Based Water Desalination**
<https://isef.net/project/198195>
 Jewan Mohammed Shabi, 18, Senior, Ibn Roshd International School Jazan, Jazan, Saudi Arabia, T: Asmaa Maadi
- ENEV065 Integrated Direct Air Capture and Conversion Using Porous Organic Polymers for Efficient and Scalable Carbon Utilization**
<https://isef.net/project/198212>
 Lamyaa Abdulaziz Al-Nofie, 17, Senior, Alandalus Private Schools, Taif, Makkah Province, Saudi Arabia, T: Ahmed Ahmed
- ENEV066 Novel Contact Liquid for Energy-Efficient, Cost-Effective and Scalable Cryogenic Carbon Capture**
<https://isef.net/project/198213>
- # Areej Abdullah Alqarni, 16, Senior, Al-Batool International School, Mecca, Makkah, Saudi Arabia, T: Walaa Mohammed
- ENEV068 Kinetic Modelling, Life Cycle Assessments, and Cetane Number Analysis of Alcohol-to-Jet Fuel to Reduce CO₂ Emissions**
<https://isef.net/project/198218>
 Jude Bander Asiri, 17, Senior, Riyadh School for Boys and Girls, Riyadh, Saudi Arabia, T: Basem Eraqi
- ETSD047 Femtosecond Laser Nanostructuring of ITO for Improved Light Harvesting in Optoelectronic Devices**
<https://isef.net/project/198185>
 Meshary Bader Altheibany, 16, Junior, Misk Schools, Riyadh, Saudi Arabia, T: Saeed Alzahrani
- MATS045 Zero-Carbon Emission Iron Production Using Non-Thermal Rotating Gliding Arc Hydrogen Plasma**
<https://isef.net/project/198188>
 Hatem Hussain Alkaka, 18, Senior, Dhahran Ahliyya Schools, Dhahran, Eastern Province, Saudi Arabia, T: Ali AlEid

FINALIST DIRECTORY

- MATS046** **Development of an Innovative Anti-dust Acrylic/SiO₂ Coating for Improved Solar Cell Efficiency**
<https://isef.net/project/198198>
Abdulrahman Hesham Alghannam, 17, Junior, King Fahd University of Petroleum and Minerals (KFUPM) Boys High School, Dhahran, Eastern Province, Saudi Arabia, T: Murad Hindi
- MATS047** **Development of a Bifunctional Desiccant Polymeric Nanofiber Membrane Based on CAU-10 MOF for Efficient Water Harvesting**
<https://isef.net/project/198200>
Sarah Abdullah Alabbad, 17, Senior, Alkifah Academy, Al Hufuf, Eastern Province, Ahsaa, Saudi Arabia, T: Reda Hammad Alnajjar
- MATS048** **Development of a Cost-effective Graphene-Based Terahertz Transceiver for Ultrafast Indoor Communication**
<https://isef.net/project/198204>
Jood Raed Alduhaileb, 17, Senior, Rowad Alkhaleej International School, Dammam, Eastern Province, Saudi Arabia, T: Hassna Alomari
- MATS051** **All-In-One Infrared Imaging: Colloidal Quantum Dot Pixel Mosaics for Enhanced Multi-Band Infrared Photodetectors**
<https://isef.net/project/198243>
- ##** Abeer Ali Alyousef, 18, Senior, Dohat Alibdaa International Schools, Alahsa, Eastern Province, Saudi Arabia, T: Osman Bakr
- PLNT042** **Combining Ethephon and SL Analogs for Suicidal Germination of *Striga hermonthica***
<https://isef.net/project/198193>
Ghala Majed AlGhamdi, 17, Senior, Manarat Al Riyadh International School, Riyadh, Saudi Arabia, T: Salim Al-Babili
- PLNT043** **Production of Antimicrobial Peptides in *Nicotiana benthamiana* Plants for Efficient Treatments**
<https://isef.net/project/198214>
Fatmah Faisal Almutabagani, 18, Senior, Riyadh School for Boys and Girls, Riyadh, Saudi Arabia, T: Nesreen Bukhari
- ROBO059** **4D Printing of Gripper Using Optimized Liquid Crystal Elastomer Actuators for Prosthetic Manufacturing**
<https://isef.net/project/198199>
Eman Thamer Almazyad, 17, Senior, Almotaqadimah International Schools, Sakaka, Aljouf, Saudi Arabia, T: Nazek Elatab
- TMED060** **AUF1 Down-Regulation Potentiates Chemo-Sensitisation of Osteosarcoma Cells**
<https://isef.net/project/198187>
Tameem Ibrahim Khan, 15, Sophomore, Rowad High School, Jubail Industrial City, Eastern Province, Saudi Arabia, T: Abdullah Almasoud
- TMED061** **Utilizing FDM 3D Printing to Fabricate Biodegradable PCL-Dexamethasone Implants for DME**
<https://isef.net/project/198202>
Lana Yahya Nouri, 17, Junior, Al Zikr Schools, Jeddah, Makkah, Saudi Arabia, T: Amani Otaini
- TMED062** **Transcriptome Approach to Reveal Novel Prognostic Biomarkers for Thyroid Cancer**
<https://isef.net/project/198205>
Salman A. Alshehri, 18, Senior, Al Rowad International School, Riyadh, Saudi Arabia, T: Fawaz Alkhaledi

SINGAPORE

- Singapore, Singapore, SGP001, Singapore Science and Engineering Fair**
- ANIM032** **Birds of a Feather: Novel Plumage Colour Analysis for Subspecies Assessment of Chestnut-Winged Babbler Species Complex**
<https://isef.net/project/195675>
Shen Han Teo, 18, Senior, River Valley High School, Singapore, Singapore, Singapore, T: Shi Yun Lau

FINALIST DIRECTORY

- EBED024** **Think, Generate, Optimize: Presenting a Novel Fully AI-Driven Design Framework for Metasurface Lenses**
<https://isef.net/project/195676>
 Dhanvine Rameshkumar, 17, Senior, Temasek Junior College, Singapore, Singapore,
 T: Jee Pheng Wong
- MATH023** **Make24: Elegant Elementary Bounds for a Numbers Game**
<https://isef.net/project/195677>
 Liqian Ying, 15, Sophomore, NUS High School of Mathematics & Science, Singapore,
 Singapore, T: Ming Huang Chai
- MATS025** **LuminaSand: Harnessing the Optoelectronic Potential of Silicon Dioxide With Focused Laser Beam**
<https://isef.net/project/195678>
 #
 Georia Ang, 18, Senior, Hwa Chong Institution, Singapore, Singapore,
 T: Erkan Polatdemir
- ROBO030T** **Great Minds Think Alike, Great Models Think All at Once: MAESTRO, A Unified Framework for Video-Audio Understanding & Reasoning**
<https://isef.net/project/195679>
 Amy Low, 18, Senior, Felicia Tan, 17, Senior, Raffles Institution, Singapore, Singapore,
 T: Zhiying Lee
- SOFT021T** **LiDRNet: Lightweight Inertial Dead Reckoning Network**
<https://isef.net/project/195680>
 Zerui Wang, 18, Senior, Kwok Xin Ze Vincent, 17, Senior, NUS High School of Mathematics & Science, Singapore, Singapore, T: Julien Maury T: Chiam Sher-Yi

SLOVAKIA

- Bratislava, Slovakia, SVK002, AMAVET-Slovak Association for Youth, Science & Technology**
- CHEM005** **Novel Design and Total Synthesis of Aza-C-Nucleosides From Furfuryl Alcohol, the Key to Fighting RNA Viral Diseases**
<https://isef.net/project/192288>
 Adam Kovalcik, 19, Senior, Gymnazium Nove Zamky, Nove Zamky, Nitra, Slovakia,
 T: Adriana Imreova
- ENEV007** **New Wastewater Purification Strategy: Graphitic Carbon Nitride and Low-Temperature Plasma**
<https://isef.net/project/191154>
 Anna Podmanicka, 19, Junior, Gymnazium Jura Hronca, Bratislava, Slovakia,
 T: Alena Faixova

SOUTH AFRICA

- Johannesburg, South Africa, ZAF001, Expo for Young Scientists – South Africa**
- ANIM007** **Investigating the Infection Rates of Hector's Lantern Fish (*Lampanyctodes hectoris*) by the Copepod Parasite (*Cardiodectes bellotti*) and the Implications for Population Dynamics**
<https://isef.net/project/192307>
 Salusiwe Mxayiya, 17, Senior, Luhlaza Secondary School, Cape Town, Western Cope,
 South Africa, T: Zizipho Mdikasi
- EBED013** **Design and Evaluation of Walk-Man: A Wearable Assistive Device for Enhanced Navigation in Individuals With Visual Impairment**
<https://isef.net/project/192306>
 Ismaail Hassen, 17, Junior, Greenside High School, Johannesburg, Gauteng, South Africa,
 T: Sibusiso Masombuka
- MATH010** **On a Conjecture About a Recursive Prime Generating Sequence**
<https://isef.net/project/192295>
 Binyameen Mohamedy, 18, Senior, UJ Academy Maths, Science & ICT School of Specialisation, Crosby, Johannesburg, South Africa, T: Margaret Moshome

FINALIST DIRECTORY

- PLNT010** **Design of a Low-Cost *in situ* Gas Exchange System for CO₂ Assimilation and Photosynthesis Measurements**
<https://isef.net/project/192305>
Naveera Amish Chana, 14, Freshman, Tesseract Homeschool, Johannesburg, Gauteng, South Africa, T: Amish Chana

SOUTH KOREA

Daegu, South Korea, KOR001, Korea Code Fair

- EBED030T** **FEELUX: Style Transfer-Based Ferrofluid Tactile Touchscreen for the Visually Impaired**
<https://isef.net/project/197559>
Yongseok Kwon, 17, Senior, Yul Kim, 17, Senior, Seoul Science High School, Seoul, South Korea, T: Na Young Lee
- EBED031T** **BrAID: A Portable Device for Real-Time Text Recognition and Braille Output for the Visually Impaired and Individuals With Dual Sensory Impairment**
<https://isef.net/project/197560>
Minjoo Lee, 17, Sophomore, Minseo Park, 16, Junior, Korean Minjok Leadership Academy, Hoengseong, Gangwon, South Korea, T: Jeongsoo Kim
- SOFT030** **Enhancing Pedestrian Safety Through AI-Powered Smart Traffic Systems: Developing Smarter Roads for Safer Walks**
<https://isef.net/project/197205>
Yunha Lee, 17, Junior, Taejon Christian International School, Yuseong-gu, Daejeon, South Korea, T: Cameron McKenzie
- SOFT036** **WearWise: Empowering Visually Impaired Individuals in Clothing Management Through Integrated System of Deep Learning and Large Multimodal Model**
<https://isef.net/project/197490>
Karen Kim, 15, Freshman, Saint Paul Preparatory Seoul, Seocho, Seoul, South Korea, T: HeeJung Choi
- SOFT043** **BlueScript: An Open-Source Solution for Dyslexia Treatment**
<https://isef.net/project/197914>
Jaewoong Suh, 19, Senior, Korea International School, Jeju Campus, Seogwipo-si, Jeju-do, South Korea, T: Park Segeun
- SOFT044T** **HandNBrain: A Hand Gesture Recognition Based Game Design for Elder's Cognitive Improvement**
<https://isef.net/project/197915>
Juyoung Park, 15, Freshman, Mugeon Jung, 15, Sophomore, Minjun Kim, 16, Freshman, Arnold O. Beckman High School, Irvine, California, Osan High School, Seoul, Yongsan-gu, South Korea, Saint Paul Preparatory Seoul, Seocho, Seoul, South Korea, T: Johnny Gonzalez T: Pilsang Kim T: Minsuk Shim
- Cheonan-si, South Korea, KOR003, Korea Science Fair**
- ANIM033T** **A Morphological and Mechanical Analysis of the Diving and Floating Methods in a Backswimmer**
<https://isef.net/project/195783>
Heewon Seo, 17, Senior, Juha Hong, 17, Senior, Sejong Academy of Science and Arts, Sejong, Chungcheong, South Korea, T: MyeongHee Kim
- CHEM021** **Manufacture and Application of Solid Bactericide Using AgNPs-Sa Film and NaCl**
<https://isef.net/project/195778>
Rachel Choi, 17, Sophomore, Gangnam International School, Seoul, Gangnam, South Korea, T: Esther Snedeker
- EAEO35T** **One Cent Is Enough: Novel Cost-Effective and Eco-Friendly Heavy Metal Detection Method**
<https://isef.net/project/195723>
Seungbeom Cho, 16, Junior, Grace Lee, 18, Junior, Korean Minjok Leadership Academy, Hoengseong, Gangwon, Chadwick International School, Incheon, South Korea, T: Wonhyeong Jang

FINALIST DIRECTORY

- EBED027T** **A Novel Magnetic Field-Based UAV Detection System Through Electromagnetic Signal Analysis of Drone Motors: A Technical Countermeasure for the Russia-Ukraine Conflict**
<https://isef.net/project/195776>
 Kyungjin Shin, 16, Senior, Junseop Shin, 19, Senior, Korea Science Academy of KAIST, Busan, South Korea, T: KyungTae Kim
- ENEVO38T** **A New Paradigm for Anionic Water Pollutant Adsorption: High Entropy LDHs**
<https://isef.net/project/193817>
 Jiyeong Jeong, 17, Senior, One Choi, 18, Junior, Bokyoung Joo, 16, Senior, Korea Science Academy of KAIST, Busan, South Korea, T: Hojin Ryu
- ETSD026T** **Thermal and Acoustic Characterization of Hybrid Triply Periodic Minimal Surface Structures**
<https://isef.net/project/195774>
 Hui Seo Shin, 17, Senior, Junwoo Shin, 17, Senior, Yonggeon In, 17, Senior, Incheon Academy of Science and Arts, Incheon, South Korea, T: Eun Jeong Choi
- MATH025T** **Prime Factorization of Linear Combination of Factorials**
<https://isef.net/project/195784>
 Soul Lee, 17, Sophomore, Seungjun Lee, 15, Sophomore, Seoul Science High School, Seoul, South Korea, T: Heonju Shin, T: Seungchul Lee
- MCRO035T** **Revealing Efficient Oil-Degrading Microbes and Uncharacterized Strains From Oil-Contaminated Soil for Bioremediation**
<https://isef.net/project/195777>
 Dongho Park, 17, Senior, Jaehee Lee, 17, Senior, Sejong Academy of Science and Arts, Sejong, Chungcheong, South Korea, T: Jieun Lee
- MCRO036T** **The SIMPSONS Project: Screening and Induction of Microbial Probiotics for Sweetener-Optimized Novel Strain**
<https://isef.net/project/195780>
 Jihoo Ahn, 18, Senior, Hyunwoo Jung, 18, Senior, Sejong Academy of Science and Arts, Sejong, Chungcheong, South Korea, T: Sangsook Lee
- PHYS036T** **An Experimental Refutation Against the Retrocausality Interpretation of the DCQE**
<https://isef.net/project/195775>
 Gaon Moon, 18, Senior, Gyumin Kim, 18, Senior, Hyon Shin, 18, Senior, Korea Science Academy of KAIST, Busan, South Korea, T: Zae-Young Ghim
- PHYS037T** **Shape Estimation Through Lightcurve Analysis and Exploration Orbit Design by Reinforcement Learning for 1777 Gehrels**
<https://isef.net/project/195782>
 Jiho Yun, 16, Junior, Kangmin Kim, 16, Junior, Incheon Science High School, Incheon, South Korea, T: Nanyoung Byun
- SOFT025** **MLLIF : Automating Cross-Language Interoperability With MLIR and LLVM**
<https://isef.net/project/195724>
 Yeong Won Seo, 17, Senior, Korea Digital Media High School, Ansan-si, South Korea, T: Seong Ok Ma
- SOFT026T** **Product Review Summarization and Chatbot Service Based on LangChain for Consumers**
<https://isef.net/project/195781>
 Taegun Park, 16, Junior, Joonsub Kim, 16, Junior, Wan Lee, 17, Junior, Chungnam Science High School, Gongju Si, Chungcheongnamdo, South Korea, T: Yonggu Cho
- SOFT028** **Enhancing Economic Event Prediction Through Time-Ordered Data Augmentation and Time Series Image Analysis With Convolutional Neural Networks**
<https://isef.net/project/196799>
 Seokmin Kim, 17, Junior, Cheongshim International Academy, Seoul, South Korea, T: Minkyung Kim
- Seoul, South Korea, KOR002, YSC (National Science Research Competition)**
- CBIO068T** **Competitive qTMDD: Exact Formula of Total Quasi-Steady State Approximation in Competitive Target-Mediated Drug Disposition**
<https://isef.net/project/198236>
 Jaeyun Cha, 18, Senior, Taehong Kim, 17, Senior, Korea Science Academy of KAIST, Busan, South Korea, T: Jae Kyoung Kim

FINALIST DIRECTORY

- MATS050T** **Functionalized Nanoporous Silica for Highly Selective Sensing of Metal Ion in Water**
<https://isef.net/project/198234>
 Seohyun Moon, 16, Junior, Eun Choi, 16, Junior, Minkyung Kim, 16, Junior, Busan Il Science High School, Busan, South Korea, T: Seongsu Park
- MATS055T** **Hemostatic Application of Powdered Decellularized Extracellular Matrix From Porcine Liver**
<https://isef.net/project/198553>
 Park Chanwoo, 17, Senior, Yoon Chan-Young, 18, Senior, Sejong Science High School, Seoul, South Korea, T: Hee Joung Kang
- PHYS064T** **Development of a Deep Learning-Based Grad-Shafranov Equation Solver and Verification Using Explainable Artificial Intelligence**
<https://isef.net/project/198237>
 Raehwan Kim, 17, Senior, Jiyun Kim, 18, Senior, Woohyun Kwon, 18, Senior, Korea Science Academy of KAIST, Busan, South Korea, T: Teyoun Kang
- SOFT050T** **A Geographic Information-Based Cycling Tourism App for Active Seniors**
<https://isef.net/project/198235>
 Sungmin Choi, 17, Senior, Geonmin Kim, 18, Senior, Seunggi Seo, 17, Senior, Daejeon Daeshin High School, Daejeon, Daejeon, South Korea, T: Jinsu Ha

SPAIN

- Barcelona, Spain, SPN001, Exporecerca Jove**
- CBIO077** **Advancing Alzheimer's Diagnosis With AH_Ad: A Classification Model Based on MRI Images**
<https://isef.net/project/199073>
 Marc Jordan de la Cruz, 17, Senior, Escola Virolai, Barcelona, Catalonia, Spain, T: Sandra Entrena Ortega
- TMED081** **New Frontiers in Therapy: Liposomes as a Tool for Safer and More Precise Medicine**
<https://isef.net/project/199034>
 Bruna Clara Fernandez, 17, Senior, Instituto Público Moianés, Moià, Barcelona, Spain, T: Marta Puig Abad

SRI LANKA

- Kesbewa, Sri Lanka, LKA001, Sri Lanka Science & Engineering Fair**
- EBED003** **Really Autonomous Irrigation Network**
<https://isef.net/project/191162>
 Ramiru Thehan Wijayasiriwardhane, 16, Junior, Ananda College, Colombo, Western, Sri Lanka, T: Tharanga Dunuarachchi
- PLNT003** **Study on the Efficacy of *Mikania micrantha* Extracts Incorporated With Nano Clay as a Pest Controlling Method Against Aphids**
<https://isef.net/project/191163>
 Anusara Yasanda Bandara Weerakoon, 19, Senior, Dharmaraja College, Kandy, Central Province, Sri Lanka, T: Thilini Wijesundara
- TECA003** **Lion Roleplay: The Most Optimized Fivem Server**
<https://isef.net/project/191839>
 Piladuwa Mahabogaha Wattage Dasindu Sithmira, 14, Sophomore, Sivali Central College, Ratnapura, Sabaragamuwa, Sri Lanka, T: Upeka Wanigasekara

SWEDEN

- Stockholm, Sweden, SWE001, Utställningen Unga Forskare**
- MATH039T** **Generation of Phi-4 Feynman Graphs Through a Recursive Algorithm**
<https://isef.net/project/198701>
 Kasper Carl Havre Vilde Johansson, 18, Senior, Klara Ingrid Marie Bragesjö Björken, 19, Senior, Pro Civitas Privata Gymnasium Helsingborg, Helsingborg, P A Fogelströms High School, Stockholm, Sweden, T: Alessandro Pirrello
- PHYS070** **Determining the Classification of SN 2022rze Through Spectral Analysis**
<https://isef.net/project/198702>
 Sofia Karin Elisabeth Nordblom, 18, Senior, Hvitfeldtska High School, Gothenburg, Västra Götaland County, Sweden, T: El Ouafi Alami

FINALIST DIRECTORY

- ROBO062** **Deep Learning Methods for Galaxy Morphology Classification**
<https://isef.net/project/198554>
Axel von Essen, 18, Senior, Viktor Rydbergs Gymnasium Odenplan, Stockholm, Sweden,
T: David Hoglund
- TMED073** **Analysing Machine Learning Models to Determine Alzheimer's Disease Using Gut Microbiome**
<https://isef.net/project/198700>
Moumal Al-Juboori, 19, Senior, ProCivitas Privata Gymnasium Malmö, Malmö, Skåne, Sweden, T: Nicole Wagner

SWITZERLAND

Bern, Switzerland, CHE001, Swiss Youth in Science

- MATH030** **Modeling Stock Price Dynamics With Student-t Random Walks: A Segment-Matching Approach for Improved Financial Analysis**
<https://isef.net/project/197462>
Chiara Willimann, 19, Senior, Kantonsschule Sursee, Sursee, Lucerne, Switzerland,
T: Michael Muri
- ROBO056** **Development of an Autonomous Robot Arm System for Playing Ping Pong**
<https://isef.net/project/198153>
Elias Lucas Bauer, 18, Senior, Kollegium St. Fidelis Stans, Stans, Nidwalden, Switzerland,
T: Urs Zellweger
- SOFT054** **A Novel Union-Find-Based Decoding Algorithm for Scalable Real-Time Syndrome Processing in Quantum Error Correction**
<https://isef.net/project/198699>
Tommaso Peduzzi, 19, Senior, Gymnasium Baumlihof, Basel, Basel-Stadt, Switzerland,
T: Tony Thai

THAILAND

Patumwan, Thailand, THA001, SST-NSM National Science Projects Competition

- ANIMO12T** **ColliNest: An Innovation with Integrated Method for the Propagation and Conservation of Subterranean Stingless Bees (*Tetragonilla collina*)**
<https://isef.net/project/192704>
Natchapon Wongsaroj#, 18, Senior, Tanawat Somyapornjarernchai, 18, Senior, Tanakon Sakhun#, 18, Senior, Damrongratsongkroh School, Muangchiangrai, Chiangrai, Thailand,
T: Sutipong Jaikaew
- ANIMO13T** **An Innovative Feed Formula and Suitable Environmental Factors for Efficient Farming of Giant Water Bugs (*Lethocerus indicus*)**
<https://isef.net/project/192705>
Kasidet Srisuk, 16, Sophomore, Pruttachart Khongsawat, 16, Sophomore, Thunvarat Jaturon, 17, Junior, The Demonstration School of Khon Kaen University (Modindaeng), Muang Khonkaen, Khonkaen, Thailand, T: Pratuengsook Maneelum
- ANIMO21** **Bio-Innovative Sponge to Reduce Cannibalism Behavior for Blue Swimming Crab Conservation and Sustainable Coastal Ecosystems**
<https://isef.net/project/193235>
Pisit Arsirawichai, 15, Freshman, Bangkok Christian College, Bangkok, Thailand,
T: Wanida Bhu-lam
- ANIMO22T** **Optimizing Nematode Efficiency for Precision Pest Biocontrol via Conditional Training and Formulation for Enhanced Endurance**
<https://isef.net/project/193236>
Burich Benjarattananon, 15, Sophomore, Paphawin Kongkatitham, 16, Sophomore, Bangkok Christian College, Bangkok, Thailand, T: Chanan Keatsirisart
- CHEM017T** **Photoswitchable Wetting Properties in Bifunctional Metavanadate-Promoted Chitosan/Cassava Biopolymer Films: A Mechanistic Study**
<https://isef.net/project/193780>
Nichaphat Aueng-Aree, 18, Senior, Chayada Wisuttirattanamanee, 18, Senior, Pongpop Sangsawang, 18, Senior, Kamnoetvidya Science Academy, Rayong, Thailand,
T: Yutichai Pradipasena

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- PHYS019T** **Effect of the Intermediate and Magnetic Field on the Relativistic Runaway Electron Avalanche (RREA) and Terrestrial Gamma-Ray Flashes (TGFs)**
<https://isef.net/project/192707>
 Bpoon Prapaso, 18, Senior, Teetham Treelayapewat, 18, Senior, Kamnoetvidya Science Academy, Rayong, Thailand, T: Parinya Sirimachan
- TECA016T** **eiBraille: Systematic Reform of Braille Education With AI and Low-Cost Tactile Technology for an Inclusive, Zero-Discrimination Society**
<https://isef.net/project/193781>
 Siwakorn Suwannahong, 17, Junior, Punnawit Ponnirun, 17, Junior, Sataporn Thanapanyakul, 17, Junior, The Prince Royal's College, Mueang Chiang Mai, Chiang Mai, Thailand, T: Rungkan Wangboon
- TMED017T** **KidneyLifePlus+ : A Chronic Kidney Disease Screening Tool Utilizing a Novel and Specialized AI Model With a Portable Hardware Device for Proactive and Non-Invasive Screening**
<https://isef.net/project/192850>
 Payuphat Boontaokaew, 17, Junior, Chananphat Tacharoenmuang, 19, Senior, Pimlada Patiphatpatawee, 18, Senior, The Prince Royal's College, Mueang Chiang Mai, Chiang Mai, Thailand, T: Krittipong Wachirangkul
- Pathum Thani, Thailand, THA002, Young Scientists Competition**
- ANIM050T** **BeeShield: An Innovative Varroa Mite Protection Tunnel Using Bee Behaviors at the Hive Entrance and Mite Response to Formic Acid**
<https://isef.net/project/198342>
 Kittanon Mueangkaew, 18, Junior, Pannawit Teerananpattana, 16, Junior, Wipharat Thanawong, 18, Junior, Damrongratsongkroh School, Muangchiangrai, Chiangrai, Thailand, T: Kiettisak inrajsadon
- BCHM033T** **A Novel Flow-Based Amine-Conjugated Gold Nanoparticles as a Sensor for Salivary Cortisol Detection**
<https://isef.net/project/198350>
 Chuchoke Simtrakankul, 17, Junior, Kedkamon Hamant, 17, Junior, Chayapa Bangyeekun, 17, Junior, Mahidol Wittayanusorn School, Nakhon Pathom, Thailand, T: Nuchutha Thamsumet
- CHEM034** **Synthesis of Molecular Sensor Based on the Curcumin Dye Extracted From Curcuma longa L. To Detect Long Chain Aldehydes as the Lung Cancer Biomarker**
<https://isef.net/project/198343>
 Thanat Chaimongkon, 17, Junior, Princess Chulabhorn Science High School Chiang Rai, Mueng Chiang Rai, Chiang Rai, Thailand, T: Teerapat Khunjai
- EAEV065T** **Effect of Angular Variation in Detached Breakwater Structure on the Coastal Morphology**
<https://isef.net/project/198344>
 Anon Lucklertkul, 17, Junior, Subsirirach Maharatanawong, 16, Junior, Kamnoetvidya Science Academy, Rayong, Thailand, T: Parinya Sirimachan
- PHYS065T** **iSUM: Investigation of 3D Physical and Computational Models of Self-Uprighting Behavior in Pill Millipedes**
<https://isef.net/project/198340>
 Pimpandao Putharukkit, 16, Junior, Thampisut Premsingchai, 17, Junior, Kamnoetvidya Science Academy, Rayong, Thailand, T: Kanasanun Phonrat
- TMED066T** **Healaria: Development of Herbal-Based Nanoparticles With Regenerative Effects on Dugesia japonica Planaria for Wound Healing Applications as a Basis for Innovative Wound Dressing**
<https://isef.net/project/198351>
 Panisa Sawangsuriya, 17, Junior, Krittayot Thaisuriyan, 17, Junior, Prach Amphon, 17, Junior, Mahidol Wittayanusorn School, Nakhon Pathom, Thailand, T: Supanan Sucharit

TUNISIA

Moknine, Tunisia, TUN002, Tunisian Science and Engineering Fair

ROBO070 **GENE-X: A Dual-Transformer AI Model for Enhanced Gene Expression Prediction From Chromatin Accessibility Data**

<https://isef.net/project/199026>

Mohamed Tekari, 18, Junior, Lycee Pilote Monastir, Monastir, Tunisia, T: Meriem Bzeouich

ROBO073 **Improving the Self Confidence Level Using Artificial Intelligence**

<https://isef.net/project/199197>

Wassim Nasraoui, 17, Junior, Lycee Privee des Elites 2, Sousse, Tunisia, T: Mokhtar Saad

TURKEY

Ankara, Turkey, TUR002, Tubitak Fair

BMED004T **Developing Serum Protein Biosensors for Tumor Monitoring in Thyroid Carcinoma**

<https://isef.net/project/190828>

Melek Ceyda Bozan, 18, Junior, Aytunc Orencik, 18, Senior, Sehit Prof. Dr. Ilhan Varank Bilim ve Sanat Merkezi, Balikesir, Karesi, Turkey, T: Pinar Sabaz

CELLO01T **Deciphering Glioblastoma Multiforme Mechanisms Using an HRASV12-Expressing Transgenic Zebrafish Model and Microglia Interactions**

<https://isef.net/project/190723>

Utkan Ceylan, 18, Junior, Zeynep Ilay Topcu, 17, Junior, Deniz Berk, 16, Sophomore, Izmir Ozel Ege Lisesi, Izmir, Turkey, T: Yasemin Boncuk Yavuz

CELLO03 **Investigation of Potential Anti-Cancer Impacts of Coffee Bean-Derived Exosomes Through Anti-Proliferative and Apoptosis Inducing Effects on Melanoma Skin Cancer Cells via Mitogen-Activated Protein Kinase Signaling Pathway**

<https://isef.net/project/190824>

Ela Doruk Korkmaz, 16, Sophomore, Hisar School, Istanbul, Turkey,

T: Benan Temizci Imanc

CELLO04T **Promising Epitranscriptomic Targets for Novel Breast Cancer Therapies: The Effects of TRAIL on m6A RNA Modification**

<https://isef.net/project/190826>

Selin Kocaturk, 17, Sophomore, Zeynep Duru Demir, 17, Senior, Takev Anadolu ve Fen Lisesi, Izmir, Turkey, T: Can Arat

CHEM002T **Simultaneous Separation of Microplastic and Oil-Water Mixtures With HDTMS Modified Magnetite Coated Surfaces**

<https://isef.net/project/190720>

Ece Guner, 18, Senior, Kevser Gunes, 18, Junior, Berat Buyukbakkal, 16, Sophomore, Gaziantep Private Sanko College, Gaziantep, Turkey, T: Ceren Akcay

CHEM004 **Real-Time Wound Monitoring and Bioactive Healing Accelerator via Intelligent Biosensor Bandage: Carbon Dot Embedded Novel Grape Marc Hydrogel**

<https://isef.net/project/192058>

Reyyan Cifci, 19, Junior, Kartal Anadolu Imam Hatip High School, Istanbul, Kartal, Turkey, T: Pinar Dundar

EGSD002T **Synthesis of Borophene and Determination of Its Hydrogen Storage Capacity Using QCM for Potential Applications in the Automotive Industry**

<https://isef.net/project/190718>

Asya Guven, 18, Junior, Azra Demircioglu, 15, Sophomore, Namik Karamanci Science High School, Manavgat, Antalya, Turkey, T: Savas Guler

ENBM001 **DeepTherapy: A Mobile Platform for Osteoarthritis Rehabilitation Utilizing Chain-of-Thought Reasoning and Deep Learning**

<https://isef.net/project/190715>

Muhammed Ferit Avci, 17, Junior, Bursa Halil Inalcik Bilim ve Sanat Merkezi, Nilufer, Turkey, T: Hakan Ozkaynak

ENEVO02 **Degradation of Polyethylene Terephthalate (PET) With New Thermoalkaliphilic Recombinant Esterase Enzyme: Free and Immobilized on Chitosan-Halloysite Beads**

<https://isef.net/project/190714>

Can Hoskal, 17, Freshman, Izmir Atatürk High School, Izmir, Turkey, T: Zerrin Hepsogutlu

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- ENEV003T** **Water Heater Design That Heats and Sends Cold Water Back After Vacuuming**
<https://isef.net/project/190721>
Hasan Huseyin Bagci, 16, Freshman, Yusuf Enes Gultekin, 18, Senior, Muhammed Emre Dalakli, 16, Sophomore, Yilmaz Kayalar Fen Liesesi, Erbaa/Tokat, Tokat, Turkey, T: Ahmet Arpacı
- MATH001** **Evaluation of Difficult Integrals Through an Equation Involving Fractional Derivatives**
<https://isef.net/project/190716>
Ilhami Aslansoy, 19, Senior, Tarsus American College, Mersin, Tarsus, Turkey, T: Ahmet Sinanmis
- MATH002** **The Smallest Regular (n+1)-gon That Covers a Regular n-gon With Constant Side Length and Shares a Vertex With It**
<https://isef.net/project/190717>
Fatih Eker, 18, Junior, Besiktas Bilim Ve Sanat Merkezi, Besiktas, Istanbul, Turkey, T: Yasemin Bakacak
- MATS002** **Innovation From Nature: Production of Antibacterial, Antifungal, and pH-Sensitive Smart Nano-Enhanced Smart Food Bio-Packing From Hazelnut Husk, Licorice Root, and Onion Peel**
<https://isef.net/project/190713>
Elif Berra Demir, 17, Sophomore, Tubitak Science High School, Kocaeli, Turkey, T: Selin Sagdic
- MCRO002T** **Selection and Investigation of Inhibitors Targeting the LuxN Protein of Vibrio harveyi Through Molecular Docking**
<https://isef.net/project/190724>
Cagla Sirin, 17, Junior, Aliberk Sandikci, 18, Senior, Izmir Fen Lisesi, Izmir, Bornova, Turkey, T: Hakan Eryuva

UKRAINE

Kyiv, Ukraine, UKR001, Eco-TechnoUkraine

- ANIM019** **Universal Protection for Insects From the Harm of Artificial Lighting due to Positive Phototaxis**
<https://isef.net/project/193004>
Volodymyr Yeromin, 16, Sophomore, Lyceum "Monomax", Brovary, Kyiv region, Ukraine, T: Julia Rozenblit
- BEHA016** **Memory Board: An Eidetic Neuro-Training Complex With Digital Integration for Cognitive Development**
<https://isef.net/project/193003>
Iryna Korynevskaya, 16, Sophomore, Boryspil Academic Lyceum, Boryspil, Kyiv, Ukraine, T: Hanna Nestiuk
- EGSD013** **Power Systems Protection With AI-Based Stability Enhancement in Emergency Situations**
<https://isef.net/project/193002>
Tymofii Meshkov, 17, Junior, Municipal institution "Kharkiv Lyceum No. 55 of the Kharkiv City Council", Kharkiv, Kharkiv Oblast, Ukraine, T: Oleksandr Gurko
- ENEV031** **Hydro Link Smart-Fusion: Autonomous Water Purification Modularity System With ML-Optimized Adaptive Decontamination**
<https://isef.net/project/193005>
Danylo Termitya, 16, Sophomore, Lyceum "GRAND", Kyiv, Ukraine, Ukraine, T: Pavlo Hysevuk
- SOFT017** **Media Service With Optimized Multi-Level Approach to Video Streaming**
<https://isef.net/project/193001>
Dmytro Hryshchuk, 17, Junior, Lyceum #21 of Zhytomyr City, Zhytomyr, Zhytomyrska Oblast, Ukraine, T: Svitlana Postova

UNITED ARAB EMIRATES

- Dubai, United Arab Emirates, ARE003, National Science Technology and Innovation (NSTI) Festival**
- BEHA013** Towards Blue Zones: A Statistical Diagnosis and Prognosis of the Blue Zone Indicators in the UAE
<https://isef.net/project/192299>
 Noora Khalid Alshehhi, 16, Junior, Dubai National School - Al Barsha, Dubai, United Arab Emirates, T: Nafissa El Jabban
- CHEM026** Double-Extended Reticular Framework via Localized Covalent Cross-Linking in a Mercaptoaldehyde-Based Metal-Organic Framework for Redox-Modulated Electrochemical Carbon Dioxide Reduction to Ethylene
<https://isef.net/project/197461>
- #** Saif Hassan Karam, 17, Senior, RQ Science & Technology, University City, Sharjah, United Arab Emirates, T: Ayat Al Nimer
- ENBM014** A ML Based, Noninvasive Method to Monitor White Blood Cells Count Pre and Post Chemotherapy Sessions
<https://isef.net/project/192680>
 Zahraa Mohammed Alessa, 17, Senior, Emirates Science Club, Dubai, United Arab Emirates, T: Ashraf Senbel

UNITED STATES OF AMERICA

ALABAMA

- Montgomery, USAL01, Greater East Alabama Regional Science and Engineering Fair**
- CBIO038** Computational Prediction of Nonabine as a Novel Cannabinoid Receptor Subtype 2 Selective Agonist
<https://isef.net/project/196987>
 Rhea Arya, 18, Senior, Loveless Academic Magnet Program High School, Montgomery, Alabama, T: Phalanda Johnson
- CELLO29** Dynamic Modulation of Axonal Trafficking of Synaptic Vesicles in Activity Dependent Presynaptic Function
<https://isef.net/project/196999>
 Mira Menon, 16, Sophomore, Loveless Academic Magnet Program High School, Montgomery, Alabama, T: Michael Gramlich
- PHYS043** Estimating the Bohr Magneton Using the Einstein-De Haas Effect
<https://isef.net/project/196988>
- #** John Willis Parsons, 18, Senior, Auburn High School, Auburn, Alabama, T: Jacque Middleton
- Birmingham, USAL02, Central Alabama Regional Science and Engineering Fair**
- CBIO008** Using Explainable AI in Immunohistochemistry Cell Images for Cancer Diagnosis
<https://isef.net/project/192555>
 Harini Chakilam, 17, Senior, Alabama School of Fine Arts, Birmingham, Alabama, T: Hungsin Chin
- CELLO30** Transcriptomics and Immunoinformatics Analyses Reveal Midkine as a Promising Therapeutic Target in Pancreatic Ductal Adenocarcinoma
<https://isef.net/project/197020>
 Tuan Minh Tran, 17, Junior, Indian Springs School, Indian Springs, Alabama, T: Tessa Magnuson
- MATS012** Developing Emulsion Additives to Optimize Rheological Behavior in Non-Aqueous Magnetorheological Smart Fluids
<https://isef.net/project/192708>
- #** Ashu Anand, 17, Senior, Alabama School of Fine Arts, Birmingham, Alabama, T: Hungsin Chin

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- MATS013** **Sustainable UV-Curable Monomers Derived From Glycerol for 3D Printing Applications**
<https://isef.net/project/192709>
Sophia B. Guo, 17, Junior, Alabama School of Fine Arts, Birmingham, Alabama,
T: Hungsin Chin
- Huntsville, USAL03, North Alabama Regional Science and Engineering Fair**
- CHEM013** **Testing a Novel Water Purification Method: Synthesis and Iron Modification of Zeolitic Imidazolate Frameworks for the Adsorption of Hexavalent Chromium**
<https://isef.net/project/192896>
Urvi Mysore, 18, Senior, James Clemens High School, Madison, Alabama,
T: Shelby Treadway
- TMED026** **A Low-Cost Portable Electrography Monitoring System for Rapid Diagnosis of Coagulopathy**
<https://isef.net/project/193383>
Nikita Prabhakar, 15, Freshman, Bob Jones High School, Madison, Alabama,
T: Jessye Gaines
- Mobile, USAL04, Mobile Regional Science Fair**
- ANIM010** **Generating RNAi Pesticides to Specifically Target Invasive Species: A Case Study Examining Feasibility in the Red Fire Ant (*Solenopsis invicta*)**
<https://isef.net/project/192556>
- # Madeline Rose Borchert, 17, Junior, The Alabama School of Math and Science, Mobile, Alabama, T: Asia Frey
- Auburn, USAL50, Alabama Science and Engineering Fair**
- CHEM029** **Quantum Theory Prediction of Anionic Metal Oxide Catalyst Efficiency for Methane-to-Methanol Conversion**
<https://isef.net/project/198156>
Daniel Ferreira Pacheco, 17, Junior, Alabama School of Mathematics and Science, Mobile, Alabama, T: Asia Frey
- ENBM066** **A CRISPR Knockout Screen Systematically Identifies Critical Epigenetic Barriers in Direct Cardiac Reprogramming**
<https://isef.net/project/198526>
William Gao Peng, 18, Senior, Alabama School of Fine Arts, Birmingham, Alabama,
T: Hungsin Chin
- ETSD055T** **Drone-Based Aerial Thermal Imaging: Novel Failure Detection Algorithms for Power Line Maintenance Utilizing Fiber Optic Communication**
<https://isef.net/project/199075>
Tianjun Xu, 17, Junior, Justin Yoon, 18, Senior, Northridge High School, Tuscaloosa, Alabama, T: Morgan Bishop
- ALASKA**
- Anchorage, USAK50, Alaska Science and Engineering Fair**
- MATS067** **A Novel Faraday Cup: Designing, Printing, and Testing a Conductive Plastic Faraday Cup**
<https://isef.net/project/199148>
Pauline Xu, 16, Junior, Fairbanks B.E.S.T Homeschool, Fairbanks, Alaska,
T: Queztal Larrick
- ARIZONA**
- Sierra Vista, USAZ02, SSVEC's Youth Engineering and Science Fair**
- ENBM021T** **Effortless Palate Expanders**
<https://isef.net/project/193387>
Landon Bryce Martinez, 16, Junior, Asher John Lanzendorfer, 17, Senior, Joseph Krainer Schaaaf, 18, Senior, Buena High School, Sierra Vista, Arizona, T: Amy Martinez
- ENBM024T** **Body Linked Interface Navigational Device**
<https://isef.net/project/193785>
Robert Allan Little, 18, Senior, Aisun Jayden Edmunds, 17, Junior, Buena High School, Sierra Vista, Arizona, T: Amy Martinez

FINALIST DIRECTORY

Tucson, USAZ03, Southern Arizona Research, Science and Engineering Fair

- CELLO14** **Investigating the Role of Ctr2 During Acute and Latent Stages of *Toxoplasma gondii***
<https://isef.net/project/193245>
 Nishita Karikatti, 17, Senior, BASIS Oro Valley, Oro Valley, Arizona, T: Adrienne Fluit
- ENEV032T** **Engineering of a Solar-Powered Water Desalination Prototype Integrated With Graphene-Based Membrane for Efficient Salt Removal**
<https://isef.net/project/193096>
 Angel Miguel Lopez, 15, Sophomore, Ruben Alberto Nunez Mendez, 18, Sophomore, Harvest Preparatory Academy, Yuma, Arizona, T: Alfred Santos
- MATS017T** **Eco-Pads: Engineering Sustainable Sanitary Pads Integrated With Jamaica Dyed Banana Fiber That Monitor Feminine Reproductive Health**
<https://isef.net/project/193070>
 Carmen Juliette Avery Martinez, 17, Senior, Mercedes Giselle Castro, 18, Senior, Harvest Preparatory Academy, Yuma, Arizona, T: Alfred Santos
- MCRO027** **Formulation and Evaluation of Antibacterial Ointments Infused With Traditional Plants: Extractos de Yerba de Manso, Canela, y Hojas de Arbol de Naranja**
<https://isef.net/project/193244>
- # Estefany Valenzuela Regalado, 17, Junior, Harvest Preparatory Academy, Yuma, Arizona, T: Alfred Santos
- MCRO030T** **Engineering of a Delivery Truck System Integrated With Acoustic Wave Technology for *E. coli* Inhibition in Romaine Lettuce**
<https://isef.net/project/193832>
- # Diana Paula Navarro Ruiz#, 18, Senior, Diane Sofia Ladino#, 17, Senior, Harvest Preparatory Academy, Yuma, Arizona, T: Alfred Santos
- PHYS027** **The Influence of Magnetic Fields on Atmospheric Escape From Exoplanets**
<https://isef.net/project/193099>
 Tesla Lukow, 17, Senior, BASIS Tucson North, Tucson, Arizona, T: Robert Lee
- PLNT019T** **Pest Busters! Evaluation of the Pest Repelling Biodegradable Weed Barrier: Year 3 Study**
<https://isef.net/project/193071>
- # Michael Tristan Castro#, 18, Senior, Humberto Gil Villalobos#, 17, Senior, Harvest Preparatory Academy, Yuma, Arizona, T: Alfred Santos
- ROBO021** **FallPoint: Fall Detection With 4D mmWave Radar Using PointNet and a Recurrent Neural Network**
<https://isef.net/project/192924>
 Louis Liu, 16, Junior, University High School, Tucson, Arizona, T: Kevin Nieves Pichardo

Phoenix, USAZ50, Arizona Science and Engineering Fair

- ANIMO45** **A Systematic Investigation Into the Efficacy of *Withania somnifera* on Mitigating Alzheimer's Disease Pathology: A *Drosophila melanogaster* Model**
<https://isef.net/project/197887>
 Shireen Arora, 15, Freshman, BASIS Chandler, Chandler, Arizona, T: Matthew Cole
- BEHA054** **Neural Correlations of Sleep Behavior and Olfactory Learning in *Apis mellifera***
<https://isef.net/project/198327>
 Benny Peng, 17, Junior, ASU SCENE, Tempe, Arizona, T: Nathan Newman
- BMED073** **Affordable Nanoparticle-Based Diagnostic Device for Rapid and Precise Detection of Pandemic-Causing Diseases**
<https://isef.net/project/198326>
 Alexander Ferdous Rahman, 14, Freshman, Hamilton High School, Chandler, Arizona, T: Debbie Nipar
- CBIO058** **Modeling Bird Flu Mutation Patterns and Cross-Species Transmission Using Sequence Analysis and a Novel Contrastive Learning and Influence-Tree Graph Attention Network (CLIGAT)**
<https://isef.net/project/197885>
- ## Aditya Lakshminarasimhan, 18, Senior, BASIS Scottsdale, Scottsdale, Arizona, T: Ryan Carey
- EAEV058** **A Novel Method of Predicting Ocean pCO₂ Using a Polynomial Model**
<https://isef.net/project/198158>
 Claire Zhan, 15, Sophomore, Hamilton High School, Chandler, Arizona, T: Deborah Nipar

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- ENBM061** **A Novel Brain-Driven Forearm Exoskeleton With Adaptive Neuroregulation-Based Feedback for Subacute and Chronic Stroke Rehabilitation**
<https://isef.net/project/198325>
 # Brad Wu, 16, Junior, Arizona College Prep High School, Chandler, Arizona,
 T: Megan Larsen
- ENEV071T** **Bast Fiber and Novel Hydrogel Integration for Sustainable Postpartum Care**
<https://isef.net/project/198328>
 Joanna Thomas, 16, Junior, Reese Bermeo, 17, Senior, Aarna Patel, 18, Senior, Arizona College Prep High School, Chandler, Arizona, T: Megan Larsen
- ETSD040** **D.I.C.E - Dynamic Interlocking Cube-Drones Engineered With IR Tracking**
<https://isef.net/project/197843>
 ## Yuvan Senthil, 18, Senior, BASIS Peoria, Peoria, Arizona, T: Pallavi Payal
- MATH036T** **Solving Variable-Entangled Partial Differential Equations (PDEs) via Atomic Tensor Decomposition and Gated Expert Neural Networks: A Multi-Expansion Framework for Accurate and Adaptive PDE Approximation**
<https://isef.net/project/198220>
 Tejas Dhulipalla, 16, Junior, Maatank Parashar, 16, Junior, Paradise Valley High School, Phoenix, Arizona, T: Pamela Fulk
- MATS043** **Developing a Rapid, Colorimetric Metal Organic Framework (MOF) for Airborne Silica and Uranium Detection: A Novel Approach to Pollutant Monitoring and Health Risk Assessment in Indigenous Communities for Sjogren's Syndrome**
<https://isef.net/project/198105>
 # Siyaa R. Poddar, 16, Junior, Arizona College Prep High School, Chandler, Arizona,
 T: Megan Larsen
- PHYS061** **Acoustic Focusing With Gases**
<https://isef.net/project/197893>
 Mikolas Alexander Schwickert, 16, Sophomore, ASU Prep Digital, Tempe, Arizona,
 T: Brooke Toon
- PLNT041** **Photogene Fusion: Enhancing Photosynthesis Through Agrobacterium-Mediated Delivery of the 3S5 Ruby Plasmid for Sustainable Carbon Capture**
<https://isef.net/project/198159>
 Venkat Yarlagadda, 16, Sophomore, Arizona College Prep High School, Chandler, Arizona, T: Megan Larsen
- ROBO052T** **THETA: Triangulated Hand-State Estimation for Teleoperation and Automation in Robotic Hand Control**
<https://isef.net/project/197888>
 Alex Huang, 18, Senior, Akshay Karthik, 16, Junior, ASU SCENE, Tempe, Arizona,
 T: Jiefeng Sun
- TMED056** **A Novel Machine Learning Method and Drug for the Diagnosis and Treatment of Depression**
<https://isef.net/project/197886>
 Ananya Lakkaraju, 16, Sophomore, Hamilton High School, Chandler, Arizona,
 T: Deborah Nipar
- TMED063T** **BreathInSight: Multi-Sensor Lung Health Analyzer for Early Detection of Respiratory Conditions**
<https://isef.net/project/198215>
 Amay Annasamudram, 15, Sophomore, Vihaan B. Patel, 17, Junior, Ankit Annasamudram, 17, Senior, Arizona College Prep High School, Chandler, Arizona, T: Megan Larsen

ARKANSAS

- Little Rock, USAR01, Ouachita Mountains Regional Science & Engineering Fair**
PLNT036 **Impact of Continuous Fertilization on Growth and Protein Content of Soybeans**
<https://isef.net/project/197510>
 Thomas Avery Gilliland, 15, Freshman, Benton High School, Benton, Arkansas,
 T: Greg Wertenberger

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- Fayetteville, USAR03, Northwest Arkansas Regional Science and Engineering Fair**
EGSD020T A Scalable Semi-Submersible Platform Utilizing Wave Energy Conversion and Shared Mooring for Floating Offshore Wind Turbine Farms (FOWT)
<https://isef.net/project/195864>
 # Xavier Christopher Herzig#, 18, Senior, Jack Snell, 18, Senior, Alma High School, Alma, Arkansas, T: Jeana Parker
- MATS030 Investigating Light Propagation Dynamics in Curved Fiber Optic Cables**
<https://isef.net/project/195860>
 Bethany Kinley Bowlin, 14, Freshman, Alma High School, Alma, Arkansas, T: Jerry Kelley
- TMED071T OralScan: A Multi-Stage Multi-Modal Architecture for Early Diagnosis of Oral Cancer and Potentially Malignant Disorders via Intra-Oral Images Captured on a Mobile App**
<https://isef.net/project/195859>
 Veera Sai Joshik Unnam, 16, Junior, Ronak Pai, 17, Senior, Bentonville West High School, Centerton, Arkansas, T: Clint Holderby
- State University, USAR04, Northeast Arkansas Regional Science Fair**
BEHA029 Assessing Gender Differences in the Attribution of Certain Mental Disorders to Certain Gender Identities
<https://isef.net/project/195866>
 # Abigail Mae Province, 18, Senior, Salem High School, Salem, Arkansas, T: Katie Southard
- PLNT028 Do pH Levels Affect Pea Plant Growth?**
<https://isef.net/project/195865>
 Adrian Scout Priest, 15, Freshman, Riverside High School, Lake City, Arkansas, T: Jeremy Lamb
- Little Rock, USAR05, Central Arkansas Regional Science and Engineering Fair**
BEHA020 Frog-in-Maze: A Remote Monitoring and Intraoperative Tool for Detecting Motor Dysfunction in Parkinson's Disease
<https://isef.net/project/193783>
 Amrita Choudhary, 17, Junior, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley
- CBIO031 Computational Approach to Identify Potential Inhibitory Molecule Against Bacterial Enzyme**
<https://isef.net/project/195867>
 Hari Mohan Singh, 17, Sophomore, Little Rock Central High School, Little Rock, Arkansas, T: Lee Conrad
- CELLO24 Interactions of Kidney Function Related Genes and Proteins With Anticancer Drugs and Strategies To Mitigate Their Adverse Effects**
<https://isef.net/project/195849>
 Mithun Reddy Nelluru, 16, Sophomore, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley
- EAEV028 Using Machine Learning Techniques to Forecast Major Earthquake Probabilities Along the San Andreas Fault System After a 100-Year Drought**
<https://isef.net/project/193796>
 Fatimah Yousaf, 18, Senior, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley
- PLNT023 SoyCast: A Climate-Driven Deep Neural Network to Forecast County-Level Soybean Yields and Identify Environmentally Optimal Planting Regions**
<https://isef.net/project/193784>
 # Bennet Chen, 16, Sophomore, Little Rock Central High School, Little Rock, Arkansas, T: Lee Conrad
- Monticello, USAR06, Southeast Arkansas Regional Science Fair**
SOFT059T SENTRY: Semi-Supervised Efficiency-First Threat Recognition System
<https://isef.net/project/199149>
 # Humam Al-Shami#, 17, Senior, Mohammed Alroobi, 16, Sophomore, Arkansas Connections Academy, Bentonville, Arkansas, T: Ahmad Al-Shami

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Hot Springs, USAR07, West Central Regional Science Fair

ANIM015T Niche Modeling of Herpetofauna in Hot Springs National Park

<https://isef.net/project/192737>

Kolten Shook, 17, Senior, Lukas Brian Bowler, 18, Senior, Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas, T: Allyn Dodd

CELL010 Discovering Characteristics of DNA Helicase B: A Promising Target for Cancer Therapy

<https://isef.net/project/192686>

Carmella Lewis, 18, Senior, Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas, T: Whitney Holden

MCRO017 Prevalence of Spotted Fever Group Rickettsia and *Borrelia* spp. in Ticks in Hot Springs Arkansas

<https://isef.net/project/192684>

Avagail Christine Dunning, 17, Senior, Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas, T: Lindsey Waddell

Conway, USAR50, Arkansas State Science Fair

CBIO062 Early Detection of Critical Salmonellosis Cases for Pre-Emptive Treatment via Novel Biomarkers Discovered Through Protein Domain Analysis and Machine Learning

<https://isef.net/project/198104>

Aakash Bhattacharyya, 17, Junior, Little Rock Central High School, Little Rock, Arkansas, T: Lee Conrad

ENBM081T An Investigation Into the Ideal Impeller for a 3D-Printed Ventricular Assist Device

<https://isef.net/project/199027>

Saloni Choudhary, 15, Sophomore, Margaret Jiabao Qin, 15, Sophomore, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley

ETSD046 Development and Testing of Novel Hybrid Airfoil Designs for Enhanced Low-Speed Lift and Efficiency

<https://isef.net/project/198157>

Yogi Patel, 15, Freshman, Little Rock Central High School, Little Rock, Arkansas, T: Lee Conrad

MATH038 Pólya's Enumeration Theorem Applied to Cubic Unit Cells

<https://isef.net/project/198583>

Anna Le, 16, Junior, Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas, T: Burth Hollandsworth

MATS056 Mechanical Properties of PETG vs. PHBHHx in Clear Aligner Application

<https://isef.net/project/198555>

Miranda May Lee, 17, Junior, Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas, T: Brian Monson

MCRO058T Evaluating the Efficiency of CRISPR/Cas9-Mediated Homology-Directed Repair in *Schizosaccharomyces pombe*

<https://isef.net/project/199029>

Akshara Chevireddy, 17, Junior, Nyera Ali, 17, Junior, Pulaski Academy, Little Rock, Arkansas, T: Melissa Hopkins T: Melissa Hopkins

CALIFORNIA

Trabuco Canyon, USCA01, Orange County Science and Engineering Fair

BCHM015 Peroxynitrite Biochemical Signaling Regulates miR21 Activation of NLRP3 Inflammasome and Is Key to PCOS Severity

<https://isef.net/project/196065>

Annika Chatterjee, 16, Sophomore, University High School, Irvine, California, T: Valerie Thompson

EBED032 An AI-Driven Thermodynamics Based IOT Sensor Network for the Ultra-Early Detection of Wildfires Without Line of Sight View of Fire

<https://isef.net/project/197700>

Ryan Honary, 17, Junior, Newport Harbor High School, Newport Beach, California, T: Alma Di Giorgio

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- MATS037** **Design and Characterization of Novel Imatinib-Loaded Nanoparticles for Localized Immunomodulation**
<https://isef.net/project/197701>
 Nathan Kang, 18, Senior, Northwood High School, Irvine, California, T: Michelle Vela
- SOFT033** **A Novel Framework for PDF-Based Stegomalware Detection Using Kolmogorov Complexity**
<https://isef.net/project/197465>
 # Sebastian Rae Alexis, 16, Junior, Northwood High School, Irvine, California, T: Gabrielle Kim-E
- South Pasadena, USCA02, Los Angeles County Science and Engineering Fair**
- ENEV055** **Pioneering Ultrafine Particle Prevention Technology in Internal Combustion Engine Vehicles— Investigating the Pressure Release Valve**
<https://isef.net/project/197704>
 Neil Xuan Hu, 17, Junior, Temple City High School, Temple City, California, T: Jeannie Martinez
- PHYS056** **ASTEKS: The First End-to-End Auto-Detection Survey for Single-Transit Exoplanets in Known Systems**
<https://isef.net/project/197702>
 Zichen Wei, 16, Junior, Webb School of California, Claremont, California, T: Lisa Nacionales
- Fresno, USCA03, Fresno County Science Fair**
- CHEM023** **'Slushie' Filtration: A Green Method for Limiting Waste Generation During the Microscale Synthesis of Analgesics**
<https://isef.net/project/197003>
 Olaf Stanislaw Muchalski, 16, Junior, Clovis West, Fresno, California, T: Kassandra Messick
- ENEV051** **Urban and Rural Fire Disasters: Engineering and Testing of Novel Alg/Cs/BET 'Beads for the Rapid Abatement of Post-Fire Waterborne Pollutants**
<https://isef.net/project/197235>
 Julianne Luna, 15, Sophomore, Sanger High School, Sanger, California, T: Davin Aalto
- PLNT031** **Quantification of Crop Water Requirement Using Soil Moisture Based Nonlinear Autoregressive Exogenous (NARX) Machine Learning Model**
<https://isef.net/project/197223>
 Kinnoree Rabeya Pasha, 15, Sophomore, Clovis North High School, Fresno, California, T: Kay Barrie
- TMED040** **Development of a Novel Multi-Functional Non-Synthetic UV Filter to Prevent Erythema, Support Tissue Repair, and Minimize Environmental Toxicity**
<https://isef.net/project/196995>
 # Isabelle Ann Luna, 17, Senior, Sanger High School, Sanger, California, T: Davin Aalto
- Bonita, USCA05, Greater San Diego Science and Engineering Fair**
- BEHA023T** **Optimizing Academic Burnout Mitigation: Statistical Modeling of Emotional Intelligence as a Protective Factor in Adolescents**
<https://isef.net/project/193846>
 Hannah Im, 16, Junior, Nupur Bhalla, 17, Junior, Del Norte High School, San Diego, California, T: Jay Cheskaty
- BMED034** **A Novel Treatment Approach to Mitigate Adverse Cardiovascular Effects of Burn Pit Exposure**
<https://isef.net/project/193246>
 Anirudh Kalyanaraman, 18, Senior, Mt. Carmel High School, San Diego, California, T: Karen Wytmsans
- BMED041** **Uncovering Molecular Mechanisms for Treatment of Congenital Heart Defects Through High-Content Genetic Perturbation Screens**
<https://isef.net/project/193841>
 # Saanvi Dogra, 17, Junior, Del Norte High School, San Diego, California, T: Andrea Callicott
- BMED042** **Identifying Bacteriophages, Nature's Own Secret Weapon Against Antibiotic Resistant Bacteria, for Achromobacter Treatment**
<https://isef.net/project/193843>
 Lilian Zeng, 17, Junior, Del Norte High School, San Diego, California, T: Alaina Skelley

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- CBIO033** **Small Changes, Big Impact: miRNAs in Lung Cancer Detection**
<https://isef.net/project/195874>
 Tarik Ahmet Oguz, 17, Junior, Del Norte High School, San Diego, California,
 T: Juli Cheskaty
- ENBM033** **Wearable Stethoscope Array for Cardiopulmonary Sound Localization and Interference Suppression Using Beamforming**
<https://isef.net/project/195875>
 Kayley Xu, 15, Sophomore, The Bishop's School, La Jolla, California, T: Marcus Jaiclin
- PHYS034** **Lost in the Stars: Chemical Tagging of the Magellanic Clouds and Accreted Populations**
<https://isef.net/project/193844>
 Joe Francisco Smith, 17, Senior, Stanford Online High School, Redwood City, California,
 T: Veronica Sandoval
- ROBO033** **Symmetry-Preserving Variational Autoencoder and Latent Space Rectified Flow Diffusion for Accelerated Materials Discovery With Geometric Graph Neural Networks and Integrated Property Network Multi-Layer Perceptron**
<https://isef.net/project/195710>
 Ryan Rezaei, 17, Junior, Canyon Crest Academy, San Diego, California, T: Dvora Celniker
- Palo Alto, USCA07, Synopsys Silicon Valley Science and Technology Championship presented by the Santa Clara Valley Science and Engineering Fair Association**
- BEHA033T** **STRIDE: A Real-Time Gait Tracking System for Early Parkinson's Disease Assessment Using Spatiotemporal Analysis of Ground Reaction Forces**
<https://isef.net/project/197209>
- ##** Andrew Liang, 18, Senior, Rithik Vir, 17, Junior, Ethan Liang, 16, Sophomore,
 The Harker School, San Jose, California, Cupertino High School, Cupertino, California,
 T: Daniel Stavits
- CBIO027** **A Novel Method to Optimize CAR T-Cell Therapy by Targeting CD25+ T-Cell Malignancies Through Bispecific Aptamer-Mediated ScFv Engagement**
<https://isef.net/project/195715>
 Ishaan Reddy Mandala, 16, Junior, Silver Creek High School, San Jose, California,
 T: Bich Nguyen
- CBIO040** **Leveraging a Context-Aware Graph Neural Network for Drug Target Discovery in Alzheimer's Disease**
<https://isef.net/project/197215>
 Anya Chauhan, 17, Junior, Los Gatos High School, Los Gatos, California,
 T: Cathy Messenger
- CBIO041** **Non-Invasive Blood-Based Early Alzheimer's Detection Using Sex-Specific Brain-Blood Graph Reinforcement Learning**
<https://isef.net/project/197217>
 Claire Xu, 16, Sophomore, The Harker School, San Jose, California, T: Zane Moore
- EBED041** **Direct Pulse-Density-Modulated Bitstream Operators for Efficient Beamforming With Large Sensor Arrays**
<https://isef.net/project/197284>
- #** Armaan Christopher Gomes, 17, Senior, Homestead High School, Cupertino, California,
 T: Kathleen Shreve
- ENBM042** **AI-Driven Soft Artificial Muscle for Cardiac Assist Using Hydraulically Amplified Self-Healing Electrostatic Actuators**
<https://isef.net/project/197211>
 Evan Zhang, 16, Junior, The Harker School, San Jose, California, T: Matthew Harley
- ENBM043** **Personalized Cloud-Based sEMG-to-Haptic System to Enable Long-Distance Communication for Usher Syndrome**
<https://isef.net/project/197225>
 Kaavya Tatavarty, 16, Junior, Henry M. Gunn High School, Palo Alto, California,
 T: Joshua Paley
- MATH027** **A Theoretical Correction for the Properties of NK Fitness Landscapes and Extension of the Model to K Random Interactions**
<https://isef.net/project/197229>
 Dale Liu, 16, Sophomore, Lynbrook High School, San Jose, California, T: Lester Leung

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MATS034	Chemical Modification and Synthesis of a Polysiloxane Composite for Enhanced Performance in Dielectric Elastomer Transducers https://isef.net/project/197221 Hao Gu, 18, Senior, Lynbrook High School, San Jose, California, T: Thanh Nguyen
TMED042	OncoNote: Enabling the Discovery of a Novel Digital Biomarker for Early Pan-Cancer Survival and Recurrence Prediction via Free-Text Clinical Narratives https://isef.net/project/197231 # Vrishank Chandrasekhar, 18, Senior, Lynbrook High School, San Jose, California, T: Kenneth Iams
Walnut Creek, ENBM041	USCA08, Contra Costa County Science and Engineering Fair Development of Gelatin-Based Biodegradable Thin Films for Controlled Sustained Release of Montelipid Mediator Analogues https://isef.net/project/197012 Sriyan Krishna Daggubati, 16, Junior, Monte Vista High School, Danville, California, T: Anuran Chatterjee
ROBO040	A Deep Neural Network Method for Steganographic Image Detection https://isef.net/project/197009 Michael Lipeng Macri, 16, Sophomore, De La Salle High School, Concord, California, T: Garrett Padia
TMED086T	MRI Smart: A Novel Multi-Modal Approach to Tumor Detection and Surgical Planning https://isef.net/project/199184 Ashley Yu-ting Sang, 17, Junior, Cynthia Wang, 16, Sophomore, Miramonte High School, Orinda, California, The Harker School, San Jose, California, T: Sharat Gadde T: Anu Datar
Danville, USCA09, Alameda County Science and Engineering Fair	
BMED052	Molecular Arsonists: Degrading Oncogenic Transcription Factors to Reverse Tumor Cell Immortality https://isef.net/project/195927 # Joshua Wu, 17, Junior, Dublin High School, Dublin, California, T: Julianne Sundstrom
CBIO034T	Allosteric Regulation of Ectopically Expressed Olfactory Receptors in Tumor Cells: Ligand-Receptor Topology and Deep Learning-Assisted Drug Discovery https://isef.net/project/195928 Saanvi Gudisay, 16, Junior, Shivansh Bansal, 17, Junior, Dublin High School, Dublin, California, T: Julianne Sundstrom
EAEV057	CryoStrat-RL: A Dynamic Graph-Game Framework for Arctic Conservation Using Reinforcement Learning https://isef.net/project/197939 Ryka C. Chopra, 17, Junior, Mission San Jose High School, Fremont, California, T: Rajesh Chopra
ENEV048	FabAgent: An Agentic Optimization Framework for the Design of Sustainable Fabric Blends Using Large Language Models and Evolutionary Algorithms https://isef.net/project/196985 Anusha Narayan, 15, Sophomore, The Nueva School, San Mateo, California, T: Francine Farouz
ENEV052T	HydroROOT: Hydrogel-Mediated Nutrient Mobilization and Soil Hydration to Counter Desertification https://isef.net/project/197247 Neev Tamboli, 16, Junior, Aksh Parekh, 17, Junior, American High School, Washington High School, Fremont, California, T: May Liu T: Madeleine Ewers
PHYS042	Stellar Tracer https://isef.net/project/196983 Roneet Dhar, 17, Junior, Quarry Lane School, Dublin, California, T: Matthew Hewes
TECA008	Wearable Translator for Bidirectional Communication Between ASL and Speech https://isef.net/project/197428 Alex Zhu, 17, Junior, The Head Royce School, Oakland, California, T: Eugene Vann

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Palos Verdes Estates, USCA10, Palos Verdes Peninsula Unified School District Science and Engineering Fair

- BMED017T** ***Bombyx mori* Antimicrobial Peptides: A Novel and Sustainable Catalyst for Cancer Cell Growth Inhibition and Death**
<https://isef.net/project/192210>
 Kaili Yiqian Tseng, 16, Junior, Leila Veronica Gheysar, 16, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- EAEVO12** **Mathematical Modeling of Salt Marsh Surface Seawater Acidity**
<https://isef.net/project/192209>
 # Lea Segal, 17, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- EGSD001** **A Novel Wireless Charging System for IMDs Using 2.4GHz EM Waves**
<https://isef.net/project/190677>
 ## Anish Anand, 17, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- ENEVO47** **Evaluating the Effect of Zinc Oxide Nanoparticle Treatment on Copper Phytoaccumulation in *Avena sativa***
<https://isef.net/project/192479>
 Matin Gheysar, 15, Sophomore, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- MATS010** **Advancing Kappa-Carrageenan Hydrogels: Novel Exopolysaccharide Integration for Superior Mechanical Properties**
<https://isef.net/project/192289>
 Inu Cho, 17, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- PHYS001** **A Novel Low-Cost Zero Mean-Flow Chamber Design and Physics-Informed Neural Network for Astrophysical and Environmental Turbulence Applications**
<https://isef.net/project/190670>
 # Aiden Kwon, 17, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- ROBO013** **Navigating Parameter Space: Mitigating Catastrophic Forgetting in Continual Learning**
<https://isef.net/project/192480>
 # Henry Zhipeng Huang, 16, Sophomore, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- SOFT007** **SplitSafe: A Novel Adversarial Attack Detection and Mitigation Technique for Artificial Intelligence Image Recognition Systems**
<https://isef.net/project/192223>
 Braden Yian, 15, Freshman, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Mark Greenberg
- Santa Cruz, USCA11, Santa Cruz County Science and Engineering Fair**
- EAEVO41** **Nature-Based Erosion Prevention Field Data and Modeling of Drag Force on Giant Kelp Under Winter Swell**
<https://isef.net/project/197466>
 # Hazel Harmony Campbell, 16, Junior, Pacific Collegiate School, Santa Cruz, California, T: Bill Koens
- ENBM037** **Developing an Adjustable Transtibial Prosthetic To Accommodate for Pediatric Lower Limb Loss in Under Resourced Areas**
<https://isef.net/project/196071>
 Musa Shafi, 17, Junior, Pacific Collegiate School, Santa Cruz, California, T: Wayne Conley
- Salinas, USCA12, Monterey County Science and Engineering Fair**
- ENBM067** **Revolutionizing Training: SVRGICAL a Realistic Gamified VR Training App for Surgical Assistants**
<https://isef.net/project/198527>
 Juliana Herrera, 17, Junior, Santa Catalina School, Monterey, California, T: Christian Reilly

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- San Bernardino, USCA13, San Bernardino, Inyo, Mono, (SIM) Science and Engineering Fair**
EGSD048T The Thermoelectric Generator Using Hot Sand
<https://isef.net/project/198756>
 Michael Sean Stodelle#, 16, Sophomore, Tyler Matthew Kalanjian, 17, Junior, Zackary Alan Lewis, 17, Junior, Redlands East Valley High School, Redlands, California, T: Emil Radoi
- MATS027T The Effects of Chemical Erosion on the Physical Properties of Natural Fiber Reinforced Composite Matrices**
<https://isef.net/project/195714>
 Ethan Chang, 17, Senior, Gabrielle Williamson, 17, Senior, Upland High School, Upland, California, T: Elizabeth Salazar
- ROBO067 TALON (Tactical Aerial Logistic-based Ornithological Navigator): Development of a Novel Biomimetic Ornithological Bot (BOB) Aerial System With Advanced Wing Morphing and Sensory Tech for Tactical Logistics in Disaster Relief and Military Operations**
<https://isef.net/project/198783>
- # Leila Quyen Maleki, 16, Junior, Chino High School, Chino, California, T: Shaddy Viste**
- TECA011T S.M.A.R.T Device for the Visually Impaired (Supportive, Mobility, Assistant, Recovery, Technology)**
<https://isef.net/project/198528>
- ## Danaya Jaslene Figueroa##, 18, Senior, Priscilla Elena Munoz##, 18, Senior, Grand Terrace High School, Grand Terrace, California, T: Robert Carrier**
- Riverside, USCA15, Riverside County Science and Engineering Fair**
ANIM026 Listening for Silent Flight: The Morphology of Trailing Edge Fringe in Birds of Prey
<https://isef.net/project/193388>
 Tom Rene Reznick, 18, Senior, Riverside STEM High School, Riverside, California, T: Joshua Zonker
- ROBO015 A Novel Approach to Fall Prediction and Prevention: Integrating Machine Learning and IoT for Elderly Safety**
<https://isef.net/project/192710>
 Ava George, 15, Sophomore, Centennial High School, Corona, California, T: Lindsay Stotts
- TMED012T Combining Accessibility With Machine Learning: Utilizing Machine Learning to Create a User-Friendly Medical Application to Process and Detect Histopathological Images of Oral Squamous Cell Carcinoma**
<https://isef.net/project/192557>
 Trevon Nguyen, 16, Sophomore, Rayyan Midhat Abdul Khalique, 16, Sophomore, Dylan Bhavesh Patel, 16, Sophomore, Centennial High School, Corona, California, T: Lindsay Stotts
- Bakersfield, USCA16, Kern County Regional Science Fair**
BEHA022 Leveraging Natural Language Processing Techniques and Bidirectional Encoder Representations From Transformers (BERT) for Detecting Bias and Toxicity in Journalism and Monkeypox Related News Media
<https://isef.net/project/193831>
 Simar Singh, 16, Sophomore, Stockdale High School, Bakersfield, California, T: Jill Reynolds
- TMED072 An Analytical Study of Optimized EfficientNet CNNs, Vision Transformers, and Hybrid Transformers for State-of-the-Art MRI-Based Brain Tumor Diagnosis With Integrated Explainable AI**
<https://isef.net/project/193830>
- # Ishmeet Singh, 16, Junior, Stockdale High School, Bakersfield, California, T: Jill Reynolds**
- Camarillo, USCA17, Ventura County Science Fair**
BCHM022 Investigating the Synergistic Effect of Hesperidin and Fisetin on *Aspergillus niger* and *Hippodamia convergens*
<https://isef.net/project/197467>
 Natalie Yip, 17, Junior, Thousand Oaks High School, Thousand Oaks, California, T: Nikki Malhotra

FINALIST DIRECTORY

Thousand Oaks, USCA50, California Science & Engineering Fair

EBED044 **A Wearable Low-Cost 10.5 GHz Radar-Based Early Collision Warning System for Pedestrians With Dynamic Threshold Adjustment**

<https://isef.net/project/199150>

Cavon Hajimiri, 15, Sophomore, Polytechnic School, Pasadena, California,

T: Robin Barnes

PLNT055 **Allelopathic Effects of *Cynara cardunculus* on Native Coastal Sage Scrub Species**

<https://isef.net/project/199077>

Anna Luo, 17, Junior, Canyon Crest Academy, San Diego, California, T: Kaveh Shakeri

COLORADO

ALAMOSA, USCO01, San Luis Valley Regional Science Fair, Inc.

ETSD008 **Shooting for the Stars**

<https://isef.net/project/191840>

James Michael Little, 18, Junior, Monte Vista High School, Monte Vista, Colorado,

T: Loree Harvey

PHYS007 **Demonstrating the Effects of Decoherence on Quantum Computers**

<https://isef.net/project/191841>

Tanner Merritt Houser, 17, Junior, Sargent High School, Monte Vista, Colorado,

T: Rafe Paulson

BRUSH, USCO03, Morgan-Washington Bi-County Science Fair

ENEV024T **Water Tower Power: Storing Solar Energy With an Elevated Pumped Storage Hydropower System**

<https://isef.net/project/192711>

Carson Fisher Stone, 15, Freshman, Chase Pollart, 15, Sophomore, Brush High School,

Brush, Colorado, T: Erik Stone

Colorado Springs, USCO04, Pikes Peak Regional Science Fair

BEHA021 **Healthy Gut! Healthy You!: Preclinical Validation of a Novel Enzyme Therapy for Improving Generalized Anxiety Disorder and Overall Gastrointestinal Health in *Rattus norvegicus***

<https://isef.net/project/193794>

Vanya Lavu, 18, Senior, The Classical Academy - North, Colorado Springs, Colorado,

T: Margaret Zielinski

CBIO019 **"ProteinFlow" v2 - Biocomputational Analysis of Metabolic Pathways to Discover New Carbon Capturing Bacteria**

<https://isef.net/project/193382>

Ayush Vispute, 16, Sophomore, Rampart High School, Colorado Springs, Colorado,

T: Oluwatosin Oluwadare

Joes, USCO08, Northeast Colorado Regional Science Fair

PLNT046 **Cheater Cheater Rangeland Eater: A Study on Mitigating the Spread of Downy Brome (*Bromus tectorum*) Using *Pseudomonas fluorescens* D7 and ACK55**

<https://isef.net/project/198529>

Kaycee Clark, 15, Freshman, Wray Junior Senior High School, Wray, Colorado,

T: Danae Knust

Boulder, USCO09, Corden Pharma Colorado Regional Science Fair

EAEV026T **Comparison of Aurora Activity With Thermosphere-Ionosphere Na and Fe (TiNa and TiFe) Layers at McMurdo Station**

<https://isef.net/project/193385>

Zoe Kugler, 18, Senior, Alexandra Kugler, 18, Senior, Monarch High School, Louisville,

Colorado, T: Eric Gordon

ENEV034 **Small Scale Demonstration of Plasmonic Photocatalysis in Direct Air CO₂ Capture**

<https://isef.net/project/193379>

Mukul Naidu, 17, Junior, Fairview High School, Boulder, Colorado, T: Paul Strode

PLNT022 **Combating Root-Knot (*Meloidogyne* spp.) and *Fusarium oxysporum* With Stabilized Allicin (*Allium sativum*) and siRNA Constructs**

<https://isef.net/project/193384>

Om Vegesna, 16, Sophomore, Fairview High School, Boulder, Colorado, T: Paul Strode

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Denver, USCO10, Denver Regional Science and Engineering Fair

- EAEVO18** **The Effect of Wildfire Mitigation on Avian Biodiversity as Measured Through Bioacoustics**
<https://isef.net/project/192712>
 Lauren Isabella Fincham Erickson, 18, Senior, Evergreen Senior High School, Evergreen, Colorado, T: Stephanie Seevers
- TMED022** **Saw Palmetto-Induced Inhibition of the 5 α -reductase Pathway as a Clinical Treatment for PCOS Symptoms**
<https://isef.net/project/193072>
 Mishika Bhatia, 16, Junior, Rock Canyon High School, Littleton, Colorado, T: Susanne Petri
- TMED034** **Cancer Testing: Disco Diagnosis**
<https://isef.net/project/195851>
 Lilianna May Heuton, 18, Senior, Green Mountain Senior High School, Lakewood, Colorado, T: Jennifer Flores
- Pueblo, USCO11, Southern Colorado Regional STEM Fair**
- MCRO023** **Cloning and Testing of Phage Shene Gene #50 for Cytotoxicity**
<https://isef.net/project/193000>
 Zechariah Don Dille, 17, Junior, South High School, Pueblo, Colorado, T: Alysia Koufos
- Fort Collins, USCO50, Colorado Science and Engineering Fair**
- ANIM023** **Year Two: Spatial Analysis of Chronic Wasting Disease in Northeastern Colorado Deer Populations — Analysis of Age Structure Utilizing Cementum annuli**
<https://isef.net/project/193247>
- #
ENEVO67 **A Sustainable Cyanobacteria Mitigation Method for Freshwater Ecosystems in the Rocky Mountain Region**
<https://isef.net/project/198216>
- ##
 Natalie Elizabeth Muro, 17, Junior, William J. Palmer High School, Colorado Springs, Colorado, T: Nathaniel Lohmann
- MATS064** **Eutectogel 2.0: A Continuous Journey Towards Advanced Green Electronic Skin**
<https://isef.net/project/199068>
- #
PHYS071 **Emergent Quantum Inductance in a Chiral Orbital Current State: Next-Generation Quantum Materials and Applications**
<https://isef.net/project/198757>
- #
SOFT039 **EnAct: A Safety-Aware Actionable Guidance System via Multi-Agent Vision-Language Models for People With Vision Impairments**
<https://isef.net/project/197705>
 Amy Zhang, 15, Sophomore, Lakewood High School, Lakewood, Colorado, T: Casey Walter

CONNECTICUT

Sandy Hook, USCT50, Connecticut Science & Engineering Fair

- ANIM034** **The Effect of Diet on Lifespan, Tumor Burden and Wnt Signaling Activation in a *Drosophila* Apc1/Apc2-RasV12 Model of Colorectal Cancer**
<https://isef.net/project/195939>
 William Anson Boberski, 18, Senior, Staples High School, Westport, Connecticut, T: Amy Parent
- BMED051** **Lipid-Based Codelivery of Doxorubicin and siRNA PD-L1, as a Multi-function Chemo-Immunotherapy, Selective to Pancreatic Cancer via Its MUC1 Overexpression**
<https://isef.net/project/195925>
- #
 Lula Wang, 16, Sophomore, Greenwich High School, Greenwich, Connecticut, T: Andrew Bramante

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- CBIO039** **TETRA-C: Accelerating Cancer Therapy Through AI-Optimized Telomerase Inhibition, Enzymatic Targeting, and the Suppression of Metastasis**
<https://isef.net/project/196997>
Srinidhi Karthik, 16, Junior, South Windsor High School, South Windsor, Connecticut,
T: Danel Eitel
- ETSD021** **Next-Generation VTOL Drones: A Breakthrough in Tilt Mechanism and Modular Design for Optimization and Accessibility**
<https://isef.net/project/193852>
Cooper Taylor, 17, Junior, Greenwich Country Day School, Greenwich, Connecticut,
T: Nathan Haag
- ROBO036** **OATNet: A Computational and Mathematical Model of a Novel Neural Network Architecture Utilizing Ternary Weight Decomposition and Element-Wise Methods for Mitigating Computational Complexity**
<https://isef.net/project/195817>
Karthik Srikumar, 15, Sophomore, South Windsor High School, South Windsor, Connecticut, T: April Davis
- TMED036** **A Novel Multi-Modal Deep Learning Approach With Attention Mechanisms for Early Detection of Alzheimer's Disease**
<https://isef.net/project/195937>
Keen-Yin Woo, 16, Junior, Greenwich High School, Greenwich, Connecticut,
T: Andrew Bramante
- TMED038** **Implementation and Validation of a Machine-Learning-Based Mobile Mechanocardiography System for Arrhythmia Detection**
<https://isef.net/project/196072>
Ethan Joseph, 15, Sophomore, Engineering and Science University Magnet School, West Haven, Connecticut, T: Paula Matei-Grysiak

DISTRICT OF COLUMBIA

Washington, USDC01, District of Columbia STEM Fair

- ANIM053T** **The Metric of Mealworms**
<https://isef.net/project/199602>
Justine Thomas, 18, Junior, Saron Kidane, 17, Junior, Lyra Jancachagua Espinoza, 17, Junior, Washington Latin Public Charter School, Washington, DC, T: Kena Allison
- MATS062** **A Novel Design to Tailor Microstructures of Nanowire Foams as Efficient, Reusable Filters**
<https://isef.net/project/199033>
Audrey Liu, 17, Junior, National Cathedral School, Washington, District of Columbia,
T: Gen Yin

FLORIDA

Okeechobee, USFL01, Heartland Regional Science and Engineering Fair

- BMED024** **Vimentin and E-cadherin Expression Delineates Epithelial to Mesenchymal Transition in Early Onset Colorectal Cancer**
<https://isef.net/project/192818>
Anika Bhandare, 15, Sophomore, Sebring High School, Sebring, Florida,
T: Morgan Bullock
- PLNT016** **Investigating the Effectiveness of Oxytetracycline Treatment Size Against Huanglongbing in Five-Year-Old Valencia Orange Trees: A Four-Year Study**
<https://isef.net/project/192846>
Brady James Williamson, 17, Junior, Okeechobee High School, Okeechobee, Florida,
T: Wendy Reister
- SOFT020** **Impact of Encryption Strength on Password Cracking Time**
<https://isef.net/project/192475>
Jaclyn Shenise Brown, 16, Sophomore, Hardee Senior High School, Wauchula, Florida,
T: Daphne Hays

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- Bradenton, USFLO2, Manatee Regional Science and Engineering Fair**
ENEV005 **Agricultural Runoff: The Effect of Types of Fertilizer and Application Methods on the Amount of Nitrates Released From *Capsicum annuum* (Bell Pepper)**
<https://isef.net/project/191120>
Caitlyn Elizabeth Cooke, 17, Senior, Southeast High School, Bradenton, Florida,
T: Brittany Devlin
- Deland, USFLO4, Tomoka Region Science and Engineering Fair**
MCRO001T **Comparing the Success Rate of Different Anhydrobiotic Proteins Originating from *R. varieornatus* in *E. coli* BL21 Using Bacterial Transformation**
<https://isef.net/project/190671>
Abigail Ann Aldridge, 17, Junior, Amanda King, 17, Junior, Burns Science and Technology Charter School, Oak Hill, Florida, T: Barbara Hawes
- Fort Myers, USFLO5, Thomas Alva Edison Kiwanis Science and Engineering Fair**
BEHA015T **Optimizing Random Forest Algorithms for Autism Prediction: Enhancing Diagnostic Accuracy Through Machine Learning**
<https://isef.net/project/192743>
Tanish Madhar, 17, Junior, Gabriel Alfonso Cintron, 16, Junior, Fort Myers High School, Fort Myers, Florida, T: Anthony Sangermano
- MATH003** **Emotional Perspectives of Fractal Music**
<https://isef.net/project/190725>
Daria Lukash, 17, Junior, Lemon Bay High School, Englewood, Florida, T: Jenee Mora
- MATH012** **Derivation of the Wave Equation for Piano Strings and Development of Alternative Tuning Systems for Piano to Minimize Dissonance in Musical Intervals**
<https://isef.net/project/192551>
Mason Huffman, 16, Junior, Cape Coral High School, Cape Coral, Florida,
T: Chase Lieberenz
- MCRO007** **Comprehensive Evaluation of the Anticancer, Wound-Healing, Bioelectricity, Larvicidal and Biofilm Inhibition Properties of Six Native Plant Species: Innovations for Novel Drug Discovery**
<https://isef.net/project/191671>
- #** **MCRO010** **Nishini Fernando, 17, Junior, Dunbar High School, Fort Myers, Florida, T: Justin Summy**
Characterizing the Structure of the Cutavirus Capsid-Glycan Complex via Cryo-EM and Comparing Its Structural Features With Oncolytic Protoparvoviruses
<https://isef.net/project/192053>
- ##** **Megan D'Souza, 18, Senior, Community School of Naples, Naples, Florida,**
T: Kelly Percivall
- ROBO006** **Transcend Traffic: Integrating Vision-Based Analysis, SPSA-NN Optimization, Distracted Driver Detection, and V2X Communication**
<https://isef.net/project/191672>
- #** **Dhurva Sharma, 18, Senior, Fort Myers High School, Fort Myers, Florida,**
T: Anthony Sangermano
- Port St. Lucie, USFLO6, St. Lucie County Regional Science and Engineering Fair**
BMED043 **Telaglenastat (CB-839) Selectively Attenuates Increased Mitochondrial Glutaminolysis in Pulmonary Hypertensive Endothelial Cells**
<https://isef.net/project/193853>
Amanda Tiffany Perez, 18, Senior, Treasure Coast High School, Port St. Lucie, Florida,
T: John Williams III
- Valparaiso, USFLO7, East Panhandle Science and Engineering Fair**
BMED007 **Improving the Hydrophilicity of Dental Filling Composite**
<https://isef.net/project/191121>
Sasha McCraine, 17, Junior, Niceville High School, Niceville, Florida, T: Andrew Hudson
- MATS003** **Using Geant4 To Find the Most Weight Effective Passive Radiation Shielding**
<https://isef.net/project/191039>
Ashley Summer House, 17, Senior, Magnet Innovation Center, Inlet Beach, Florida,
T: Margaret Aresco

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Gainesville, USFL08, Alachua Region Science and Engineering Fair

EAEVO13 **Global Microplastic Pollution-Year 5: A Novel Multi-Organism and Computational Approach for Investigating Microplastics' Size and Concentration-Dependent Effects for Translational Human Biomarker Discovery; and Deployment of Plant-Based, Economical, and Scalable Microplastic Remediation Systems**
<https://isef.net/project/192226>

Abhith Kumar Kasala, 16, Junior, Gainesville High School, Gainesville, Florida,
 T: Jon Rehm

Fort Lauderdale, USFL09, Broward Regional Science & Engineering Fair

BMED081 **Glucagon-Like Peptide-1(GLP-1) Receptor Agonists Effects in Cell Culture Models of Type 1 Diabetes**
<https://isef.net/project/198760>

Mia Juliette Farber, 17, Junior, Pine Crest School, Fort Lauderdale, Florida,
 T: Jennifer Gordinier

CBIO045 **Variational Autoencoder Latent Space as a Robust Clinical Classification Tool for Neurodegenerative Diseases**
<https://isef.net/project/197285>

William Wakefield, 18, Senior, Pine Crest School, Fort Lauderdale, Florida,
 T: Jennifer Gordinier

MCRO054 **Design of a Workflow Generating Novel Broad-Spectrum siRNA Therapeutics Targeting Critical Conserved RNA Elements in the Viral Genome *in silico*: A Study in Dengue**
<https://isef.net/project/198759>

Akshay Kumar, 18, Senior, American Heritage School, Plantation, Florida,
 T: Juliana Caulkins

TMED087 **Optimization of Lipid Nanoparticle Formulation for Delivery of Large RNA-Based Therapies to Cartilaginous Cells**
<https://isef.net/project/198584>

Mia London Rozenberg, 18, Senior, Pine Crest School, Fort Lauderdale, Florida,
 T: Jennifer Gordinier

Jacksonville, USFL10, Northeast Florida Regional Science and Engineering Fair

BEHA007 **EPVR-AIM: Emotion Prediction and Virtual Reality AI Model**
<https://isef.net/project/191615>

Christopher James Trinidad, 15, Freshman, Bishop Kenny High School, Jacksonville, Florida, T: Lee Paulus

EAEVO08 **Corals Prolonged and Controlled Heat Adaptation**
<https://isef.net/project/191619>

Caden John Lipari, 16, Sophomore, Episcopal School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner

ENEVO14 **Enhancing Coastal Resilience Using Biomimetic Wave Barriers**
<https://isef.net/project/192052>

Marco Alexander Chua, 16, Sophomore, Stanton College Preparatory School, Jacksonville, Florida, T: Nicolle Arteaga

ROBO014T **Multi UAV System for Wide Area Object Identification**
<https://isef.net/project/192550>

Alexander Chindris#, 18, Senior, James Steffes, 17, Junior, Episcopal School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner

Newberry, USFL11, Suwannee Valley Regional Science and Engineering Fair

PLNT002 **Does Temperature and Oxygenation Method in a Deep-Water Culture Hydroponic System Affect *Lactuca sativa* Growth?**
<https://isef.net/project/190726>

Cyler Peyton Robinson, 15, Sophomore, Fort White High School, Fort White, Florida,
 T: Wayne Oelfke

Bartow, USFL12, Polk Region Science and Engineering Fair

CELLO09 **Lipid Facilitated PDAC Stroma Transmission: Overcoming the Desmoplastic Stroma Through Advanced Drug Delivery *in vivo***
<https://isef.net/project/192469>

Aksh Sachin Ladegaonkar, 16, Sophomore, International Baccalaureate School at Bartow High, Bartow, Florida, T: Ulpiano de La Bajan

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- MATH008** **Representing Polygons Through the Roots of Unity**
<https://isef.net/project/191617>
 Adrian Jose Hernandez Vega, 16, Sophomore, International Baccalaureate School at Bartow High, Bartow, Florida, T: Karen Loweke
- Viera, USFL13, ENBMO30** **Brevard South Science and Engineering Fair**
NeuroSyncNN: A Novel Multimodal Neurodegenerative Disease Diagnostics Framework Leveraging Computer Vision, Image Processing and IoMT Targeting Efficient, Real-Time Automated Brain Mapping and Neural-Signal Decoding
<https://isef.net/project/195820>
 Sidharth Mahesh Patsamatla, 15, Sophomore, West Shore Junior/Senior High School, Melbourne, Florida, T: Sally Kempfer
- PLNT013** **Efficacy of Chitosan Hydrogel for a Variety of Agricultural Applications**
<https://isef.net/project/192687>
 # Al Zaidi, 17, Junior, Holy Trinity Episcopal Academy, Melbourne, Florida, T: Daniel Angotti
- TECA019** **Myoelectric Human-Computer Interfaces for Below-Elbow Amputees**
<https://isef.net/project/193801>
 Ishaan Sen, 18, Senior, Edgewood Junior Senior High School, Merritt Island, Florida, T: Meredith Reninger
- Satellite Beach, USFL14, BMEDO23** **Brevard Intracoastal Regional Science and Engineering Fair**
Utrophin and Dystrophin Localization in Dystrophic Myotubes After Transduction With AAV rh10 Vectors Containing Microdystrophin Targeted to Striated Muscle Cells; Treatments for Duchenne Muscular Dystrophy
<https://isef.net/project/192572>
 # Sarah Jane Miller, 18, Senior, Satellite High School, Satellite Beach, Florida, T: Loren Kingsley
- CELLO28** **RNAi Therapy in Cancer Treatment II**
<https://isef.net/project/196950>
 Audrey Ciccone, 18, Senior, Satellite High School, Satellite Beach, Florida, T: Loren Kingsley
- ENEVO25** **An Integrated Detection and Delivery System to Abate Contaminants in Water Bodies**
<https://isef.net/project/192713>
 ## Sharanya S. Natarajan, 17, Junior, Edgewood Junior Senior High School, Merritt Island, Florida, T: Meredith Reninger
- Miami, USFL15, BEHA069T** **South Florida Science and Engineering Fair**
Exploring Genetic Similarities With AI: A Novel Python Algorithm That Finds HOG Descriptors of GWAS LD Patterns
<https://isef.net/project/198933>
 Romy Ella Cohen#, 17, Senior, Ruby Amy Cohen, 14, Freshman, iPrep Academy North, Miami, Florida, T: David Buncher
- ENEVO70** **An AI Submersible Device to Monitor the Restoration of Coral Reefs in John Pennekamp State Park Key Largo, FL**
<https://isef.net/project/198319>
 Josiah Gilbert, 15, Freshman, iPrep Academy North, Miami, Florida, T: David Buncher
- MATH014** **Exploring Genetic Complexity: A Novel Fractal Fourier Analysis in Genome-Wide Association Studies (GWAS)**
<https://isef.net/project/192679>
 Daniella Sophia Rothberg, 16, Sophomore, iPrep Academy North, Miami, Florida, T: David Buncher
- MATH021** **The Cohesiveness of Particle Collisions: Markovian Analysis of Proton Collision Patterns in Particle Physics**
<https://isef.net/project/193789>
 Raiya Cohen, 16, Junior, iPrep Academy North, Miami, Florida, T: David Buncher
- PLNT057T** **Effects of Neutron Seed Irradiation on "OutREDgeous" Red Romaine Lettuce (*Lactuca sativa*)**
<https://isef.net/project/199185>
 Adrian Martinez, 18, Senior, Orialis Portales Romero, 18, Senior, iMater Preparatory Academy High School, Hialeah, Florida, T: Monique Salazar

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- TMED028** **Machine Learning for Increasing the Response Rate of Breast Cancer Patients to Neoadjuvant Therapy**
<https://isef.net/project/193788>
 Janie Y. Cai, 17, Junior, Miami Palmetto Senior High School, Pinecrest, Florida,
 T: Pamela Shlachman
- Ocala, USFL16, Big Springs Regional Science Fair**
- BMED002** **Ant It Sweet? Analyzing the Effects of Aspartame, Sucralose, Acesulfame K and Saccharin on the Feeding, Mortality and Gut Microbiota of *Camponotus floridanus***
<https://isef.net/project/190727>
 Gabrielle Victoria Javelona, 15, Sophomore, Vanguard High School, Ocala, Florida,
 T: Christina Davis
- BMED021** **Optimizing Drug Release From Encapsulated Pills for the Potential of Steadier Efficacy**
<https://isef.net/project/192552>
 Megha Sai Sandrapaty, 15, Freshman, Forest High School, Ocala, Florida,
 T: Cheryl Tomlinson
- MCRO014** **Purifying Bovine IgGs: A New Defense Against Antibiotic Resistance**
<https://isef.net/project/192471>
 Alexandra Laciuga, 18, Senior, Vanguard High School, Ocala, Florida,
 T: Christina Kilpatrick
- Oviedo, USFL17, Dr. Nelson Ying-Orange County Science Exposition**
- BMED072** **Slice and See: Can a VR Slicing Game Sharpen Peripheral Vision?**
<https://isef.net/project/198217>
 Rianna Patel, 18, Senior, Trinity Preparatory School, Winter Park, Florida,
 T: Romina Jannotti
- EAEV003** **Evaluating the Efficacy of a Novel BIOPAC Bio-Adsorbent for the Removal of Aqueous Per- and Polyfluoroalkyl Substances (PFAS)**
<https://isef.net/project/190708>
 Aditi Swain, 15, Sophomore, Orlando Science Schools, Orlando, Florida,
 T: Judith Bright
- MCRO003** **Fresh or Foe: The Impact of Body Deodorants on *Lactobacillus***
<https://isef.net/project/190728>
 Lucy Edan Chong, 17, Junior, Trinity Preparatory School, Winter Park, Florida,
 T: Romina Jannotti
- ROBO004** **Year 2: Designing a Terrestrial Plant Disease Suppression Robot Using Multispectral Imaging Techniques**
<https://isef.net/project/191546>
 Adrian Jose Alvarez, 15, Freshman, Orlando Science Schools, Orlando, Florida,
 T: Judith Bright
- Bushnell, USFL18, Sumter County Regional Science Fair**
- ANIM001** **Investigating the Synergistic Effects of High-Fiber and Potassium-Enriched Diets on Anaerobic Decomposition and Methane Emissions in Cow Manure**
<https://isef.net/project/190702>
 Jordan Geovanni Miranda, 16, Sophomore, Wildwood High School, Wildwood, Florida,
 T: Emily Keeler
- EAEV002** **Tree Rings as a Potential Monitoring Tool for Saltwater Intrusion: Year 2**
<https://isef.net/project/190699>
- ##** Alynza Isabella McBride, 18, Senior, South Sumter High School, Bushnell, Florida,
 T: Emily Keeler
- ETSD002** **Utilizing Biomimicry by the Gentoo Penguin to Engineer an Optimal Aircraft Wing Design Capable of Navigating Through Challenging Weather**
<https://isef.net/project/190701>
 Gerardo Juan Pablo Cardoso, 15, Freshman, Wildwood High School, Wildwood, Florida,
 T: Emily Keeler
- PHYS002** **Analyzing the Effectiveness of Various Rocket Nose Cone Shapes in Reducing the Effect of Aerodynamic Drag Experienced During Flight**
<https://isef.net/project/190703>
 Brady Kline, 15, Sophomore, The Villages Charter High School, The Villages, Florida,
 T: Monica Vinas

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- PLNT001** **Turfgrass Response to Biochar Application**
<https://isef.net/project/190705>
 Sarah Catherine Colley, 16, Sophomore, The Villages Charter High School, The Villages, Florida, T: Monica Vinas
- St. Augustine, USFL21, St. Johns County STEM Fair**
- CELLO08** **Defining the Role of VEGF-B Signaling in Cardioprotection and Regeneration**
<https://isef.net/project/191873>
 Anya Dorairaj, 16, Junior, Ponte Vedra High School, Ponte Vedra, Florida, T: Marna Fox
- TMED015** **Targeting the Cancer Epigenome: Synergistic Therapy With KDM4 and BET Inhibitors**
<https://isef.net/project/192715>
 Nicolette Cassidy Finn, 17, Junior, Ponte Vedra High School, Ponte Vedra, Florida, T: Marna Fox
- Seminole, USFL22, Pinellas Regional Science and Engineering Fair**
- PLNT006** **Let There Be Light: Using Agrobacterium-Mediated Transformation Techniques to Produce Bioluminescence in Plants**
<https://isef.net/project/192227>
 Madeleine Grace Lile-Delfino, 18, Senior, Countryside High School, Clearwater, Florida, T: Pamela Himmel
- Sanford, USFL23, Seminole County Regional Science, Mathematics & Engineering Fair**
- BCHM005** **Detection of Serotonin and microRNA-1202 Using Molecularly Imprinted Polymers and Four-Way-Junction Sensor and Biosensor Toward Mental Disorder Diagnosis**
<https://isef.net/project/192200>
 Angela Nicole Calvo-Chumbimuni, 16, Sophomore, Oviedo High School, Oviedo, Florida, T: William Furiosi
- PLNT007** **Development of an Industrially Viable Oxytetracycline Nano-Formulation and OXYCHECK Detection System to Combat Citrus Greening: Year 3**
<https://isef.net/project/192228>
- #** **Moitri Santra, 16, Junior, Oviedo High School, Oviedo, Florida, T: William Furiosi**
- TECA013** **Evaluating Accuracy of Open-Source Automatic Speech Recognition (ASR) Models With Acoustic Analysis**
<https://isef.net/project/192201>
 Audrey Grace Choate, 18, Senior, Oviedo High School, Oviedo, Florida, T: William Furiosi
- Stuart, USFL25, Martin County Regional Science and Engineering Fair**
- ANIMO48** **Using Bioenhancers and Mobile App, AgriShield, To Improve Pest Management: A Novel, Cost-Effective, Environmentally Friendly Strategy To Increase Crop Yield**
<https://isef.net/project/198085>
 Nina Goyal, 16, Sophomore, Martin County High School, Stuart, Florida, T: Jennifer Borges
- Tallahassee, USFL26, Capital Regional Science and Engineering Fair**
- BMED014** **The Effect of Nicotine on Embryonic GABA Neurite Morphology**
<https://isef.net/project/191853>
 Suhani Gawde, 16, Junior, Maclay School, Tallahassee, Florida, T: Lauren Soto
- SOFT005** **Novel Approach to Calculation of Bike Route Distance Using Concept of Fractal Dimension**
<https://isef.net/project/191616>
- #** **Mikhail Abraimov, 17, Junior, Lawton Chiles High School, Tallahassee, Florida, T: Bonni Warren**
- Tampa, USFL27, Hillsborough Regional Science Fair**
- BEHA018** **PsycheMAP: A Novel Approach to Quantifiable Psychiatric Disorder Diagnosis Using EEG and a Hybrid CNN-BiLSTM Framework**
<https://isef.net/project/193377>
- ##** **Rudra Patel, 18, Senior, Middleton High School, Tampa, Florida, T: Bhagyashree Kulkarni**
- CBIO018** **Optimizing Perchlorate Bioremediation: Analyzing the Role of Fe-S Complexes and Sulfates in pcrABCD Protein Activity Through Novel Docking Simulations**
<https://isef.net/project/193376>
 Daniel Park, 17, Junior, C. Leon King High School, Tampa, Florida, T: Chelsey Swats

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- PLNT024** **Year II, A Comprehensive Eco-Friendly Strategy for Citrus Greening Disease Management: Targeted Delivery of Novel Multi-Compound Formulation Derived From *Muraya koenigii* in Combination With Steam Therapy Approach and Its Validation Through Precision Agriculture Tools**
<https://isef.net/project/193791>
 # Tanishka Balaji Aglave, 16, Sophomore, Strawberry Crest High School, Dover, Florida, T: Dianne Schroeder
- Melbourne, USFL28, Brevard Mainland Regional Science and Engineering Fair**
ANIM028 **The Administration of Ascorbic Acid Through Infused Hydrogel Patches To Benefit *Dugesia tigrina* With Oxidative DNA Damage Repair**
<https://isef.net/project/193795>
 Rachel Elizabeth Hughes, 18, Senior, Rockledge High School, Rockledge, Florida, T: Aaron Leblanc
- ENEV004** **Advancing Biopolymer Innovation Through Nanotechnology: Utilizing Machine Learning and Predictive Data Analysis Techniques to Optimize Mechanical and Environmental Properties Using Nanoparticles**
<https://isef.net/project/190730>
 # Aswath Rajesh, 15, Sophomore, Viera High School, Viera, Florida, T: Elizabeth Youngs
- ENEV069** **A Second Year Study: Advancement in Autonomous Research Vessel Technology: Real-Time Water Quality Data Collection**
<https://isef.net/project/198240>
 Christopher Daniel Estevez, 17, Junior, West Shore Junior/Senior High School, Melbourne, Florida, T: Allison Vautier
- West Palm Beach, USFL29, Palm Beach Regional Science and Engineering Fair**
EBED034 **OPUS-1: An Ultracompact Satellite-Based Galactic Cosmic Ray Sensor**
<https://isef.net/project/197731>
 Colin Christopher Quinn, 17, Junior, Suncoast Community High School, Riviera Beach, Florida, T: Nicole Neuhengen
- MATS038** **Developing a Hyaluronic Acid Coated Mesoporous Silica Nanoparticle Based Controlled Delivery System as an Antitumor Therapy**
<https://isef.net/project/197726>
 # Aishwarya Deshpande, 16, Junior, American Heritage School of Boca Delray, Delray Beach, Florida, T: Brittnee McDole
- PHYS059** **Taylor Integration to Model the Dynamics of the Restricted Three-Body Problem**
<https://isef.net/project/197728>
 Zohar Eshet, 17, Senior, American Heritage School of Boca Delray, Delray Beach, Florida, T: Jason Mireles-James
- PHYS062** **RUBES: Resonators Used in Building Emergency Sensors – Developing a Device (Year 4)**
<https://isef.net/project/197929>
 Ruby Lily Aubin, 18, Senior, Florida Atlantic University High School, Boca Raton, Florida, T: Jasmine Coyle
- PLNT037** **Early Detection of Crop Stress by Drone Hyperspectral Imaging of Community Farmland in Southeast Florida**
<https://isef.net/project/197732>
 David Arutyunyan, 14, Freshman, Florida Atlantic University High School, Boca Raton, Florida, T: Tucker Hindle
- ROBO048** **Protecting Your Privacy: A Constitutional Filter to Prevent AI From Inferring Your Personal Information**
<https://isef.net/project/197727>
 Siyuan Du, 16, Junior, American Heritage School of Boca Delray, Delray Beach, Florida, T: Brittnee McDole
- TMED051** **Targeting Cap-Independent Translation in c-MYC mRNA: A Novel Small Molecule Approach for Cancer Therapy**
<https://isef.net/project/197706>
 # Nakul Balaji, 16, Junior, Florida Atlantic University High School, Boca Raton, Florida, T: Jasmine Coyle

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- TMED064** **The Effect of *Uncaria tomentosa* (Cat's Claw) and Gut Microbiome Dysbiosis Repair With *Bacillus subtilis* in Locomotion and Alpha Synuclein Aggregation in *Caenorhabditis elegans* Transgenic Strain NL5901, an Animal Model for Parkinson's Disease**
<https://isef.net/project/198239>
 Kasey Tiffany Moore, 16, Sophomore, American Heritage School of Boca Delray, Delray Beach, Florida, T: Brittnee McDole
- Land O' Lakes, USFL30, Pasco Regional Science and Engineering Showcase**
CELL005 **Neuroprotective Role of Fenchol in Modulating the B-CSF Barrier in Neurodegenerative Diseases**
<https://isef.net/project/191122>
 Michael Sonsol, 17, Senior, Wiregrass Ranch High School, Wesley Chapel, Florida, T: Branden Anglin
- EAEV005** **MycCoCast: Developing an Agent-Based Model for Mycorrhizal Network Connectivity Under Changing Environmental Conditions**
<https://isef.net/project/191124>
 # Tristan Taylor Pasquale, 17, Senior, Wiregrass Ranch High School, Wesley Chapel, Florida, T: Branden Anglin
- ENEV006** **Developing a Novel Pectin Extraction Process To Increase the Efficiency of Natural Coagulants**
<https://isef.net/project/191123>
 Carson Lee West, 17, Junior, Wiregrass Ranch High School, Wesley Chapel, Florida, T: Branden Anglin
- Vero Beach, USFL31, Indian River Regional Science and Engineering Fair**
EAEV001 **Quantifying Caffeine as an Anthropogenic Biomarker for Septic Tank Contamination in Queens Cove Using HPLC and GIS Integration**
<https://isef.net/project/190692>
 Kailee Ann Webster, 18, Senior, Vero Beach High School, Vero Beach, Florida, T: Nicole Mosblech
- Sarasota, USFL32, Sarasota County STEM Fair**
BMED075 **Investigating Impacts of the E736D COL22A1 Mutation Upon Vascular Stability and Hemorrhagic Incidence in an Embryonic Zebrafish Model**
<https://isef.net/project/198336>
 Yatharth Kakkad, 15, Freshman, Pine View School, Osprey, Florida, T: Hali Flahavan
- ROBO054** **Comparing the Effectiveness of Novel Vision Transformers to Convolutional Neural Networks in Real Time Detection of Citrus Diseases With Integration on Drone Platform, Year II**
<https://isef.net/project/198106>
 Rohan Dash, 16, Junior, Pine View School, Osprey, Florida, T: Hali Flahavan
- Howey In The Hills, USFL34, Lake County Regional Science & Engineering Fair**
ROBO074T **AID: A Reinforcement Learning Framework for Iterative Optimization of Aerodynamic Elements**
<https://isef.net/project/199238>
 Jainish Hitesh Patel, 17, Junior, Aidan La Rosa, 18, Senior, Lake Minneola High School, Minneola, Florida, T: Tessa Clark
- SOFT045** **Project Doe: An Online Data Platform That Can Provide Identification to the Displaced and Homeless**
<https://isef.net/project/197921>
 ## Jasmine Gaines, 17, Junior, East Ridge High School, Clermont, Florida, T: Dolores Hernandez
- Orange Park, USFL35, Clay Rotary Regional Science and Engineering Fair**
BMED067 **An Evolution of Potential Advances in Limb Immobilization for Orthopedic Healing**
<https://isef.net/project/197874>
 Gracelynn Rae Beckham, 17, Junior, Clay High School, Green Cove Springs, Florida, T: William Drousie

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- ETSD056** **Ion Innovation: Revolutionizing Aerospace Travel With Electric-to-Kinetic Energy Propulsion**
<https://isef.net/project/199151>
 # Austin Christopher Hallett, 17, Senior, Clay High School, Green Cove Springs, Florida,
 T: William Derosie
- ROBO037** **A Novel Study in the Utilization of Artificial Intelligence, Machine Learning and Convolutional Neural Networks in the Identification of Differing Recyclable Materials**
<https://isef.net/project/195819>
 Joshua Chun, 16, Sophomore, Ridgeview High School, Orange Park, Florida,
 T: Bethany Derosie
- Orlando, USFL50, State Science and Engineering Fair of Florida - Ying Scholars**
- ANIM002** **Evaluating the Efficacy of Novel Carbon Dioxide Spray and Pesticides Using a Convolutional Neural Network for Varroa Mite Treatment in Honey Bee Colonies**
<https://isef.net/project/190707>
 Aakash Manaswi, 16, Freshman, Lake Highland Preparatory School, Orlando, Florida,
 T: Lisa Davenport
- BCHM028** **Evaluating the Impact of Protein Coronas on Blood Circulation Dynamics of Silk Fibroin Nanoparticles Designed to Enhance Oxygen Delivery**
<https://isef.net/project/197930>
 Kamilat Bisola Mustapha, 17, Senior, American Heritage School, Plantation, Florida,
 T: Juliana Carvalho de Arruda Caulkins
- BEHA032** **AI Companion for ASD: Predicting Listener's Attention Using Multi-Modal Response Analysis**
<https://isef.net/project/197017>
 # Mahie Mangesh Patil, 15, Sophomore, Orlando Science High School, Orlando, Florida,
 T: Judith Bright
- BMED068** **The Role of Hormones in Hypermobile Ehlers-Danlos Syndrome**
<https://isef.net/project/197928>
 Isabella Calhoun, 16, Junior, Martin County High School, Stuart, Florida,
 T: Shannon Parks
- CELLO37** **The Virtual Cell: Revolutionizing Personalized Cancer Treatment Through AI-Powered Simulation**
<https://isef.net/project/197927>
 Alan Matthew Alwakeel, 17, Junior, Stanton College Preparatory School, Jacksonville, Florida, T: Nicolle Arteaga
- ENBM060** **MicroHeart: A Novel, Structurally Accurate, Physiologically Relevant, and Scalable Heart-on-a-Chip Platform**
<https://isef.net/project/198241>
 # Aadi Nishant Bhensdadia, 16, Sophomore, Pine View School, Osprey, Florida,
 T: Hali Flahavan
- ENEV057** **A Novel Approach to Sustainable Concrete Engineering: Mechanochemical Activation of Local Waste Materials for CO₂ Reduction**
<https://isef.net/project/197925>
 Anagha Iyer, 16, Junior, American Heritage School, Plantation, Florida, T: Juliana Caulkins
- PHYS016** **Investigating the Optimal Pump Source for an Optical Quantum Computer Using Type-I Spontaneous Parametric Down-Conversion**
<https://isef.net/project/192578>
 Enzo Blake Carter, 17, Junior, Melbourne High School, Melbourne, Florida,
 T: Greg Stauffer

GEORGIA

- Atlanta, USGA03, Atlanta City Science & Engineering Fair**
- ENBM038** **Red Blood Cell-derived Extracellular Vesicles for Therapeutic Applications in Sickle Cell Disease**
<https://isef.net/project/196073>
 Rhyland Thomas O'Neill, 17, Junior, Charles R. Drew Charter School, Atlanta, Georgia,
 T: Mae Pagett

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- MCRO057** **The Carbon Catcher: Utilizing the Carbon Sequestration Abilities of Coccolithophorid Algae and Seagrass to Create a Low-Cost Carbon Collection System for Developing Communities**
<https://isef.net/project/199002>
 Riley James Sipe, 15, Freshman, North Atlanta High School, Atlanta, Georgia,
 T: Tracy Joyner
- TMED080** **Optimizing Organic Electrochemical Transistors to Enhance Future Liquid Biopsies for Cancer**
<https://isef.net/project/198934>
 Rowan Gillian, 17, Junior, The Westminster Schools, Atlanta, Georgia, T: Alison Aitken
- Stone Mtn, USGA04, Dekalb Science & Engineering Fair**
- BMED049** **'Plasticoma': A Bioengineered Platform to Study the Microplastic Pollution-Induced Cellular Pathologies and Discover Therapeutic Interventions**
<https://isef.net/project/195716>
 Anushka Sable, 15, Freshman, Chamblee Charter High School, Chamblee, Georgia,
 T: Regan Willson
- MATS032** **We're Dyeing to Know: How Do Changes in Temperature, Mordant Additives and pH During the Dyeing Process Impact the Color-Fastness of Natural Substantive Dyes?**
<https://isef.net/project/197015>
 Akosua Feraw Akile Baah, 17, Junior, Tucker High School, Tucker, Georgia,
 T: Nicole Chapman
- McDonough, USGA06, Henry County Science and Engineering Fair**
- EBED001** **Faster Terahertz Gap Modulation for Higher Data Rates**
<https://isef.net/project/190691>
- ###** Jonathan Luke Dorminy, 18, Senior, Sola Fide Home School, McDonough, Georgia,
 T: Ann Dorminy
- EGSD007T** **Thermoelectric Generator's Effect on Photovoltaic System's Output**
<https://isef.net/project/192468>
 Hannah Tran, 15, Sophomore, Monica Ngo, 16, Sophomore, Woodland High School, Stockbridge, Georgia, T: Jormell Cofield
- ROBO005** **Wheeled to Quadruped Transforming Robot**
<https://isef.net/project/191614>
- #** Samantha Dalby, 16, Junior, Woodland High School, Stockbridge, Georgia,
 T: Jormell Cofield
- Milledgeville, USGA07, Georgia College & State University Regional Science and Engineering Fair**
- MATS011** **Synthesis and Characterization of Silver Nanoparticles for the Detection of Heavy Metals**
<https://isef.net/project/192473>
 Hannah Naomi Liles, 17, Junior, Rutland High School, Macon, Georgia, T: Marissa Rondina
- PLNT014** **Plants in Space: Investigating the Effects of Gravitational Force on Cress Seed Germination and Growth**
<https://isef.net/project/192716>
 Emma Tillery, 15, Sophomore, Central High School, Macon, Georgia, T: Jennifer Tillery
- Griffin, USGA09, Griffin RESA Regional Science Fair**
- CBIO007** **A Multimodal Deep Ensemble Network for ASD Diagnosis and Subtyping**
<https://isef.net/project/192202>
 Ludovic Levi Lythgoe, 15, Sophomore, Whitewater High School, Fayetteville, Georgia,
 T: Shelley Kozlowski
- ENBM018** **TremorTech: A Stabilizing Glove for Parkinson's Disease Tremors**
<https://isef.net/project/193063>
- #** Aadi Vinayak Vaidya, 16, Junior, McIntosh High School, Peachtree City, Georgia,
 T: Seth Bishop
- MATS008** **Speuro: A Novel Approach to Treating Axon Degeneration and Nerve Cell Death in Motor Neuron Disease and Spinal Contusions Utilizing Kudzu-Based Supramolecular Polymers**
<https://isef.net/project/192203>
 Lara Brozas Otico, 16, Sophomore, McIntosh High School, Peachtree City, Georgia,
 T: Seth Bishop

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Perry, USGA10, Houston Regional Science and Engineering Fair

EAEV011 Development of Value-Added Product Cellulose Fibers Obtained From Agro Industrial Waste of Peanut Shells

<https://isef.net/project/192204>

Joy Makayla Sanders, 17, Junior, Warner Robins High School, Warner Robins, Georgia,
T: Veronica Sanders

Suwanee, USGA11, Gwinnett Regional Fair

CHEM015 N-3-Hydroxyphenyl Alkanamide for Epileptic Seizure Management

<https://isef.net/project/193075>

Joyce Lee, 16, Sophomore, Peachtree Ridge High School, Suwanee, Georgia,
T: Corey Wellmaker

EBED016 EV Charge: A Novel Approach to EV Charging Infrastructure

<https://isef.net/project/193073>

Aditya Arora, 16, Junior, Peachtree Ridge High School, Suwanee, Georgia,
T: Corey Wellmaker

ETSD017 Optimization of Net and Whipple Shield-Based Space Debris Removal

<https://isef.net/project/193076>

BanAnh Doan, 17, Senior, Gwinnett School of Mathematics, Science, and Technology,
Lawrenceville, Georgia, T: Courtney Cox

MCRO024 Silent Signals: Boronic Acids Quench *E. coli* Quorum Sensing

<https://isef.net/project/193074>

Eun Jae Julia Lee, 17, Junior, Peachtree Ridge High School, Suwanee, Georgia,
T: Corey Wellmaker

MCRO026 Phage and Peptide Solutions for Biofilm Growth in Space

<https://isef.net/project/193100>

Kristen Nicole Bright, 18, Senior, Gwinnett School of Mathematics, Science,
and Technology, Lawrenceville, Georgia, T: Courtney Cox

SOFT022T Enhancing GPU Data Transfer Efficiency via Optimization of V100 Architecture and Markov-Based Predictive Caching With Quaning

<https://isef.net/project/195692>

Austin Johnson, 18, Senior, Samiel Halim Azmaien, 18, Senior, Gwinnett School of
Mathematics, Science, and Technology, Lawrenceville, Georgia, T: Courtney Cox

Conyers, USGA12, Rockdale Regional Science & Engineering Fair

ENBM071 Using Electroencephalography to Control Translumeral Prostheses

<https://isef.net/project/198585>

Alex Rojas, 17, Senior, Rockdale Magnet School for Science and Technology, Conyers,
Georgia, T: Ronald Bolen

ENEVO49 Redefining Synthetic Hair: A Sustainable Banana Fiber Solution

<https://isef.net/project/196992>

Sydney Alexandria-Lorraine Hammett, 18, Senior, Rockdale Magnet School for Science
and Technology, Conyers, Georgia, T: Shelley Seagraves

ETSD027 Using Magnets and Electromagnets to Replace Traditional Static Automotive Suspension Systems in Hopes of Decreasing Body Displacement

<https://isef.net/project/195853>

Gavin Cooper Reece, 18, Senior, Rockdale Magnet School for Science and Technology,
Conyers, Georgia, T: Shelley Seagraves

Marietta, USGA14, Cobb/Paulding Regional Science Fair

CBIO006 Ferromilab: Quantum Molecular Dynamics-Derived Biclinal Antibodies Modulating Hepcidin-Ferroportin Interfaces to Mitigate Iron Dysregulation and Ferroptosis in Alzheimer's Disease

<https://isef.net/project/192155>

Arpit Rajkumar Ramani, 17, Junior, Wheeler High School, Marietta, Georgia,
T: Andrew Avizbakiyev

Jonesboro, USGA15, Clayton County Regional Science & Engineering Fair

ENBM022T Innovating Cost-Effective Cardiological Sound Transducers for Enhanced Applications

<https://isef.net/project/193393>

Ka'ilil Kaden Lamont Remer, 17, Senior, James Edward Mays, 18, Senior, Martha Ellen
Stilwell School of the Arts, Jonesboro, Georgia, T: Sabrina Isdell

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- MCRO016** **Isolation and Identification of Microplastics and Indigenous Soil Bacteria for Enhancing Biodegradation Potential in Terrestrial Environments**
<https://isef.net/project/192573>
 Vy Le, 16, Junior, Morrow High School, Ellenwood, Georgia, T: Mindy Hudson
- Athens, USGA50, Georgia State Science and Engineering Fair**
- BCHM037** **Multi-Color Magneto-Fluorescent Nanoarchitectures for the Targeted Identification of Exosomes of Triple Negative Breast Cancer**
<https://isef.net/project/199030>
 Pragathi Kasani-Akula, 17, Junior, South Forsyth High School, Cumming, Georgia, T: Melissa Audorff
- CBIO075** **Therasyn: In silico Design and Multi-Scale Simulation of a Targeted Oral Combination Drug for Alpha-1 Antitrypsin Deficiency Related to Chronic Obstructive Pulmonary Disease**
<https://isef.net/project/199028>
 Ayan Patel, 17, Junior, George Walton Comprehensive High School, Marietta, Georgia, T: Tobie Hendricks
- CBIO076** **The Genetics Behind Systemic Lupus Erythematosus: An *in silico* Analysis on the HLA-DRB1 Gene to Identify High-Risk Variants**
<https://isef.net/project/199031>
 Harshitha Rajaprabhu, 16, Junior, Northview High School, Johns Creek, Georgia, T: Pallavi Rallapalli
- ETSD053** **Sundancer: Solar Powered Autonomous UAV for Natural Disaster Relief**
<https://isef.net/project/198761>
 Stephen King Griggs, 17, Junior, Henry W. Grady High School, Atlanta, Georgia, T: Malakia Jordan

HAWAII

- Honolulu, USHI01, Hawaii Association of Independent Schools Science and Engineering Fair**
- MATH032** **The Boltzmann-Hamel Equations for the Dynamics of Systems on Lie Groups and Lie Algebroids**
<https://isef.net/project/197822>
 Raphael Romeo Michel Esquivel, 16, Junior, Iolani School, Honolulu, Hawaii, T: Yvonne Chan
- MCRO008** **Rapid and Cost-Effective Colorimetric Detection of Methicillin-Resistant *Staphylococcus aureus* in Water via Loop-Mediated Isothermal Amplification Targeting the *mecA* Gene**
<https://isef.net/project/191674>
 Luke Yat Mun Itomura, 16, Sophomore, Punahou School, Honolulu, Hawaii, T: Johannes Adams
- Waipahu, USHI02, Leeward District Science and Engineering Fair**
- EAEO017** **Raman Spectroscopic Detection of Microplastics in Fish Gills Around O'ahu**
<https://isef.net/project/192574>
- # Travis Osaki, 16, Sophomore, Pearl City High School, Pearl City, Hawaii, T: Anthony Ferro
- ETSD014T** **Optimizing Tensile Strength Using Infill Patterns and Nozzle Diameters**
<https://isef.net/project/192575>
- # Jenna Liang, 16, Junior, Kyle Kiyoshi Sewake, 17, Junior, Pearl City High School, Pearl City, Hawaii, T: Anthony Ferro
- Puunene, USHI03, Maui County Regional Science and Engineering Fair**
- BMED010** **Molecular and Behavioral Characterization of *surf1*-/- Zebrafish**
<https://isef.net/project/191624>
 Josie Vierra-Naleieha, 17, Senior, Kamehameha Schools Maui, Makawao, Hawaii, T: Malia Panglao
- Lihue, USHI04, Kauai Regional Science & Engineering Fair**
- EGSD041** **Testing the Viability of Using the Supercoiling of String to Run a Hand-Powered Generator**
<https://isef.net/project/198320>
 Ashley Ji Young Chun, 18, Senior, Island School, Lihue, Hawaii, T: Laura Lee

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Hilo, USHI05, Hawaii District Science and Engineering Fair

ENEVO22 The Power of Practicality: Designing and Testing a Parabolic Dish System to Solar-Purify Contaminated Water

<https://isef.net/project/192577>

Sky Tagamolila Bardwell-Jones, 15, Sophomore, Hilo High School, Hilo, Hawaii,
T: Pascale Pinner

TMED014 Investigation of a Safer Treatment for Lung Cancer Using a Traditional Hawaiian Herb, *Morinda citrifolia* (Noni)

<https://isef.net/project/192576>

Lillian Tao, 15, Freshman, Waiakea High School, Hilo, Hawaii, T: Chad Higa

Kaneohe, USHI06, Windward District Science and Engineering Fair

ANIMO27T Tracking Prevalence of Intestinal Parasitic Infection Rates in Stray Felines on O'ahu

<https://isef.net/project/192567>

Darwynn Leilani Ayling, 16, Junior, Lucy Maria Teramura, 17, Junior, Kalaheo High School,
Kailua, Hawaii, T: Diana Chun

PHYSO15T New Evidence for Sub-Solar Mass Black Holes From LIGO

<https://isef.net/project/192568>

Maya Natasha Gilfillan, 16, Junior, Megan Haruno Mueller, 17, Junior, Kailua High School,
Kailua, Hawaii, T: Sara Anglin

Aiea, USHI07, Central Oahu District Science and Engineering Fair

ANIMO17T Protecting Pearl Harbor: Sequencing Native and Invasive Anthozoans to Identify Presence of Invasive Species

<https://isef.net/project/192851>

Elizabeth Sattler, 18, Senior, Phoenix Rae Reynolds, 18, Senior, Admiral Arthur W. Radford
High, Honolulu, Hawaii, T: Daniella Griffay

SOFT012 Analyzing Lattice-Based Threshold Signature Schemes for Securing Message Authentication in Preparation for Y2Q

<https://isef.net/project/192676>

Tiffany Cruz, 16, Junior, Mililani High School, Mililani, Hawaii, T: John Sandvig

Honolulu, USHI08, Honolulu District Science & Engineering Fair

CELLO11 Exploring Marine-Derived Extracts as Ethical, Sustainable and Cost-Effective Fetal Bovine Serum (FBS) Substitutes

<https://isef.net/project/192738>

Kian Kenneth Francisco Sanchez, 18, Senior, University Laboratory School, Honolulu, Hawaii, T: Jennifer Seki-Wong

ENEVO30 Using Aiptasia for Heavy Metal Decontamination of O'ahu's South Shores

<https://isef.net/project/192920>

Leilani Phan, 18, Senior, Kalani High School, Honolulu, Hawaii, T: Bryan Silver

MCRO018 Analyzing the Effect of Preservatives on Microbial Growth in Expired and Unexpired Makeup Cosmetics

<https://isef.net/project/192739>

Mirah Levine, 17, Junior, Kalani High School, Honolulu, Hawaii, T: Kenneth Okawa

Kailua-Kona, USHI09, West Hawaii District Fair

EAEVO16 Flow Matters: How a Coral Can Divert Currents and Suffocate Corals Nearby

<https://isef.net/project/192478>

Jeannik Littlefield, 17, Junior, Hawaii Preparatory Academy, Kamuela, Hawaii, T: Johanna Anton

PHYSO13 Distributional Differences in Iron Equivalent Widths Among Supernova Progenitor Candidate Stars and Stable Spectral Mirrors

<https://isef.net/project/192476>

Kai Greenlee, 17, Junior, Kealahoe High School, Kailua-Kona, Hawaii, T: Justin Brown

ROBO012 Developing a Non-Intrusive Marine Data Collection Apparatus

<https://isef.net/project/192477>

Ailani Joelle Cruz, 16, Junior, Kealahoe High School, Kailua-Kona, Hawaii, T: Justin Brown

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Honolulu, USHI50, Hawaii State Science and Engineering Fair

- ANIM051** **An Investigation to Improve Captive Rearing Programs and General Native Hawaiian Land Snail, or Kahuli, Dietary Knowledge**
<https://isef.net/project/198788>
Chloe Sachiko Sanada, 17, Junior, Iolani School, Honolulu, Hawaii, T: Yvonne Chan
- BEHA065** **Modern Redlining: Quantifying the Causal Effects of American Zoning Law on Spatial and Multidimensional Urban Inequality**
<https://isef.net/project/198703>
Chisato Kei Tarui, 18, Senior, Iolani School, Honolulu, Hawaii, T: Joanna Kobayashi
- #
BEHA066 **The Zoning-Microbiome Integration Model (ZMIM): A Novel Framework for Quantifying the Biological Impact of Zoning Policies on Native Hawaiian and Pacific Islander Cardiometabolic Health and Gut Microbiome**
<https://isef.net/project/198704>
Elle Sugimoto, 18, Senior, Iolani School, Honolulu, Hawaii, T: Joanna Kobayashi
- #
ETSD048 **Phased Array Radar: AI Assisted Tracking Filter Solution Displayed With VR Visualization**
<https://isef.net/project/198221>
Man Fung Zhuo, 18, Senior, Kalani High School, Honolulu, Hawaii, T: Kenneth Okawa
- PLNT049** **Reversed Genetic Research of *Nannochloropsis oceanica* for Increased Thermal Tolerance**
<https://isef.net/project/198556>
Deborah Sung Joo Park, 18, Junior, Iolani School, Honolulu, Hawaii, T: Yvonne Chan
- ROBO063** **Automated Coral Reef Health Evaluation: Remote Monitoring With CNNs, Unsupervised Machine Learning and Analysis of Hyperspectral Data**
<https://isef.net/project/198561>
Tahan Bapna, 16, Sophomore, Punahou School, Honolulu, Hawaii, T: Johannes Adams
- TMED065** **Case Study on the Effects of a Gluten-Free Diet on Symptoms, the Gut Microbiome and DNA Methylation in Vegetarian Individuals With Crohn's Disease**
<https://isef.net/project/198335>
Siddharth Rahm Srinivasan, 18, Senior, Iolani School, Honolulu, Hawaii, T: Yvonne Chan

IDAHO

Boise, USID02, Western Idaho Science & Engineering Fair

- ETSD035** **Energy Optimal Path Planning for Autonomous Underwater Vehicles**
<https://isef.net/project/197291>
Kathy Nie, 17, Senior, Timberline High School, Boise, Idaho, T: Heidi Pluska
- #
Boise, USID03, Eastern Idaho Science & Engineering Fair
- ANIM011** **The Dangers of Combining Caffeine and Alcohol: *Daphnia magna*'s Heart Rate Reaction to Caffeine and Ethanol Solutions**
<https://isef.net/project/192580>
Benjamin Martin Strock, 15, Sophomore, Hillcrest High School, Ammon, Idaho, T: Barbara Nelson
- MATS016** **The Effect of pH on Nb2O5 Nanoparticle Synthesis as a Negative Electrode for Lithium-Ion Batteries**
<https://isef.net/project/192902>
Alexander Li Wiseman, 17, Junior, Renaissance High School, Meridian, Idaho, T: Cyrus Koroni

ILLINOIS

Chicago, USIL01, Chicago Public Schools Student Science Fair

- BCHM016** **Targeted Nitroisoxazole-Based GPX4 Inhibitor Drug Conjugate for Ferroptosis Induction in Chemo-Resistant Tumors**
<https://isef.net/project/196981>
Diego Benjamin Landeros, 17, Junior, Lane Technical College Prep High School, Chicago, Illinois, T: Lucy Young

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BEHA030	Pronoun Relations in Social Media (PRISM): Investigating the Connection Between Digital Popularity and Perception https://isef.net/project/196982 Julia Kwiek, 17, Junior, Northside College Preparatory High School, Chicago, Illinois, T: Elizabeth Copper
EAEVO38	Springtails: The Ancient Key to Global Macroinvertebrate Biodiversity and Soil Health https://isef.net/project/196979
#	Alexander Adam Czempinski, 18, Senior, Lane Technical College Prep High School, Chicago, Illinois, T: Arthur Wawrzyczek
MATH026	Killing Killer PsudoKu https://isef.net/project/196978 Khushi Pusnur, 15, Junior, Walter Payton College Preparatory High School, Chicago, Illinois, T: Walter Kinderman
Bowen, USIL04	Illinois Junior Academy of Science Region X Science Fair
EAEVO34	A Field Study Examining Factors Involved in Oak Decline in Exotic Oaks Growing in North America https://isef.net/project/195722 Diya Nanjappa, 17, Junior, Quincy Senior High School, Quincy, Illinois, T: Jessica Loos
ETSD033	High-Frequency BLDC Feedforward Control and Optimization for Motion Control https://isef.net/project/197237 Navtej Singh Bhatti, 16, Junior, Glenwood High School, Chatham, Illinois, T: Brad Kyes
Crystal Lake, USIL50	Illinois Junior Academy of Science State Exposition
CELLO32	Analysis of Contactin-3 Expression in Cortical Interneuron Subtypes https://isef.net/project/197302 Ashra Roshy, 17, Junior, Adlai E. Stevenson High School, Lincolnshire, Illinois, T: Gurpreet Juneja
MATS035T	Carbon Biowaste Anodes in Na+ Batteries to Reduce Environmental Impact https://isef.net/project/197468 Omar Rodriguez, 17, Senior, Alexander Herrera, 18, Senior, Wheeling High School, Wheeling, Illinois, T: Kimberly Milligan
PHYS047	Water World Exoplanet Atmospheric and Spectral Data Analysis via Thermodynamic Modeling and Unsupervised Machine Learning https://isef.net/project/197292 Marcus N. King, 17, Senior, The Governor French Academy, Belleville, Illinois, T: Christine Stewart
PHYS048	Modeling Cosmic Microwave Background Distortions Through Particle-in-Cell Simulations of the Sunyaev-Zeldovich Effect https://isef.net/project/197293 Cindy Wang, 16, Junior, Barrington High School, Barrington, Illinois, T: Julie Baylor
SOFT032	Assessing Medical Condition Severity Through AI Analysis of Textual Symptoms https://isef.net/project/197299 Advaita Ravikiran Taire, 17, Junior, The Control Group, Naperville, Illinois, T: Rakhee Raveendran
SOFT038	Computer Vision Driven Kinematic Analysis of Athlete's Motion for Decision Optimization and Enhanced Objectivity in Fencing Refereeing https://isef.net/project/197561 Arnav Nitin Chaphalkar, 15, Freshman, Adlai E. Stevenson High School, Lincolnshire, Illinois, T: Christina Palffy
TMED044	A Unique Triage Approach to Management of Febrile Neutropenia in Pediatric Oncology Patients for Efficient Patient Stabilization and Antibiotic Administration https://isef.net/project/197300 Agrini Neekhara, 16, Junior, Dunlap High School, Dunlap, Illinois, T: Kirsten Nusser
TMED045	Patient-Specific Bolus Fabrication for Radiation Therapy: A Novel Computational Tool Using Deep Learning and Spectral Mesh Flattening With Geodesic Distance Mapping https://isef.net/project/197301 Amritha Priya Praveen, 16, Sophomore, Adlai E. Stevenson High School, Lincolnshire, Illinois, T: Christina Palffy

FINALIST DIRECTORY

TMED046 **A Deep Learning-Based Hybrid Neural Network for Enhanced Risk Stratification of Sudden Cardiac Arrest Through Electrocardiographic Signal Analysis**
<https://isef.net/project/197303>
Justin Nguyen, 17, Junior, Barrington High School, Barrington, Illinois, T: Julie Baylor

INDIANA

Terre Haute, USIN20, Hoosier Science and Engineering Fair Region 1

CBIO078 **Lung Cancer Diagnosis Using Exhaled VOC Data and Machine Learning**
<https://isef.net/project/199152>
Jonathan Davis, 14, Freshman, Signature School, Evansville, Indiana, T: Tracey Hayden

Terre Haute, USIN21, Hoosier Science and Engineering Fair Region 2

EAEV066 **"WEAR"-ing Out the Earth — The Effect of Chemicals and Heavy Metals From Textiles on Hydroponic Plant Growth and Absorption of Anionic Clothing Dye From Water**
<https://isef.net/project/198530>
Arha Kureti, 15, Freshman, Carroll High School, Fort Wayne, Indiana, T: Jim Walker

Terre Haute, USIN22, Hoosier Science and Engineering Fair Region 3

CBIO069T **Identification of Mutations in MicroRNA Binding Sites Within Risk Genes Associated With Diseases Through a Computational Approach**
<https://isef.net/project/198334>

Kyle Yang, 15, Sophomore, Alex Jiagen Mi, 16, Sophomore, Carmel High School, Carmel, Indiana, T: Yongsheng Bai

PLNT056 **Effect of *Camellia sinensis* Leaf Extract on Drought Stress and Survival of *Phaseolus vulgaris***
<https://isef.net/project/199153>

Saisri Harshith Devaguptapu, 17, Junior, Columbus North High School, Columbus, Indiana, T: Matthew Parker

Terre Haute, USIN23, Hoosier Science and Engineering Fair Region 4

MATS066 **Examining Environmentally Friendly Alternatives to Fiberglass Epoxy Resin Used on Wind Turbine Blades**
<https://isef.net/project/199078>

Olivia Grace Snell, 15, Freshman, Marian High School, Mishawaka, Indiana, T: Kenneth Andrzejewski

Terre Haute, USIN24, Hoosier Science and Engineering Fair Region 5

EBED038 **Dual-Mode Soft Gripper With Tunable Stiffness Achieving Large-Scale Robust Grasping Tasks**
<https://isef.net/project/198223>

King Lok Wang, 17, Junior, Culver Academies, Culver, Indiana, T: David Lawrence

ETSD050 **BioGrip: A Bio-Inspired Gripper With Integrated Rock Hardness Sensing for Extreme Terrain Navigation**
<https://isef.net/project/198531>

Feiqi Chen, 16, Sophomore, Culver Academies, Culver, Indiana, T: Lawrence David

MATH040T **Making Every Component Count: Using the Shapley Value To Improve Win Ratio Analysis**
<https://isef.net/project/198935>

Sophia Ruihong Fu, 18, Senior, Valerie Ruihan Fu, 16, Sophomore, Carmel High School, Carmel, Indiana, T: Haoda Fu

Terre Haute, USIN25, Hoosier Science and Engineering Fair Region 6

EBED040T **Glasses for the Hearing Impaired**
<https://isef.net/project/198587>

Chase Paul Barker, 17, Senior, Christopher Seung-Hyun Park, 17, Junior, Terre Haute North Vigo High School, Terre Haute, Indiana, T: Glen Cook

Terre Haute, USIN26, Hoosier Science and Engineering Fair Region 7

PHYS067 **Smartphone-Based Spectrometer for Oil Sample Analysis**
<https://isef.net/project/198532>

Joseph Youngbin Bae, 16, Sophomore, West Lafayette Junior/Senior High School, West Lafayette, Indiana, T: Jonathan Eifler

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SOFT049 **Breaking Barriers in Quantum Circuit Optimization With Efficient and Noise-Resilient Real-Time Adaptation**

<https://isef.net/project/198224>

Yash Vardhan Tomar, 15, Sophomore, West Lafayette Junior/Senior High School, West Lafayette, Indiana, T: Jonathan Eifler

Terre Haute, USIN27, Hoosier Science and Engineering Fair Region 8

BEHA072 **Impact of vAChT Knockdown on Compulsive Grooming in a SAPAP3-KO Mouse Model of OCD**

<https://isef.net/project/199025>

Grace Lee, 17, Senior, West Lafayette Junior/Senior High School, West Lafayette, Indiana, T: Jonathan Eifler

Terre Haute, USIN50, Hoosier Science and Engineering Fair

BCHM038 **Sustainable Biofuel Production Through Multimode Biocatalysis Using Enzymes Extracted and Concentrated From Household Waste**

<https://isef.net/project/199072>

Rohan Prakash Bhosale, 18, Senior, Carmel High School, Carmel, Indiana, T: Prakash Bhosale

BCHM039 **Developing Robust Probiotic Delivery Systems: Evaluating and Enhancing Emulsification-Based Microencapsulation Techniques for Gastrointestinal Survival and Release**

<https://isef.net/project/199070>

Ethan He, 16, Junior, Signature School, Evansville, Indiana, T: Tracey Hayden

BEHA073 **A Gut Feeling About Depression: Examining the Effect of Synbiotic Modification in the Gut-Brain Axis on Major Depressive Disorder Symptoms**

<https://isef.net/project/199071>

Norah Claire Ahmed, 17, Junior, Evansville Day School, Evansville, Indiana, T: Ashley Moran

CHEM043 **Comparative Evaluation of Zinc Oxide Nanoparticles Synthesized via Green and Chemical Methods**

<https://isef.net/project/199069>

Kris Nok Hang Lau, 17, Junior, Signature School, Evansville, Indiana, T: Tracey Hayden

SOFT060 **SoundDrive: A Machine Learning Application for Hearing-Impaired Drivers**

<https://isef.net/project/199154>

Zaid Abuhassan, 14, Freshman, Fishers High School, Fishers, Indiana, T: Tyler Mills

IOWA

Cedar Rapids, USIA01, Eastern Iowa Science and Engineering Fair

BEHA034 **PsychSPT: A Novel AI System for Mental Health Assessment Using Large Language Models (LLMs)**

<https://isef.net/project/197287>

Winston Derek-Xu Fan, 17, Junior, West High School, Iowa City, Iowa, T: Carolyn Walling

ENBM045 **Single-Guide RNA Optimization With COTER**

<https://isef.net/project/197288>

Amal Eltayib, 16, Junior, Iowa City High School, Iowa City, Iowa, T: Carolyn Walling

TMED043 **A Colorimetric Lateral Flow Assay To Detect Neurodegeneration From Tears, Phase I**

<https://isef.net/project/197286>

Antariksha Sharma, 17, Junior, Maharishi School of the Age of Enlightenment, Fairfield, Iowa, T: Asha Sharma

Mapleton, USIA02, Western Iowa Science and Engineering Fair

CBIO046 **TOM: Transformer Optimization of mRNA Initiator Region- Increasing Custom Protein Production for Cheaper Biopharmaceuticals, Helping Climate Change, Better mRNA Vaccine Design and More!**

<https://isef.net/project/197290>

Ritvik Gupta, 16, Junior, Johnston High School, Johnston, Iowa, T:

CHEM025 **Optimizing Catalysts for the Hydrogenolysis of Polyethylene**

<https://isef.net/project/197289>

Emerson Waltz, 18, Senior, Algona High School, Algona, Iowa, T: Holly Waltz

FINALIST DIRECTORY

Ames, USIA50, State Science and Technology Fair of Iowa

- BEHA068** **Empathy Powered Pairing: A Trauma-Informed Pairing Algorithm for Traumatized Youth**
<https://isef.net/project/198762>
Trent William Hefner, 18, Senior, Maharishi School of the Age of Enlightenment, Fairfield, Iowa, T: Asha Sharma
- BMED069** **Green Tea Intake and Cognitive Decline in the Elderly: A Dose-Response and Cross-Cultural Meta-Analysis**
<https://isef.net/project/198107>
Xiaohan Wang, 19, Senior, Maharishi School of the Age of Enlightenment, Fairfield, Iowa, T: Asha Sharma
- EAEV063** **SPECO: A Novel Multiparametric Methane Forecasting and Mitigation System Using Quantum Long Short-Term Memory and Sonophotoelectrochemical Oxidation**
<https://isef.net/project/198222>
- ##** Shanza Sami, 16, Junior, West High School, Iowa City, Iowa, T: Carolyn Walling
- EGSD028** **Comparative Chemical Analysis of Plant-Based vs. Animal-Based Biodiesel: Impacts on Engine Performance and Emissions**
<https://isef.net/project/197735>
- #** Kelly Ako Takorbisong, 18, Senior, Keokuk High School, Keokuk, Iowa, T: Arie Schiller
- ENBM055** **Design and Development of an Adaptable Gear-Based Upper Limb Prosthesis Using Additive Manufacturing and a Novel Visco-Elastic Material**
<https://isef.net/project/198108>
- #** Benjamin Lothamer, 16, Sophomore, Mid-Prairie Home School Education Center, Kalona, Iowa, T: Claudia Preston
- MATS039** **The Investigation of the Effects of Muslin on Bilirubin to Aid in Curing Jaundice (Phase 3)**
<https://isef.net/project/197734>
- MCRO044** **Maribelle Lynne Zirkel, 17, Junior, Keokuk High School, Keokuk, Iowa, T: Arie Schiller**
Investigating Piperine as a Non-Synthetic Efflux Pump Inhibitor, to Restore Antibiotic Sensitivity in *Staphylococcus aureus*
<https://isef.net/project/197737>
- MCRO045** **Abby Lampe, 16, Sophomore, Algona High School, Algona, Iowa, T: Megan Rasmussen**
PCR Analysis of PRRSV Disinfection Protocols Based on Environmental Factors
<https://isef.net/project/197746>
- #** Valerie Savanna Rahe, 16, Junior, Beckman Catholic High School, Dyersville, Iowa, T: Cheryl Kluesner
- SOFT047** **A Multi-Stage Deep Learning Framework for Classification and Severity Quantification of Maize Gray Leaf Spot With Integrated Management Recommendations (DeGLS)**
<https://isef.net/project/198083>
Henry Zou, 17, Junior, Johnston High School, Johnston, Iowa, T: Cheryl Smith

KANSAS

El Dorado, USKS50, Kansas State Science and Engineering Fair

- BCHM010T** **Discerning the Relationship Between Copy Number and DsRed Fluorescence Marker**
<https://isef.net/project/193854>
Salina Wang, 17, Senior, Mian Zhao, 18, Senior, Manhattan High School, Manhattan, Kansas, T: Tingyuan Xiao

KENTUCKY

Louisville, USKY02, Louisville Regional Science and Engineering Fair

- CHEM008** **Developing a Novel Phenanthroimidazole-based Fluorescent Sensor for Detecting Analytes in an Aqueous Medium**
<https://isef.net/project/192733>
Varshith Kotagiri, 18, Senior, The Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Bowling Green, Kentucky, T: Samuel Earls

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- CHEM038** **Increasing Green Hydrogen Production Accessibility: Derived Magnetite Nanosheets on Nickel Foam as a Highly Active Electrocatalyst for Oxygen Evolution**
<https://isef.net/project/192732>
 # Asa Gray Ashley, 17, Senior, The Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Bowling Green, Kentucky, T: Samuel Earls
- ENBM007** **RecuNet: A Novel, Low-Cost, & Automated Pipeline for the Spatiotemporal Prediction of Brain Tumor Recurrence**
<https://isef.net/project/192051>
 # Gopalaniket Tadinada, 16, Sophomore, North Oldham High School, Goshen, Kentucky, T: Cristine McMahan
- PHYS020** **Axion Detection via CNNs: A Computational Approach to Unveiling Dark Matter**
<https://isef.net/project/192734>
 Rihaan Phillip Kapoor, 17, Sophomore, Trinity High School, St Matthews, Kentucky, T: Hallie Epperson
- PLNT015** **The Efficiency of Ayurvedic Remedies in Modulating Immune Response and Mitigating Rhinitis**
<https://isef.net/project/192799>
 Veeksha Katta, 17, Junior, North Oldham High School, Goshen, Kentucky, T: Cristine McMahan
- Louisville, USKY03, Dupont Manual High School Regional Fair**
- BMED044** **Unveiling Synergistic Anti-Inflammatory Effects of Neem Leaf Bioactives: A Low-Cost, Eco-Friendly Breakthrough for Sustainable Disease Treatment**
<https://isef.net/project/193855>
 Arjun Sharma, 16, Junior, duPont Manual High School, Louisville, Kentucky, T: Keri Plevchak
- EBED022** **Vita Seat: An Innovative Toilet Seat With Built-In UV Sanitization for Health Monitoring of Cardiovascular and Respiratory Diseases**
<https://isef.net/project/193829>
 # Annika Chadha, 15, Sophomore, duPont Manual High School, Louisville, Kentucky, T: Keri Plevchak
- EGSD016** **In silico Design of sgRNAs for CRISPR/Cas9 Mediated Gene Mutagenesis of *Arundo donax* to Optimize Biofuels**
<https://isef.net/project/193828>
 # Sivani R. Babu, 17, Junior, duPont Manual High School, Louisville, Kentucky, T: Keri Plevchak
- ENBM026** **Real-Time Insole-Integrated Pressure Mapping and Patient-Specific 3D-Printed Orthotics for Accessible, Low-Cost AI-Driven Detection and Prevention of Diabetic Peripheral Neuropathy**
<https://isef.net/project/193851>
 Ajay Maulin Sutaria, 16, Sophomore, duPont Manual High School, Louisville, Kentucky, T: Keri Plevchak
- MATS018** **Next-Gen Smart Materials: Thermo-Responsive and Conductive 3D Printable Polymer Gels**
<https://isef.net/project/193101>
 # Vallabh Ramesh, 17, Junior, duPont Manual High School, Louisville, Kentucky, T: Keri Plevchak
- Lexington, USKY05, Central Kentucky Regional Science and Engineering Fair**
- CBIO015** **Novel Differentially Expressed Genes in Alzheimer's Disease, LATE and Their Co-Occurrence**
<https://isef.net/project/193248>
 Saikrish Kolli, 16, Sophomore, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Elizabeth Pelphrey

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- ENBM039** **MaR-VeL: Novel 3-D Magnetic-Controlled Bioprinted Encapsulation and Robotic Systems for Enhanced Stem Cell Integration and Regeneration**
<https://isef.net/project/196954>
 Tejas Basneth, 15, Sophomore, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Elizabeth Pelphrey
- ROBO019** **Improving Generalizability in Exemplar-Free Class-Incremental Learning**
<https://isef.net/project/192919>
 Arimitsu Horikawa Strakovsky, 18, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Elizabeth Pelphrey
- Prestonsburg, USKY06, East Kentucky Regional Science and Engineering Fair**
- TMED053** **Association of P2X1 Receptor Signaling With Tissue Factor Expression and Nerve Degeneration in Lung Adenocarcinoma**
<https://isef.net/project/197722>
 Anikaa Sharma, 14, Freshman, Pikeville High School, Pikeville, Kentucky, T: Phillip Jen
- Richmond, USKY50, Kentucky Science and Engineering Fair**
- BCHM030** **A New Enzymatic Distance Concept Enables Machine Learning Regression of Metabolite Chemical Representation Features to Distance in Metabolism**
<https://isef.net/project/198110>
- #** Grace Sun, 17, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Elizabeth Pelphrey
- CELLO45** **TAK1 Signaling Regulates the Secretory Capacity of Skeletal Muscle Fibroblasts in Response to Inflammatory Cytokines**
<https://isef.net/project/198360>
 Adarsh Kannappan, 16, Junior, duPont Manual High School, Louisville, Kentucky, T: Keri Polevchak
- ENBM056** **Low-Cost Portable Device for At-Home Early Multi-Cancer Detection Using Bioimpedance and Multispectral Imaging Technologies**
<https://isef.net/project/198111>
 Aishwarya Ramasamy, 16, Sophomore, duPont Manual High School, Louisville, Kentucky, T: Keri Polevchak
- MATS054** **Analysis of Machining Parameters Effects on Surface Integrity of Titanium**
<https://isef.net/project/198535>
 Clara Grace Fuller, 17, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Elizabeth Pelphrey
- TECA009** **Algorithmic Image Enhancement by Combining Multiple Images**
<https://isef.net/project/198112>
 Maylin Marie Kidwell, 14, Freshman, duPont Manual High School, Louisville, Kentucky, T: Keri Polevchak
- TMED068** **Overcoming Docetaxel Resistance in Prostate Cancer**
<https://isef.net/project/198588>
 Thomas Yuan, 17, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Elizabeth Pelphrey

LOUISIANA

- Baton Rouge, USLA01, Louisiana Region VII-Science and Engineering Fair**
- MCRO029** **A Novel Biological Treatment for Antibiotic-Resistant Vibrio Infections in Aquaculture**
<https://isef.net/project/193389>
 Abigail Qi, 16, Sophomore, Baton Rouge Magnet High School, Baton Rouge, Louisiana, T: Tiffany Moore
- SOFT019** **Hybrid Incremental Learning: A Novel Approach to Time Series Forecasting**
<https://isef.net/project/193378>
- #** Sofia Chenglan Zhu, 16, Junior, Baton Rouge Magnet High School, Baton Rouge, Louisiana, T: Tiffany Moore
- TMED027** **Investigating the Oncolytic and Immunomodulatory Effects of Herpes Simplex Virus in Pancreatic Ductal Adenocarcinoma**
<https://isef.net/project/193386>
 Dev Raj Iyer, 15, Freshman, Baton Rouge Magnet High School, Baton Rouge, Louisiana, T: Tiffany Moore

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Bossier City, USLA02, Bossier Parish Community College Louisiana Region I Science and Engineering Fair

CBIO016 **Multivariate Predictive Analysis of Non-Alcoholic Steatohepatitis Risk Using Comorbid Diagnoses and FibroScan Metrics**

<https://isef.net/project/193258>

Adya Siri Darsi, 16, Junior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Cameron Hall

CELL015 **Investigating the Synergistic Role of IL-1 β and TGF- β in Endothelial-to-Mesenchymal Transition in Coronary Artery Disease**

<https://isef.net/project/193249>

Aashni Shah, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Cameron Hall

EBED011 **Development of a Novel Solution for Mitigation of Debilitating Decubitus (Pressure) Ulcers, Year Two**

<https://isef.net/project/192229>

Maya Julia Trutschl, 17, Junior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Cameron Hall

Houma, USLA03, Terrebonne Parish Science Fair

MCRO012 **How Germy Is It?**

<https://isef.net/project/192213>

Ava Corinne Porche, 17, Junior, Terrebonne High School, Houma, Louisiana, T: Raymona Boyd

PHYS012 **RF: Life or Death?**

<https://isef.net/project/192230>

Noah Earl Naquin, 15, Freshman, South Terrebonne High School, Bourg, Louisiana, T: Chris Brown

Lafayette, USLA04, Louisiana Region VI Science and Engineering Fair

BMED060 **Investigating Associations Between Smoking History and Gene Expression in Cultured Cells**

<https://isef.net/project/197298>

Siyeon Joo, 17, Senior, Episcopal School of Acadiana, Broussard, Louisiana, T: Brittany Grissom

Lake Charles, USLA05, Louisiana Region V Science and Engineering Fair

ROBO001 **Deep Learning of Lepidolite Images for Real Time Lithium Ore Detection on a Planetary Rover**

<https://isef.net/project/190820>

Ethan Wang, 17, Junior, Alfred M. Barbe High School, Lake Charles, Louisiana, T: Yvette Richey

SOFT001 **Increased System Stability Through Windows Optimizing Utility**

<https://isef.net/project/190819>

Joshua Daniel Chiruguru, 15, Freshman, LaGrange Senior High School, Lake Charles, Louisiana, T: Suresh Chennam

New Orleans, USLA08, Greater New Orleans Science and Engineering Fair

ENBM017 **Improving Quality of CPR Chest Compressions in Active Compression-Decompression Device**

<https://isef.net/project/192923>

Zoe Kloss, 16, Junior, Patrick F. Taylor Science & Technology Academy, Westwego, Louisiana, T: Rebekah Kraus

ETSD016 **Skateboard Stoppers: A Novel, Safer Way to Learn How to Skateboard**

<https://isef.net/project/192880>

Gray Hunter Gankendorff, 18, Senior, The Willow School, New Orleans, Louisiana, T: Matthew Owen

ROBO020T **A Novel Implementation of Machine Learning in Smart Waste Management Systems**

<https://isef.net/project/192922>

Jai Bansal, 17, Junior, Jackson David Paul Dirks, 17, Junior, Isidore Newman School, New Orleans, Louisiana, T: David Kern

FINALIST DIRECTORY

- TMED008** **A Novel Convolutional Neural Network to Detect and Classify Brain Tumors**
<https://isef.net/project/192211>
 Thomas Brennan Gershanik, 17, Junior, Isidore Newman School, New Orleans, Louisiana,
 T: David Kern
- Baton Rouge, USLA50, Louisiana Science and Engineering Fair**
- BEHA052** **The Whole Climate: Assessing Student and Teacher Mental Wellness**
<https://isef.net/project/198233>
 Allison Clare Riley, 17, Junior, St. Joseph's Academy, Baton Rouge, Louisiana,
 T: Jacqueline Savoia
- EAEV054** **Controlling Invasive *Salvinia molesta* Weeds by Using *Cyrtobagous salviniae***
<https://isef.net/project/197890>
 Caroline Thomas, 17, Junior, Saint Joseph's Academy, Baton Rouge, Louisiana,
 T: Jacqueline Savoia
- EAEV055** **Corrosion Resistance of Pipes in Louisiana Regarding the Mississippi River Saltwater Intrusion**
<https://isef.net/project/197937>
 Sarah Sapa Nguyen, 17, Junior, Patrick F. Taylor Science & Technology Academy,
 Westwego, Louisiana, T: Rebekah Kraus
- ETSD043** **Canal-Accumulated Trash Capture and Handling (C.A.T.C.H.)**
<https://isef.net/project/197894>
 Jackson Westfeldt Windmeyer Fitzpatrick, 17, Junior, Isidore Newman School,
 New Orleans, Louisiana, T: David Kern
- PLNT053** **Assessing Naturally Fish-Bearing Water for Aquaponics**
<https://isef.net/project/198936>
 Charlotte Anne Sanders, 16, Sophomore, Baton Rouge Magnet High School,
 Baton Rouge, Louisiana, T: Tiffany Moore
- SOFT041** **Using Machine Learning To Statically Analyze JavaScript for Cross-Site Scripting Vulnerabilities**
<https://isef.net/project/197845>
 Timothy Namikas, 16, Junior, Episcopal School of Baton Rouge, Baton Rouge, Louisiana,
 T: Jeff McLean

MAINE

- Bar Harbor, USME50, Maine State Science Fair**
- CBIO067** **A Data-Driven Exploration of Albumin-Creatinine Ratio as a Biomarker for Myocardial Infarction Risk: A Multivariate Analysis**
<https://isef.net/project/198226>
 Ryan Werthmann, 17, Junior, Falmouth High School, Falmouth, Maine, T: Andrew Njaa
- EGSD044** **A Computer Model for Efficient Offshore Wind Farm Siting in the North Atlantic**
<https://isef.net/project/198338>
 Zelda Anesko, 17, Junior, Brunswick High School, Brunswick, Maine, T: Sue Perkins
- MCRO051** **Improving the Effectivity of Nitrate Removal in Biosand Filters Using *N. oculata***
<https://isef.net/project/198337>
 Sofie Rueter, 18, Senior, Bangor High School, Bangor, Maine, T: Barbara Stewart

MARYLAND

- Annapolis, USMD01, Anne Arundel County Regional Science and Engineering Expo**
- ANIM035** **Integrating Mitochondrial Genome Sequencing and Habitat Modeling to Inform Marine Protected Area Design for Deep-Sea Octocoral Conservation**
<https://isef.net/project/196963>
 # Kendall Mae Allman, 17, Senior, Archbishop Spalding High School, Severn, Maryland,
 T: Victoria Romanoski
- CELLO27T** **Measuring Cell-Free Protein Synthesis With NADH**
<https://isef.net/project/196074>
 Anna Schneider, 18, Senior, Jacob Alexander Scanlon, 17, Junior, Broadneck High School,
 Annapolis, Maryland, T: Rebecca Wallace

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- PHYS025** **The Audience Is Listening**
<https://isef.net/project/193077>
 Megan Alexis Hylan, 14, Freshman, Meade Senior High School, Fort Meade, Maryland,
 T: Christine Crisostomo
- Frederick, USMD02, Frederick County Science and Engineering Fair**
- ENBM047** **Bi-Stable Auxetic Stent for Enhanced Vascular Conformability Using Machine Learning and Finite Element Analysis**
<https://isef.net/project/197478>
 Tarun Malarvasan, 17, Senior, Urbana High School, Ijamsville, Maryland,
 T: Elizabeth McCook
- ROBO043** **Flying Hawk: An Innovative Algorithm To Enhance Drone Performance by PID Controller Tuning**
<https://isef.net/project/197315>
 Victor Li Wang, 14, Sophomore, Urbana High School, Ijamsville, Maryland,
 T: Colleen Beall
- New Market, USMD03, ScienceMontgomery**
- MATH042** **A Novel Theory-Driven Approach for Model Compression in Deep Neural Networks**
<https://isef.net/project/199163>
 Alyssa Yu, 16, Junior, Poolesville High School, Poolesville, Maryland, T: Kevin Lee
- PHYS076** **The First Quantum Computing Model Using Hadamard Random Walk and Grover Search for Semantic Memory in Neurodegenerative Diseases**
<https://isef.net/project/199164>
 David Jaewon Myung, 18, Senior, Montgomery Blair High School, Silver Spring, Maryland, T: Jonathan Fritz
- TMED084** **Discovery of Novel Self-Antigens in IgG4-Related Disease Using Computational Modeling and Human Proteome Screening**
<https://isef.net/project/199156>
 Mahilan Guha, 18, Senior, Montgomery Blair High School, Silver Spring, Maryland,
 T: Jonathan Fritz
- Capitol Heights, USMD05, Prince George's Area Science Fair**
- ENBM036** **AutoTKT: A Novel Method for Intuitive and Accessible Hemorrhage Control in Extremities**
<https://isef.net/project/196070>
 Sam Kweskin, 16, Sophomore, Eleanor Roosevelt High School, Greenbelt, Maryland,
 T: Ronald Ramos
- ETSD030** **Spike Saver—A New Technology That Can Protect Track and Field Athletes From Inefficiency**
<https://isef.net/project/195935>
 Audrey Mahala Gutekunst, 16, Sophomore, Great Mills High School, Great Mills, Maryland, T: Charles Skinner
- TECA007T** **TouchBraille: A Tablet for the Blind**
<https://isef.net/project/195934>
 Angela Hou, 17, Junior, Abril Esparza, 17, Junior, Great Mills High School, Great Mills, Maryland, T: Charles Skinner
- Baltimore, USMD07, Morgan State University Science-Mathematics-Engineering Fair**
- ENBM031** **Harnessing *Saccharomyces cerevisiae* to Assess a Novel Genetic Circuit Targeting p53 & Mdm2 for Cancer Therapy**
<https://isef.net/project/195854>
 Dylan Joseph Paoletti, 16, Junior, Patterson Mill Middle High School, Bel Air, Maryland,
 T: Keven Moldenhauer
- ENBM034** **Neuroprosthetics: Restoring Ability and Enhancing Accessibility**
<https://isef.net/project/195929>
 Nikash Kumar, 16, Sophomore, Atholton High School, Columbia, Maryland,
 T: Mabrooka Chaudhry

FINALIST DIRECTORY

MASSACHUSETTS

Cambridge, USMA50, Massachusetts State Science & Engineering Fair

BCHM027 Integrative Modulation of Reproductive Longevity and Chronic Stress Resilience in *Caenorhabditis elegans* via Dual Antioxidant-Induced SIRT1-FOXO3 and Nrf2-Keap1 Axis Activation and Epigenomic Stabilization Using Resveratrol and Astaxanthin

<https://isef.net/project/197919>

Jayaratna Deshamouni, 15, Freshman, Shrewsbury High School, Shrewsbury, Massachusetts, T: Vinh Nguyen

BEHA071 Predicting Poverty Using Demographic and Socioeconomic Features: A United States Based Machine Learning Study

<https://isef.net/project/199015>

Qiaorui Zhang, 17, Junior, Newton North High School, Newton, Massachusetts, T: Tracey Stewart

BMED084 Investigating the Neuroprotective Potential of *T. ammi* Extract on Parkinson's Disease via Gut-Brain Modulation

<https://isef.net/project/198940>

Vyshnavi Donthabhaktuni, 15, Junior, Massachusetts Academy of Math and Science at WPI, Worcester, Massachusetts, T: Kevin Crowthers

BMED085 Demographic and Genetic Insights Into ARID1A Mutations in Hepatocellular Carcinoma: Implications for Prognosis and Treatment

<https://isef.net/project/198943>

Agastya Sarmah, 18, Senior, Sharon High School, Sharon, Massachusetts, T: Zachary Snow

CBIO059 Designing Ligand Functionalized Synthetic Exosomes for Targeted CRISPR-Cas9 Delivery: A Multistep Computational Approach to Cancer Treatment

<https://isef.net/project/197918>

Aru Sharma, 15, Freshman, North Attleboro High School, North Attleboro, Massachusetts, T: Alexander Hatzberger

CBIO072 Inference of Cell-Cell Communication to Understand the Molecular Mechanisms of Alzheimer's Disease

<https://isef.net/project/198937>

Adrita Samanta, 16, Junior, Greater Commonwealth Virtual School, Greenfield, Massachusetts, T: Animesh Bose

ENBM068 Empowering Low-Resource Settings With RetinAI: An AI System With a Wearable Headset and Retinal Imaging for Eye Tumor Home-Screening

<https://isef.net/project/198536>

Ethan Yan, 15, Sophomore, Groton School, Groton, Massachusetts, T: Michael Gnozzio

ENBM069 Smartbell: Chip-enabled and AI-driven Dumbbells for Optimized Upper-Body Strength Training

<https://isef.net/project/198557>

Ziyu Wang, 17, Sophomore, Deerfield Academy, Deerfield, Massachusetts, T: Caleb Corliss

ENBM070T Cuffless Blood Pressure Measurement via Pulse Transit Time Analysis and Arduino

<https://isef.net/project/198563>

Shuting Zhu, 17, Junior, Louis Chiu, 17, Junior, John D. O'Bryant School of Mathematics and Science, Roxbury, Massachusetts, T: Nicola Sumner

ENBM082T The GlycoCharge: A Translational Spectrophotometric Apparatus for Noninvasive Glucose Monitoring in Type II Diabetics Using Correlated Electrolyte Concentrations

<https://isef.net/project/199127>

Dylan Nayan Striek, 17, Senior, Anoushka Sudesh Nair, 18, Senior, Hopkinton High School, Hopkinton, Massachusetts, T: Kristen Murphy

FINALIST DIRECTORY

- ETSD051** **A Modular Ionic Wind Cooling System Based on High-voltage Pulse Generator and Sensors**
<https://isef.net/project/198537>
 Alex Hu, 18, Junior, Tabor Academy, Marion, Massachusetts, T: David Wellstead
- ETSD052** **SkyProbe: A Thrust Vectoring UAV for Enhanced Contact-Based Inspection Performance in Windy Conditions**
<https://isef.net/project/198606>
 Jingxuan Zhou, 18, Junior, Northfield Mount Hermon School, Gill, Massachusetts, T: David Reeder
- ETSD057** **From Crude to Extrude: A Novel Approach to Combining Pultrusion and Extrusion Technologies Into a Single Filament Production System to Recycle PET Bottle Waste and 3D Printing Purge Materials Into Additive Manufacturing Filament**
<https://isef.net/project/199155>
 Benjamin Callahan Davis, 16, Sophomore, Bishop Feehan High School, Attleboro, Massachusetts, T: Kelly Gomez
- ROBO069** **Creating a Soft Biomimetic Robotic Snake With an Anisotropically Frictional Skin Design Optimized for a Lateral Undulation Gait for Rubble Search and Recovery**
<https://isef.net/project/199016>
 Nichelle Thinagar, 16, Sophomore, Shrewsbury High School, Shrewsbury, Massachusetts, T: Ryan Stoens
- SOFT057** **HM-Detect: Murmur Detection and Classification Methodology Using A Novel C²-LSTM Architecture for Multi-Modal Signals**
<https://isef.net/project/198939>
 Ram Sivaraman, 17, Senior, Acton Boxborough Regional High School, Acton, Massachusetts, T: Brian Dempsey

MICHIGAN

- Farmington, USMI02, Science and Engineering Fair of Metropolitan Detroit**
- CBIO026** **Chronic Inflammation Resolution in Obese Women: Biomarkers of Sustained Immune Remodeling Post-RYGB**
<https://isef.net/project/195705>
 Ahyoung Song, 16, Sophomore, International Academy, Troy, Michigan, T: David Lyons
- CELL022T** **Decoding ASXL3: A Novel Predictor of the Spectrum, Onset and Treatment for Neurodevelopmental Disorders**
<https://isef.net/project/195718>
- # Maya Sarah Hammoud, 17, Junior, Lara Hammoud, 17, Junior, Detroit Country Day School, Beverly Hills, Michigan, T: Lara McMillan
- EAEV037** **Evaluating Seasonal and Annual Imagery for Enhanced Wetland Classification Using Remote Sensing**
<https://isef.net/project/196971>
 Divya Nema, 16, Sophomore, Novi High School, Novi, Michigan, T: James Didio
- EGSD018** **Harnessing Ocean Waves: A Sustainable Approach to Desalination**
<https://isef.net/project/195703>
 Sunny Rong, 17, Junior, Greenhills School, Ann Arbor, Michigan, T: Julie Smith
- MATH024** **Enhancing Symbolic Regression and Universal Physics-Informed Neural Networks With Dimensional Analysis**
<https://isef.net/project/195702>
 Joshveer Singh Grewal, 17, Senior, Northville High School, Northville, Michigan, T: Gabriel Pak
- ROBO032** **Chain of Action (CoA): LLM-Powered Multi-Agent Hexapod-Drone System**
<https://isef.net/project/195709>
- # Haodong Wei, 17, Junior, Cranbrook Kingswood School, Bloomfield Hills, Michigan, T: Stephanie Kokoszka

FINALIST DIRECTORY

- SOFT023** **Adapter-Enabled Multimodal Spiking Encoder/Decoder Neural Subnetwork Ensembles for Large-Scale Logical Neuromorphic Accelerators**
<https://isef.net/project/195704>
 Dean Ahmed Jordan, 16, Sophomore, International Academy, Bloomfield Hills, Michigan, T: Charles Stewart
- Bloomfield Hills, USMI03, Flint Regional Science & Engineering Fair**
- BEHA041T** **A Novel Audio-Video Multimodal Deep Learning Model for Improved Deepfake Detection To Combat Disinformation**
<https://isef.net/project/197508>
- # Louis Zican Huang, 16, Junior, Emma Huang, 14, Freshman, Herbert Henry Dow High School, Midland, Michigan, T: Thomas McNamara T: Kristin Weston
- CBIO048** **Computational Modeling of Bispecific Antibodies Targeting CD30+ Cells in Hodgkin Lymphoma and Anaplastic Large Cell Lymphoma**
<https://isef.net/project/197505>
 Rithvik Venisetty, 17, Junior, Grand Blanc High School, Grand Blanc, Michigan, T: Gaurav Sharma
- EAEV045** **Optimizing Aquatic Oil Spill Clean Up: Oil Viscosity and Ferrofluid Composition**
<https://isef.net/project/197504>
- # Miriam Noëlle Haddad, 18, Senior, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: Clara Wagner
- ETSD037** **Experimental Analysis of Winglet Configurations to Optimize Aerodynamic Efficiency**
<https://isef.net/project/197506>
 Blaise Maliskey, 18, Senior, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: Clara Wagner
- TMED050** **Mixed Reality Application for Pancreatic Surgery**
<https://isef.net/project/197507>
 Diya R. Ramakrishnan, 15, Sophomore, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: Clara Wagner
- Kalamazoo, USMI07, Southwest Michigan Science & Engineering Fair**
- ENBM044** **OpenChip: An Accessible, Low-Cost Organ-on-a-Chip Platform for Ethical Drug Testing**
<https://isef.net/project/197238>
- # Suraj Dixit, 17, Senior, Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: Rebecca Joyce
- PLNT032T** **Investigating the Genes and Biochemical Pathway Responsible for Caffeine Production in *Ilex vomitoria* (Yaupon Holly)**
<https://isef.net/project/197240>
 Janelle Yao, 17, Junior, Claire Tong, 17, Junior, Aanya Goel, 17, Junior, Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: Rebecca Joyce
- Farmington, USMI50, Michigan Science and Engineering Fair**
- CBIO071T** **The Novel Role of KRT Proteins as Biomarkers in the Dysregulated Neuroendocrine System of ALS for Early Diagnosis With PT150 as a Novel Multi-Target Neuroprotective Therapeutic**
<https://isef.net/project/198538>
 Arnab Sharma, 15, Sophomore, Aryav Das, 16, Sophomore, Samarth Pushkar Dunakhe, 15, Sophomore, International Academy, Troy, Michigan, Park Tudor School, Indianapolis, Indiana, Arizona College Prep High School, Chandler, Arizona, T: David Lyons
- EBED039T** **Using Per-Channel Energy Normalization to Enhance Accuracy in Machine Learning-Based Lung Sound Classification**
<https://isef.net/project/198539>
 Samer Abed Rahman, 16, Junior, Nathan Yuchen Ma, 17, Junior, Detroit Country Day School, Beverly Hills, Michigan, T: Harry Fried

FINALIST DIRECTORY

MINNESOTA

Duluth, USMN02, Northeast Minnesota Regional Science Fair

ENEV009 **Determining the Reaction Time of Sulfide Removal for Large-Scale Water Treatment**
<https://isef.net/project/191164>
Ethan James Lavan, 16, Junior, Cloquet Senior High School, Cloquet, Minnesota,
T: Cynthia Welsh

TMED005 **Use of *Nuphar advena* as a Biodegradable Disinfectant and Anticancer Agent**
<https://isef.net/project/191449>

Johanna Lynn Bernu, 18, Senior, Cloquet Senior High School, Cloquet, Minnesota,
T: Cynthia Welsh

Plymouth, USMN04, Twin Cities Regional Science Fair

BEHA014 **CALM-R: Creating and Optimizing the Impact of a Multisensory Mental Wellness Space in Public Schools**
<https://isef.net/project/192731>
Bersy Yonas, 17, Junior, East Ridge High School, Woodbury, Minnesota,
T: Yonas Gebrewold

CBIO011 **Decoding Diabetes: Harnessing AI to Accurately Predict Real-Time and Future Blood Glucose Levels for Diabetes Management Using Diet, Exercise, Insulin Intake and Heart Rate Variability**
<https://isef.net/project/192730>

Riddhi Pritam Singhvi, 14, Sophomore, Stillwater Area High School, Stillwater, Minnesota, T: Princessa Hansen

ENEV026 **Development of Edible Active Coating From Agro-Waste for Produce Preservation**
<https://isef.net/project/192729>

Alyssa Wang, 16, Sophomore, East Ridge High School, Woodbury, Minnesota,
T: Stephanie Harberts

TECA017 **Coding AI To Enhance Speech Therapy**
<https://isef.net/project/192728>

Ethan John Nguyen Finch, 16, Sophomore, Stillwater Area High School, Stillwater, Minnesota, T: Staci Brown

Crookston, USMN05, Western Minnesota Regional Science Fair

CELL002 **Simulating Diabetic Peripheral Neuropathy: A Cellular Model for Nerve Degeneration Studies**
<https://isef.net/project/190821>

Alexis Kay Scheid, 16, Sophomore, Park Christian School, Moorhead, Minnesota,
T: Kyle Kemp

Rochester, USMN07, Rochester Regional Science & Engineering Fair

MATS015 **Optimizing Biologic Paint Drying Time With Cellulose Nanocrystals and Chitosan Additives: Benchmarking Against Commercial Paints—Year 4**
<https://isef.net/project/192747>
Rathan Duggirala, 16, Sophomore, Mayo High School, Rochester, Minnesota,
T: Christin Stegenga

TMED016 **Development of an Immunofluorescent Test to Detect Measles Virus Proteins and Transgenes in Clinical Samples from Patients Treated With Oncolytic Measles Virus Strains**
<https://isef.net/project/192727>
Ana Milosevic, 17, Junior, Century High School, Rochester, Minnesota,
T: Laura Unterholzner

Plymouth, USMN09, St. Paul Science Fair

BMED032 **The Impact of Varying Levels of Hydration on Concussion Severity**
<https://isef.net/project/192916>

Maren Anne Overgaard, 17, Junior, Saint Paul Academy and Summit School, Saint Paul, Minnesota, T: Karissa Baker

SOFT013 **Integrity: Generalized Artificial Image Classification With Noise Domain Localization**
<https://isef.net/project/192726>

Huxley Grey Westemeier, 17, Junior, Saint Paul Academy and Summit School, Saint Paul, Minnesota, T: Kate Lockwood

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Plymouth, USMN10, Western Suburbs Science Fair

CHEM014 Silver Nanoparticles From Food Waste: An Innovative Green Synthesis to Remove Synthetic Dyes for Novel Applications in Water Treatment

<https://isef.net/project/192921>

Tyler Alan Clair, 18, Senior, Minnetonka High School, Minnetonka, Minnesota,
T: Kevin Burns

ENBM015 HOPE: A Novel Automated Device for Hemorrhage Control in Pediatric Firearm Emergencies

<https://isef.net/project/192723>

Mira Ishani Jayant, 16, Sophomore, Minnetonka High School, Minnetonka, Minnesota,
T: Jayant Parthasarathy

MATS014 A Reusable Teabag for the Detection and Bioremediation of Arsenic From Drinking Water

<https://isef.net/project/192724>

Vick Jialu Tan, 16, Sophomore, EP Academy, Eden Prairie, Minnesota, T: Lawrence Tan

PLNT018 FULL MOON: A Novel and Economical Method for Sustainable Agriculture on the Moon

<https://isef.net/project/192912>

Quinn Jacie Hughes, 18, Senior, Minnetonka High School, Minnetonka, Minnesota,
T: Elizabeth Hughes

ROBO016 Evolving Neural Networks to Exploit Problem Processing Regularities

<https://isef.net/project/192725>

Razeen Abdul-Field, 18, Senior, Minnetonka High School, Minnetonka, Minnesota,
T: Caitlin McWhirter

St. Paul, USMN50, Minnesota Academy of Science State Science & Engineering Fair

BEHA048 emoTune: New AI-Based Approaches to Assistive Technology for Individuals With Autism Spectrum Disorder

<https://isef.net/project/198086>

Simran Kaur, 16, Junior, Minnetonka High School, Minnetonka, Minnesota,
T: Patricia Price

CBIO055 An Artificial Intelligence-Electrocardiogram Model for Prediction of Dementia: The Atherosclerosis Risk in Communities (ARIC) Study

<https://isef.net/project/197828>

Deling Chen, 18, Senior, Saint Paul Academy and Summit School, Saint Paul, Minnesota,
T: Karissa Baker

CELLO38 A Scalable, Cost-Effective and Noninvasive Optogenetic Platform for Probing Synaptic Plasticity in Neurodegenerative Disease Research

<https://isef.net/project/198087>

Evan Joseph Morris, 17, Junior, Saint Paul Academy and Summit School, Saint Paul, Minnesota, T: Karissa Baker

ENBM052 Characterizing Novel Methylation and Cleavage Pathways in Borosin Natural Product Precursor SamA1

<https://isef.net/project/197883>

Juniper Setterberg, 17, Senior, Breck School, Golden Valley, Minnesota, T: Kati Kragtorp

ROBO049 Bridging Linguistic Divides: Cross-Lingual Transfer Learning and Pseudo-Labeling for Natural Language Processing in Low-Resource Languages

<https://isef.net/project/197834>

Lucas Granucci, 16, Junior, Minnetonka High School, Minnetonka, Minnesota,
T: Caitlin McWhirter

MISSISSIPPI

Booneville, USMS02, Mississippi Region IV Science Fair

PLNT039 Effectively Managing the Germination of *Ambrosia artemisiifolia* Through Allelopathic Plant Species as a Bioherbicidal Substitute

<https://isef.net/project/197846>

Carter Bond Gowen, 15, Sophomore, EAGLE Homeschool Association, Rienzi, Mississippi, T: Courtney Gowen

FINALIST DIRECTORY

Cleveland, USMS03, Mississippi Region III Science and Engineering Fair

BCHM012 Investigating the Effect of pH on Papain Enzyme Activity With Multiple Protein Substrates

<https://isef.net/project/195686>

Baruni Jakkula, 15, Sophomore, Cleveland Central High School, Cleveland, Mississippi, T: Jody McIntosh

Jackson, USMS05, Mississippi Region II Science and Engineering Fair

BEHA026 Correlation Between Performance of Students Taking Assessments and Behaviors of Students in the Classroom

<https://isef.net/project/195721>

Ria Pradip Patel, 16, Sophomore, St. Andrew's Episcopal School, Ridgeland, Mississippi, T: Marks McWhorter

BMED055 Inconsistent and Consistent Diets Related to Weight Gain Using Fruit Flies (*Drosophila melanogaster*) as a Model Organism

<https://isef.net/project/196991>

Emma Teresa Romero, 15, Sophomore, St. Andrew's Episcopal School, Ridgeland, Mississippi, T: Marks McWhorter

BMED056 The Role of Bacterial Cellulose in Advancing Regenerative Medicine Through Enhanced Healing, Infection Management, and Tissue Engineering

<https://isef.net/project/197005>

Pranav Reddy, 17, Senior, St. Andrew's Episcopal School, Ridgeland, Mississippi, T: Marks McWhorter

Mississippi State, USMS06, Mississippi Region V Science and Engineering Fair

ENEVO28 Mercury Extraction Using Sulfur Lignin Foams

<https://isef.net/project/192879>

Katie Chung, 15, Sophomore, Starkville High School, Starkville, Mississippi, T: Sarah Langford

TMED019 Oxidative Stress-Induced Protein Aggregation in *Saccharomyces cerevisiae* BY4741 Exhibits Potential Pattern Relevant in Early Alzheimer's Disease

<https://isef.net/project/192903>

Joe Yang, 18, Senior, Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Lisa Smith

Oxford, USMS07, Mississippi Region VII Science and Engineering Fair

BCHM023 Synergistic Effects of D-Amino Acids and Ciprofloxacin on *Staphylococcus epidermidis* Biofilms and Viability

<https://isef.net/project/197472>

Jasmaan Banipal, 17, Junior, The Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Lisa Smith

SOFT034 Authorship Verification for Academic Dishonesty in the Era of AI

<https://isef.net/project/197471>

Jun Jang, 16, Junior, Oxford High School, Oxford, Mississippi, T: Deborah Jones

Long Beach, USMS08, Mississippi Regions I and VI Science and Engineering Fair

BMED020 Diet, Sleep Disruptions, and Neurodegeneration: Investigating Risk Factors for Neurocognitive Disorders Using *Caenorhabditis elegans*

<https://isef.net/project/192309>

Shayleen M. Moeini, 18, Senior, St. Patrick Catholic High School, Biloxi, Mississippi, T: Debbie Worrel

SOFT006 EmoBot: An AI-Powered Interactive System for Children With ASD to Learn Emotions in Human Speech

<https://isef.net/project/191842>

Jiarui Michelle Xie, 15, Sophomore, Oak Grove High School, Hattiesburg, Mississippi, T: Zhifu Xie

Hattiesburg, USMS50, Mississippi Science and Engineering State Fair

EBED035 Preventing Traffic Accidents Involving Right-Turn-On-Red at Intersections With Edge AI

<https://isef.net/project/197923>

Yoon Jang, 15, Freshman, Oxford High School, Oxford, Mississippi, T: Deborah Jones

FINALIST DIRECTORY

- ETSD049** **The MCAW: A Magnetically Compounding Accelerator for Watercraft**
<https://isef.net/project/198231>
Jonathan Carr Stancill, 18, Senior, The Mississippi School for Mathematics and Science,
Columbus, Mississippi, T: Lisa Smith

MISSOURI

- Cape Girardeau, USMO01, Southeast Missouri Regional Science Fair**
- CHEM018** **Exploring and Detecting PFAS in Missouri Farmland Soil**
<https://isef.net/project/193800>
Emma Mae Fetterhoff Hoffman, 17, Junior, Perryville Senior High School, Perryville,
Missouri, T: Leanne Thele
- MCRO022T** **Glowing Warnings: Using *Aliivibrio fischeri* for Toxin Detection**
<https://isef.net/project/192909>
Eli Richard Pavy, 16, Junior, Thomas Isaac Winchester, 16, Sophomore, Clarkton Junior
Senior High School, Clarkton, Missouri, T: Tiska Rodgers
- Joplin, USMO03, Missouri Southern Regional Science Fair**
- ANIM046** **The Effect of Grain-Free vs. Grain-Inclusive Dry Dog Food on Triiodothyronine Levels
in Mice**
<https://isef.net/project/197924>
Hannah Jane Sargent, 18, Senior, Joplin High School, Joplin, Missouri, T: Karisa Boyer
- PHYS044** **A Novel Analysis of the Redshift Dependence of the Masses of the Supermassive Black
Holes of a Sample of Quasars**
<https://isef.net/project/197014>
Christian Wyatt Cavener, 17, Senior, Joplin High School, Joplin, Missouri, T: Karisa Boyer
- Kansas City, USMO04, Greater Kansas City Science & Engineering Fair**
- CELLO36** **Identification of Novel Biomarkers in Altered Neurogenesis**
<https://isef.net/project/197833>
Elizabeth Rose Barnes, 16, Junior, Shawnee Mission West High School, Overland Park,
Kansas, T: Kenneth Lee
- CELLO47** **Effect of Telomere Targeted 8-Oxoguanine Stress in Combination With DNA Damage
Response Inhibitors on Genomic Instability in Cancer**
<https://isef.net/project/198589>
Anna Jean Holland, 18, Senior, Shawnee Mission East, Prairie Village, Kansas,
T: Kenneth Lee
- EAEV053** **The Combinatorial Effects of "Forever Chemicals" on *C. elegans* Development
and Behavior**
<https://isef.net/project/197847>
Cooper Sterling Grotzinger Frerichs, 18, Senior, Shawnee Mission South High School,
Overland Park, Kansas, T: Kenneth Lee
- ROBO060** **An Intelligent, Bimanual Mobile Manipulator for Assisted Living Applications**
<https://isef.net/project/198232>
Nathan Zhao, 16, Junior, The Pembroke Hill School, Kansas City, Missouri,
T: Kimberly Cho
- Wentzville, USMO05, Missouri Tri-County Regional Science and Engineering Fair**
- ANIM018T** **Modeling in *Danio rerio*: How Hyperactivity Is Affected by Different Wavelengths
of Light Through a Range of Ages**
<https://isef.net/project/192906>
Lydia Nicole Turley, 16, Junior, Natalie Kiehl, 17, Junior, Wentzville Holt High School,
Wentzville, Missouri, T: Lydia Spoor
- MCRO021** **The Use of Fmoc-L-phenylalanine, a SurA Inhibitor, to Prevent the Virulence
of Antibiotic-Resistant *Escherichia coli***
<https://isef.net/project/192897>
Sabrene Lutfiyya, 18, Senior, Timberland High School, Wentzville, Missouri,
T: Theresa Cordonier
- St. Louis, USMO07, Academy of Science - Greater St. Louis Science Fair**
- BEHA036** **The Sound of Feeling: How Key Signatures Influence Emotional Perception**
<https://isef.net/project/197305>
Jerry Chang, 17, Junior, John Burroughs School, St. Louis, Missouri, T: Martha Keeley

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CBIO054 Effectiveness of Heterogeneous COVID-19 Policies: County-Level Analyses Using Mathematical Epidemiology Models

<https://isef.net/project/197825>

Satvik Seetharaman, 17, Junior, Marquette High School, Chesterfield, Missouri,
T: Cathy Farrar

Greenfield, USMO08, Ozarks Science and Engineering Fair

ENEVO42 Mitigating Aluminum Toxicity in *Phaseolus vulgaris*: Biochar's Role as a Tool for Pollution Remediation

<https://isef.net/project/195719>

Kasey Woodrow Hicks, 18, Senior, Lebanon High School, Lebanon, Missouri,
T: Ryne Emerick

MCRO031 Toxic Mechanisms of Per- and Polyfluoroalkyl Substances in Fungal Cells: Environmental and Human Health Impact

<https://isef.net/project/193857>

Gyan Singh Grewal, 17, Junior, Greenwood Laboratory School, Springfield, Missouri,
T: Christian Madsen

Fayette, USMO10, Central Methodist Eagles Science and Engineering Fair

CELLO23 Exploring the Impact of Alcohol on Cerebral Vasculature: Insights Into the ATX-LPA-LPP3 Axis

<https://isef.net/project/195720>

Shrivats Manikandan, 17, Junior, Kirksville Senior High School, Kirksville, Missouri,
T: Daniel Floyd

MONTANA

Great Falls, USMT04, Great Falls College MSU Regional Science & Engineering Fair

EAEVO51 Filtering the Invisible: Evaluating Natural Materials for Microplastic Removal

<https://isef.net/project/197823>

Sayre A. McElroy, 18, Senior, Cascade Public Schools, Cascade, Montana, T: Kendra Lane

PHYSO51 Development of a Snow Matrix for Indirect Wildlife Assessment

<https://isef.net/project/197464>

Tanner Michael Heaton, 17, Junior, North Toole County High School, Sunburst, Montana,
T: Amanda Nix

Missoula, USMT50, Montana Science Fair

BCHM034 Utilizing Protein Engineering to Develop a Neurotransmitter Sensor for MRI

<https://isef.net/project/198541>

Faith You, 18, Senior, Hellgate High School, Missoula, Montana, T: Willow Affleck

BEHA057 Die Verwante Woord Project: Learning Complex Grammatical Structures Using HD-tDCS

<https://isef.net/project/198540>

Garrett Michael Goulstone, 17, Senior, Hellgate High School, Missoula, Montana,
T: Willow Affleck

CELLO43 Investigating the Role of Intracellular pH in Aging *Drosophila melanogaster* Behavior

<https://isef.net/project/198230>

Lily Lailah Khang, 18, Senior, Sentinel High School, Missoula, Montana, T: Kelly Nelson

NEBRASKA

Hastings, USNE01, Central Nebraska Science and Engineering Fair

ANIMO38T How Does Microplastics Shed From K-Pods Impact Primitive Behaviors, as Assessed Using *Caenorhabditis elegans* as a Model Organism?

<https://isef.net/project/197316>

Augusta Jane Wiens, 16, Sophomore, Hadley Marie Hallett, 16, Sophomore, Adams Central Jr.-Sr. High School, Hastings, Nebraska, T: Jay Cecrle

BMED071T Exploring the Impact of Diet on Seizure Susceptibility in *Drosophila melanogaster* With Mutant Shaker Potassium Channels and Altered Membrane Excitability

<https://isef.net/project/198176>

Berkley Jacobitz, 17, Junior, Peyton Hartman, 16, Junior, Adams Central Jr.-Sr. High School, Hastings, Nebraska, T: Jay Cecrle

FINALIST DIRECTORY

- MATS052** **Enhancing Concrete Microstructure: A Comparative Study of Biological and Synthetic Hydrogel Additives**
<https://isef.net/project/198358>
Michael Tophoj, 18, Senior, Ogallala High School, Ogallala, Nebraska, T: Jennifer Jones
- Dixon, USNE02, Greater Nebraska Science and Engineering Fair**
- ANIMO43** **The Effect of Sodium Nitrate on the Fitness of *Caenorhabditis elegans*: Phase Two**
<https://isef.net/project/197840>
Olivia Ann Wymer, 17, Senior, Central City High School, Central City, Nebraska,
T: Chelle Gillan
- CHEM035** **A Comparison of the Effects of H₂ Incorporation on the Stability and Opto-Electronic Properties of ZnO and Mg:ZnO Thin Films**
<https://isef.net/project/198345>
Caleb Wesley Rowe, 18, Senior, Central City High School, Central City, Nebraska,
T: Chelle Gillan

NEVADA

- Spring Creek, **USNV01, Elko County STEM Fair**
- MATS059** **Biodegradable Algae Plastic**
<https://isef.net/project/198768>
Avery Grace Sholty, 15, Freshman, Elko High School, Elko, Nevada, T: Annie Linder
- MATS060** **Property Testing of Polymers With Different Fat Content**
<https://isef.net/project/198945>
Max West Fraley, 15, Freshman, Elko High School, Elko, Nevada, T: Annie Linder
- Las Vegas, **USNV02, Beal Bank USA Southern Nevada Regional Science & Engineering Fair**
- EBED017** **Architecting AI Drone Communication for the Military Using Free-Space Optical Communication**
<https://isef.net/project/193078>
Drake Huntington Sage, 18, Senior, The Meadows School, Las Vegas, Nevada,
T: Brianna Cotter
- TMED021** **Development of a Novel, Low-Cost and Rapid Plasmonic Lateral Flow Assay for Point-of-Care Diagnoses of *N. gonorrhoeae* Infections**
<https://isef.net/project/192918>
Yajur Chandar, 17, Junior, The Davidson Academy of Nevada, Reno, Nevada,
T: Elizabeth Walenta

NEW HAMPSHIRE

- Nashua, **USNH50, New Hampshire Science & Engineering Expo**
- BEHA035** **CLIMB: A Novel Framework for Unveiling Hidden Patterns in Brain Aging Dynamics Through Resting-State fMRI and Curriculum Learning**
<https://isef.net/project/197304>
Ameya Kharade, 16, Sophomore, Nashua High School South, Nashua, New Hampshire,
T: Leslie Lukow
- CBIO042** **NeuroGen: A Novel Generative Deep Learning Framework Utilizing CLIP-Guided Latent Diffusion for Enhanced Brain Tumor Diagnosis**
<https://isef.net/project/197220>
Yuvanguru Balagurumoorthy, 15, Freshman, Nashua High School South, Nashua,
New Hampshire, T: Leslie Lukow

NEW JERSEY

- Lebanon, **USNJ01, Terra North Jersey STEM Fair**
- CBIO057** **StutterZero: End-to-End Speech Conversion to Transcribe and Correct Stutters**
<https://isef.net/project/197881>
Qianheng Xu, 16, Junior, Millburn High School, Millburn, New Jersey,
T: Christopher Cook

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- CELLO34** **Unlocking Neuroprotection: How Chebulinic Acid Targets Protein Biomarkers and Lipid Imbalance in Alzheimer's Disease**
<https://isef.net/project/197718>
 Kevin Xuhua Jin, 18, Senior, Delbarton School, Morristown, New Jersey, T: Brian Theroux
- EAEOV47** **Put AI-LyD On It! An AI-Driven Systematic Approach to Understanding, Predicting and Controlling Spotted Lanternfly Proliferation Through Behavioral Analysis**
<https://isef.net/project/197719>
 Kevin Zhang, 17, Junior, North Hunterdon High School, Annandale, New Jersey, T: Felicia Ledogar
- EAEOV48** **Next-Hour Lake-Effect Quantitative Precipitation Forecasting Over the Great Lakes With Deep Learning**
<https://isef.net/project/197720>
 Atharva Tyagi, 16, Sophomore, Ridge High School, Basking Ridge, New Jersey, T: Glen Pernia
- MATH031** **Slice Genus Bounds for Knots Using Grid Diagrams**
<https://isef.net/project/197721>
 Christopher Qiu, 18, Senior, Bridgewater-Raritan High School, Bridgewater, New Jersey, T: Fangze Shang
- PHYS060** **Efficiently Tracking Quantum Entanglement: The Machine Learning Edge in Non-Markovian Open Dissipative Systems**
<https://isef.net/project/197877>
 Albert Yeau Wu, 17, Junior, Pingry School, Basking Ridge, New Jersey, T: Charles Coe
- Jersey City, USNJ02, Hudson County STEM Showcase**
- BCHM014** **Engineering a Novel Electrochemical Biosensor Using a Self-Healing ZnO Quantum Dot Matrix and MIP Technology for Lysozyme Detection**
<https://isef.net/project/195933>
 Mythili Venkata Kota, 17, Junior, Dr. Ronald E. McNair Academic High School, Jersey City, New Jersey, T: Maria Osoria
- CBIO035** **The Efficacy of Lycopene: A Cancer Therapy Evaluated Through Its Binding Energy to Oncoproteins**
<https://isef.net/project/195938>
 Sriki Padmanabhan, 16, Junior, Dr. Ronald E. McNair Academic High School, Jersey City, New Jersey, T: Maria Osoria
- EGSD021** **Efficient Energy Harvesting Using Biomaterials: Fabrication of a ZnO-Modified Eggshell Membrane and Cotton Based Piezo-Tribo Hybrid Generator**
<https://isef.net/project/195931>
- #** Meghana Addanki, 17, Junior, Dr. Ronald E. McNair Academic High School, Jersey City, New Jersey, T: Maria Osoria
- TMED035** **Using Deep Learning and Natural Language Processing to Detect and Optimize 911 Stroke Cases**
<https://isef.net/project/195936>
 Lehansa Chanthuli Marambage, 16, Sophomore, Jose Marti STEM Academy, Union City, New Jersey, T: Mina Armani
- Princeton, USNJ03, Mercer Science and Engineering Fair**
- ENBM064** **Design an Ankle Exoskeleton for Rehabilitation After Injury**
<https://isef.net/project/198354>
 Wenqing Mao, 17, Junior, Princeton International School of Math and Science, Princeton, New Jersey, T: Adam Kemp
- TMED085** **An End-to-End AI Hardware Solution for Ophthalmic Diagnostics: Retinal Vessels as a Morphological Target for Segmentation and Early Detection**
<https://isef.net/project/199175>
 ZiXuan (Angel) Xin, 17, Junior, The Lawrenceville School, Lawrenceville, New Jersey, T: Johnny Clore
- Hackensack, USNJ04, BCA Research Expo**
- BMED040** **In vitro and in silico Retinal Models of Neurodevelopmental Disorders**
<https://isef.net/project/193837>
 Edward Kang, 17, Junior, Bergen County Academies, Hackensack, New Jersey, T: German Sabio

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- CBIO024** **An Interpretable Machine Learning Framework to Predict Cisplatin Sensitivity**
<https://isef.net/project/193848>
 Mythreya Dharani, 17, Junior, Bergen County Academies, Hackensack, New Jersey,
 T: German Sabio
- ENBM025** **A Novel Idea in the Treatment of Edema in Diabetics**
<https://isef.net/project/193840>
 Maximilian Mkheidze, 17, Junior, Bergen County Academies, Hackensack, New Jersey,
 T: Carlos Nodarse

NEW MEXICO

- Albuquerque, USA150, National American Indian Science and Engineering Fair**
CELLO40 **Physiological Responses of HEK-293 Cells to Elevated Sodium Chloride Concentrations**
<https://isef.net/project/198155>
 Maliaayu Pi'iakea Komong Williams, 17, Junior, Kamehameha Schools Kapalama Campus, Honolulu, Hawaii, T: Hieu James (Nguyen)
- EGSD043** **Comparing Peltier Tiles and Piezoelectric Harvesters**
<https://isef.net/project/198324>
 # Jessica Haley Castro, 18, Senior, Saint Pius X High School, Albuquerque, New Mexico,
 T: Jay Penn
- Albuquerque, USNM01, Central New Mexico Regional Science and Engineering Challenge**
BEHA042 **The Impact of Visuals on Short-Term Memory Recall**
<https://isef.net/project/197714>
 Ana Choe, 17, Junior, Albuquerque Institute for Math and Science, Albuquerque, New Mexico, T: Philip Watje
- BMED064** **Gut Instinct: An AI-Driven Approach to Inflammatory Bowel Disease Prediction Using Microbial and Metabolite Data**
<https://isef.net/project/197715>
 Aditi Ganti, 15, Sophomore, La Cueva High School, Albuquerque, New Mexico,
 T: Lena Eddings
- CBIO051** **Epigenetic Analysis for Diabetes Risk and Resiliency**
<https://isef.net/project/197716>
 Ahana K. Koushik, 14, Freshman, Albuquerque Academy, Albuquerque, New Mexico,
 T: Elliot Wilkinson
- TMED052** **MED-X: An Explainable Multi-Agent Reasoning System for Efficient Diagnostic Decision-Making in Cancerous Polyp Classification Utilizing Multimodal Gastrointestinal Datasets**
<https://isef.net/project/197717>
 # Sowmya Sankaran, 15, Sophomore, Albuquerque Academy, Albuquerque, New Mexico,
 T: Elliot Wilkinson
- Farmington, USNM02, San Juan New Mexico Regional Science and Engineering Fair**
BEHA017 **Musical Charms: Which Genre of Music Will Boost Focus and Productivity the Most in Classrooms?**
<https://isef.net/project/193259>
 Jayden Ezekiel Narciso, 16, Junior, San Juan College High School, Farmington, New Mexico, T: Geizi Dejka
- ENBM027** **The Influence of Altered Gravity on Drosophila Larval Development: A Genomic and Behavioral Analysis in Simulated Spaceflight Conditions**
<https://isef.net/project/193858>
 June Loukinas, 17, Junior, San Juan College High School, Farmington, New Mexico,
 T: Geizi Dejka
- Grants, USNM03, Four Corners Regional Science and Engineering Fair**
ANIM030 **Don't Sweat the Small Stuff**
<https://isef.net/project/193862>
 MacKynzy Leighne Hunter, 16, Junior, Grants High School, Grants, New Mexico,
 T: Cody Hayes

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- EAEVO29T Plastic Decomposing Mushrooms**
<https://isef.net/project/193861>
 # Ryan James Tortalita, 18, Senior, Lukas Taylor Colburn, 16, Junior, Grants High School, Grants, New Mexico, T: Cody Hayes
- Las Vegas, USNM05, Northeastern New Mexico Regional Science and Engineering Fair**
- BEHA044 Investigating Intersubjective Realities From Novel NLP and Chaos Theory Approach**
<https://isef.net/project/197879>
 Camila Carreon, 17, Junior, Santa Fe Preparatory School, Santa Fe, New Mexico, T: Jocelyne Comstock
- ETSD041 Shattering the Fog: Suicide Deterrence System Models for Elevated Structures**
<https://isef.net/project/197878>
 Dillan Davyd Uphoff, 18, Senior, Taos Academy Charter School, Taos, New Mexico, T: Laura Tenorio
- Socorro, USNM50, New Mexico Science and Engineering Fair**
- ENBM083 Convolutional Clarity: Accurate, Reliable, Explainable CNNs by Evaluating the Impact of Data Augmentation on Chest X-Ray Pneumonia Classification**
<https://isef.net/project/199196>
 Alyssa Sun, 16, Junior, Los Alamos High School, Los Alamos, New Mexico, T: Michela Ombelli
- MATH041 Analyzing Pre-Indo-European Theory of the Etruscan Language Origins Using Topological Data Analysis**
<https://isef.net/project/199065>
 # Helena Welch, 16, Junior, Los Alamos High School, Los Alamos, New Mexico, T: Cindy Welch
- MATS065 Novel Alternative Method to Improve the Safety and Targeting of Nanotherapeutics**
<https://isef.net/project/199074>
 Aarush Mohan Tutiki, 16, Junior, Albuquerque Academy, Albuquerque, New Mexico, T: Achraf Nouredine
- PHYS074 Constraining the Neutron Star Equation of State Using Observational Data**
<https://isef.net/project/198944>
 # Tate Plohr, 16, Sophomore, Los Alamos High School, Los Alamos, New Mexico, T: JeeYeon Plohr
- TMED082 Human Glioblastoma Cancer Stem Cells Differentiation by Retinoic Acid: A Potential Therapeutic Strategy**
<https://isef.net/project/199066>
 Meher Garg, 16, Sophomore, Homeschool, Albuquerque, New Mexico, T: Ruchi Gupta

NEW YORK

- Poughkeepsie, USNY01, Dutchess County Regional Science Fair**
- CHEM046 Eutrophication Remediation: The Effectiveness of Chemical Coagulants at Phosphate Precipitation**
<https://isef.net/project/199160>
 Emma Rose Mazzotta, 17, Senior, John Jay Senior High School, Hopewell Junction, New York, T: Maryjane McFarland
- ETSD054 Implementation of Adaptive Compliant Mechanism Networks for Force Management and Enhanced Structural Longevity in Morphing Wings**
<https://isef.net/project/199064>
 # Shiven Dabhi, 17, Senior, Roy C Ketcham Senior High School, Wappingers Falls, New York, T: Kyle Bautista
- Huntington, USNY02, Long Island Science and Engineering Fair**
- ANIM031 The Adverse Effects of Hunting on the Length of Bellows of American and Canadian Bison During Rut**
<https://isef.net/project/195672>
 Alexandra Claire D'Alessio, 17, Junior, Half Hollow Hills High School West, Dix Hills, New York, T: Mike Lake

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- BCHM011** **Biophysical Investigations Into the Structure and Function of *Pseudomonas aeruginosa* Nitric Oxide Signaling System**
<https://isef.net/project/195657>
 Natalie Andrea Osorio, 17, Senior, H. Frank Carey High School, Franklin Square, New York, T: Zachary Englis
- BEHA024** **Evaluating Gender Disparities Due to Decision-Making Under Uncertainty in Entrepreneurship: A Panel Data Analysis**
<https://isef.net/project/195665>
 Grace Chenxin Liu, 17, Junior, Syosset High School, Syosset, New York, T: Heather Hall
- BEHA025** **Investigating the Effects of Cannabidiol-Medium Chain Triglyceride Oil on Locomotion and Tap Withdrawal Response Using *Caenorhabditis elegans* as a Model for Alzheimer's Disease**
<https://isef.net/project/195671>
 Chloe Yerin Lee, 18, Senior, Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York, T: Raymond Tesar
- BMED045** **Effects of Vitamin D Metabolites and Vitamin K2 on Menstrual Effluent-Derived Endometrial Stromal Cell Viability and Decidualization**
<https://isef.net/project/195662>
 # Sophia Antonina Tarasenko, 18, Senior, Jericho High School, Jericho, New York, T: Alexis Vandergoot
- BMED057** **The Role of Fe-S Cluster Biosynthesis in the Regulation of Fe-S Proteins, Fe-Metabolism, and Downstream Stress Responses *in vivo***
<https://isef.net/project/197208>
 Leah Dong, 17, Senior, Paul D. Schreiber High School, Port Washington, New York, T: John Schineller
- CBIO025** **StAIR: Stepwise All-Atom Iterative Reconstruction of Large Coarse-Grained Protein Structures**
<https://isef.net/project/195666>
 # Erin Wong, 18, Senior, William A. Shine Great Neck South High School, Great Neck, New York, T: James Truglio
- CELLO18** **Assessing Novel RIPK2-MKK7 Interaction Inhibitors in Prostate Cancer Cell Lines**
<https://isef.net/project/194016>
 Daanish Bassi, 17, Senior, Smithtown High School East, St. James, New York, T: Maria Zeitlin
- CELLO19** **The Effect of Histone Modifications Induced by Ack sRNAs on Ac Transposable Elements**
<https://isef.net/project/195658>
 Lilly Sarah Horowitz, 17, Senior, Jericho High School, Jericho, New York, T: Alexis Vandergoot
- CELLO20** **The Antioxidant Role of the JAK2/STAT3 Signaling Pathway on Methylmercury-Induced Toxicity in a Mouse Astrocyte Neuronal C8-D1A Cell Line**
<https://isef.net/project/195659>
 Aafia Ahmed, 17, Senior, Elmont Memorial Junior-Senior High School, Elmont, New York, T: Michelle Flannory
- CHEM020T** **Ag-TiO2@HNT Photocatalytic Composites for Highly Efficient and Eco-Friendly Organic Pollutant Degradation**
<https://isef.net/project/195670>
 Lucienne Keyoung, 17, Junior, Islahel Rose Gonzalez, 16, Junior, Manhasset High School, Manhasset, New York, T: Alison Huenger
- EAEVO27** **Integrated Geospatial Socioeconomic Analysis to Forecast Climate Change Impact on Food Insecurity**
<https://isef.net/project/193392>
 # Emily Zhao, 18, Senior, Manhasset High School, Manhasset, New York, T: Alison Huenger
- EAEVO30** **Evaluating the Long Range UVA Blocking Abilities of an Eco-Friendly Sunscreen Substitute Derived From *Musa acuminata* on *Girardia tigrina* Locomotion and the Degree of UV-Induced Cellular Damage**
<https://isef.net/project/194017>
 Taylor Maguire, 15, Sophomore, Garden City High School, Garden City, New York, T: Steven Gordon

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- EAEV031** **Wavelet-Based Hybrid Deep Learning Model for Forecasting El Niño-Southern Oscillation Cycles**
<https://isef.net/project/195660>
 Winston Zhou, 17, Senior, Syosset High School, Syosset, New York, T: Heather Hall
- ENBM028** **Gallium Mediated DNA Tensegrity Triangle Based Crystals: A Novel Prototype Facilitating Gallium Cancer Therapy**
<https://isef.net/project/195656>
 Sandeep Sawhney, 18, Senior, Herricks High School, New Hyde Park, New York, T: Caitlin Etri
- MATH022** **Matrix Product Formulas for Generating Functions for p-adic Valuations of Generalized Binomial Coefficients**
<https://isef.net/project/195661>
- # Arav Chand, 17, Junior, Half Hollow Hills High School West, Dix Hills, New York, T: Michael Lake
- MCRO032** **Characterizing the Secretion Signal in the C-Terminus of the *Francisella tularensis* Protein FTL_1123: Insights for Type 1 Secretion and Therapeutics**
<https://isef.net/project/195663>
- # Mehek Kaur Sawhney, 18, Senior, Commack High School, Commack, New York, T: Jeanette Collette
- PHYS035** **Discovery of the First Double Exocomet Using an Automated Deep Learning Convolutional Neural Network**
<https://isef.net/project/195664>
 Gary Han, 17, Junior, Syosset High School, Syosset, New York, T: Heather Hall
- PLNT027** **From Hair to Harvest: Effects of Nitrogen-Doped Carbon Dots on Germination and Growth in *Solanum lycopersicum* (Tomatoes) Seedlings Using Keratin-Based Hydroponic Substrates**
<https://isef.net/project/195667>
 Dora Fields, 17, Senior, Northport High School, Northport, New York, T: Bryan Horan
- ROBO029** **Low-Cost, High-Performance Humanoid Upper Body for Automating Hazardous Tasks With Quasi-Direct Drive Actuators and Machine Learning**
<https://isef.net/project/195669>
- # Partap Sidhu, 16, Sophomore, Bethpage High School, Bethpage, New York, T: Nicole Dulaney
- Syracuse, USNY03, Terra New York City STEM Fair**
- ANIM049** **Quantifying Cricket Social Behavior: A Mathematical Model for Analyzing Movement Patterns and Spatial Preference**
<https://isef.net/project/198174>
 Hana Cleemann, 16, Junior, The Bronx High School of Science, Bronx, New York, T: Emily Schmidt
- BEHA058** **Telling the Difference: Understanding the Difficulties of Perceiving New Languages**
<https://isef.net/project/198542>
 Nikole Pekarsky, 18, Senior, The Bronx High School of Science, Bronx, New York, T: Emily Schmidt
- CBIO064T** **Automated Visualization 3D Visualization of Cell Behavior**
<https://isef.net/project/198173>
 Samuel Boccara, 18, Senior, Taj Rex Chhabra#, 18, Senior, Hunter College High School, New York, New York, T: Mrinalni Sharma
- CELLO44** **The Role of QSER1 During Early Stages of Zebrafish Embryonic Neural Development**
<https://isef.net/project/198346>
 Nora Angela Cassetta, 17, Senior, The Bronx High School of Science, Bronx, New York, T: Khaled Mahmoud
- CHEM037** **Hierarchical Self-Assembly of Frenkel Excitonic Nanotubes: Unraveling the Role of pH-Induced Effects**
<https://isef.net/project/198592>
 Nazifa Meher, 18, Senior, Stuyvesant High School, New York, New York, T: Meng-Ping Tu

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EGSD045T	<p>Transport Properties of Chemically Cross-Linked Pectin Hydrogel Electrolytes as Bifunctional Mediator-Separators https://isef.net/project/198349 Maria Efimovich, 18, Senior, Jacob Yee, 17, Senior, Staten Island Technical High School, Staten Island, New York, T: John Davis</p>
ENBM054	<p>FLOValve: Engineering an Origami-Inspired Expandable Heart Valve Prosthetic https://isef.net/project/198099 Sophia Kadian, 16, Sophomore, Trinity School, New York, New York, T: Ritu Kadian</p>
ENEV062	<p>Wave-Powered Filtration Buoy for Oil Spill Cleanup and Microplastic Removal https://isef.net/project/198101</p>
#	<p>Madison Janice Bennett, 17, Senior, Forest Hills High School, Queens, New York, T: Matthew Woo</p>
MATH034	<p>Modeling X-ray and Natural Images: Perceptually Relevant Image Statistics and Applications https://isef.net/project/198172 Vicky Cai, 18, Senior, Stuyvesant High School, New York, New York, T: Meng Ping Tu</p>
MCRO052	<p>Testing the Effects of Vanillin on GABA Production in <i>Lactococcus lactis</i> https://isef.net/project/198347 Summer Samara, 16, Junior, Brooklyn Technical High School, Brooklyn, New York, T: Michael Estrella</p>
PHYS072	<p>X-Ray Polarization of the Reflection Spectrum With IXPE Data From Cygnus X-1 https://isef.net/project/198771 Daniel Jacob Amoils, 18, Senior, Columbia Grammar and Preparatory School, New York City, New York, T: Ilya Yashin</p>
PLNT048T	<p>Biodegradation of Allelochemicals and Effects of Activated Carbon and Nitrogen-Rich Fertilizer on <i>Raphanus sativus</i> Development https://isef.net/project/198543 Dora Zhao, 16, Junior, Gabriella Shalmiyev, 16, Junior, Ariela Shmulenson, 16, Junior, Staten Island Technical High School, Staten Island, New York, T: John Davis</p>
ROBO058	<p>Breaking Language Barriers With AI: Towards Neural No-Resource Translation https://isef.net/project/198175 Madhavendra Thakur, 17, Junior, Trinity School, New York, New York, T: Justin Gohde</p>
Mahopac, USNY05	<p>Regeneron-Westchester Science and Engineering Fair</p>
ANIM037	<p>Pitch Perfect: Song Sparrows (<i>Melospiza melodia</i>) Adjust the Frequency of Their Song in Response to Anthropogenic Noise https://isef.net/project/197218 Reese Mackenzie Caparelli, 17, Senior, Ossining High School, Ossining, New York, T: Valerie Holmes</p>
BCHM021	<p>Generation of Antibody Oligonucleotide Conjugates Using a Novel Conjugation Chemistry https://isef.net/project/197312 Brady Wang, 17, Junior, Horace Greeley High School, Chappaqua, New York, T: Jerry Zupan</p>
BEHA037	<p>The Funding Gap: Investigating Distributions of Research Funding in the NIH Associated With Communal Marginalization https://isef.net/project/197308 Carlos Del Aguila, 16, Junior, New Rochelle High School, New Rochelle, New York, T: Erica Curran</p>
BEHA039	<p>Personalized Nature Virtual Reality (PnVR): A Novel Personalized Virtual Reality Nature Therapy via a Triple Combination Computational Software for Worldwide Mental Health Benefit https://isef.net/project/197500 Matthew Hutcherson Casavant, 18, Senior, John Jay High School, Cross River, New York, T: Krista Munger</p>

FINALIST DIRECTORY

- BMED063** **Spatiotemporal Mapping of CNS Lymphatics in *Xenopus tropicalis* Using Time-Lapse Imaging**
<https://isef.net/project/197513>
 Ella Saltstein, 18, Senior, Byram Hills High School, Armonk, New York,
 T: Caroline Matthew
- BMED066** **The Effect of the Tumor Microenvironment and RK-33 Treatment on Macrophage Infiltration in Sarcoma Mouse Tumors**
<https://isef.net/project/197827>
 Aine O'Sullivan, 17, Senior, The Ursuline School, New Rochelle, New York,
 T: Stacy Unkenholz
- CELLO31** **Exploration of ACVR1's Signaling Mechanisms in Relation to Fibrodysplasia Ossificans Progressiva (FOP) Using ACVR1/ACVR1B Chimera Receptors**
<https://isef.net/project/197246>
- # Kevin Gong, 17, Senior, Briarcliff High School, Briarcliff Manor, New York, T: Gilana Reiss
- CELLO33** **Toward Remote Control of Neural Function: Extracellular Matrix Paramagnetic Hydrotalcite Renders Brain Astrocytes Responsive to Static Magnetic Field via TRPV4 Ion Channel-Mediated Calcium Influx**
<https://isef.net/project/197309>
 Illaria Liedtke, 16, Sophomore, Rye Country Day School, Rye, New York, T: Jennifer Doran
- EAEVO40** **An Assemblage of Woodpeckers as an Indicator Species of Fire Intensity Using Fuel Loads as an Intermediary**
<https://isef.net/project/197311>
 Sahil Sevak Gupta, 16, Junior, Mamaroneck High School, Mamaroneck, New York,
 T: Guido Garbarino
- EAEVO44** **CorAI: Predicting Coral Bleaching Using Artificial Intelligence and Machine Learning**
<https://isef.net/project/197501>
 Srihaan Reddy Seelam, 15, Sophomore, Horace Greeley High School, Chappaqua, New York, T: Jerry Zupan
- MATH028** **The Prisoner's Dilemma: Strategy Dynamics Related to Memory and Selfishness**
<https://isef.net/project/197244>
 Cory Jack Seelenfreund, 17, Junior, New Rochelle High School, New Rochelle, New York,
 T: Jeff Wuebber
- MCRO041** **Validating a Preamplification Step in the Mass Pathogen Screening Process of Rodent Colonies**
<https://isef.net/project/197313>
 Avi Medar, 17, Junior, Ardsley High School, Ardsley, New York, T: James Dowd
- MCRO042** **Investigating the Effect of Berberine and a Nanoparticle Delivery System on Epstein Barr Virus Replication and Infectivity: A Potential Therapeutic Approach**
<https://isef.net/project/197489>
 Giana Marchese, 16, Junior, Westlake High School, Thornwood, New York,
 T: Lawrence McIntyre
- MCRO043** **Assessing the Ability of Auxotrophic *Mycobacterium tuberculosis* Strains to Trigger Trained Innate Immunity in Mouse Macrophages**
<https://isef.net/project/197492>
- # Anhad Sandeep Kataria, 18, Senior, Ardsley High School, Ardsley, New York,
 T: James Dowd
- PHYS050** **Traversing Mars: The Noctis Landing Human Exploration Zone**
<https://isef.net/project/197307>
 Scarlett Ava Hartzman, 17, Junior, New Rochelle High School, New Rochelle, New York,
 T: Erica Curran
- PHYS054** **Large-Scale Multi-Messenger Simulation of White Dwarfs in the LISA Era**
<https://isef.net/project/197498>
 Anabelle Frances Shotton, 17, Senior, Dobbs Ferry High School, Dobbs Ferry, New York,
 T: Sarah Marino
- PLNT035** **Evaluation of Earthworms and Vermicompost on LHS-1 Lunar Regolith Simulant To Improve Plant Growth Efficiency**
<https://isef.net/project/197494>
 Adam Greenwald, 17, Senior, Hastings High School, Hastings-on-Hudson, New York,
 T: Melissa Shandroff

FINALIST DIRECTORY

- SOFT037** **Accessible Voice Control: Fine-Tuning OpenAI's Whisper ASR Model for Improved Speech Recognition in Individuals With Intellectual Disabilities**
<https://isef.net/project/197511>
 Ian John Cavalluzzi, 18, Senior, Riverside High School, Yonkers, New York,
 T: Jake Schofield
- TMED048** **Optimizing Novel Therapeutics Targeting Cytomegalovirus Entry to Effectively Inhibit Virus Proliferation**
<https://isef.net/project/197314>
 Kira Elizabeth Findikyan, 18, Senior, Pelham Memorial High School, Pelham, New York,
 T: Efsthios Beltecas
- TMED049** **In vitro Validation and Characterization of Muscle-Specific Antibody-siRNA Conjugates for Targeted Delivery of siRNA**
<https://isef.net/project/197499>
 Kevin Zhen Guo, 16, Junior, Horace Greeley High School, Chappaqua, New York,
 T: Jerry Zupan
- Syracuse, USNY06, Central New York Science and Engineering Fair**
- BEHA055** **Reading Against the Tide: Predicting Literary Preferences Through Consumer Sentiment Using Mixed-Effects Machine Learning**
<https://isef.net/project/198355>
 Joonho Park, 16, Junior, Ithaca High School, Ithaca, New York, T: Ye Hu
- CHEM036** **Molecular Dynamics Study of Interfacial Interaction Between Perfluoroalkyl Substances and the Lipid Bilayer Membrane**
<https://isef.net/project/198546>
 Deniz Cem Gursoy, 18, Senior, Fayetteville-Manlius High School, Manlius, New York,
 T: Benjamin Hsiao
- Saratoga Springs, USNY07, Greater Capital Region Science and Engineering Fair, Inc.**
- EAEV036** **The Effects of Wildfire Intensity on the Regeneration of *Pinus rigida* Mill on the Shawangunk Ridge**
<https://isef.net/project/195873>
 Joseph Reuben Birnbaum, 18, Senior, New Paltz High School, New Paltz, New York,
 T: Kurt Ulrich
- MATS031** **The Application of Graphene Oxide and Methyltrimethoxysilane Hydrophobic Aerogels on the Absorption of Oil Spills**
<https://isef.net/project/196976>
 Pavithra Jayakumar, 18, Senior, Shaker High School, Latham, New York,
 T: Nathaniel Covert
- ROBO039** **Design and Evaluation of a Soft Robot for Analyzing the Effect of Silicone Texture on Robot Performance**
<https://isef.net/project/196069>
 Norah Hoke, 18, Senior, Saratoga Springs High School, Saratoga Springs, New York,
 T: Rebecca Goldfischer
- Utica, USNY08, Utica University Regional Science Fair**
- BMED086** **SARS-CoV-2 Spike Protein Interacts With the KCNA5 Potassium Channel: Potential Implications for Cardiac Ion Function and Arrhythmic Risk**
<https://isef.net/project/199032>
 Richard Xu, 18, Senior, New Hartford Senior High School, New Hartford, New York,
 T: Anthony Surace
- Syracuse, USNY09, Terra Rochester Finger Lakes Science & Engineering Fair**
- CHEM027** **Alkylation of 1,3,5-Tribromobenzene by Cycloheptyl Bromide via Suzuki Coupling Reaction**
<https://isef.net/project/197502>
 Maria Kim, 17, Senior, Kim Homeschool, Rochester, New York, T: Sophia Kim
- PHYS046** **Investigating the Origin of the Radius Cliff and Water Formation on Sub-Neptune Exoplanets**
<https://isef.net/project/197243>
 Leixi Chen, 16, Junior, Pittsford Mendon High School, Pittsford, New York,
 T: Kimberly Voss

FINALIST DIRECTORY

Syracuse, USNY11, Terra WNY STEM Fair

BEHA061 **From Words to Actions: A Comprehensive Approach to Identifying Incel Behavior on Reddit**

<https://isef.net/project/198593>

Ahmet Yavuz Demirbas, 17, Senior, Williamsville East High School, East Amherst, New York, T: Kathleen Yermas

ENBM072 **The Future of Breast Cancer Screening: AI-Based Photoacoustic Imaging**

<https://isef.net/project/198595>

Emma Zhang, 17, Junior, Williamsville North High School, Williamsville, New York, T: Angela Szwed

Port Henry, USNY13, Terra Northeast Regional STEM Fair

EGSD049 **The Effects of Different Road Conditions on Piezoelectric Tires**

<https://isef.net/project/199159>

Jaden D. Mero, 16, Junior, Moriah Central School, Port Henry, New York, T: Tiffany Pinheiro

Glen Cove, USNY50, New York State Science and Engineering Fair

ANIM039 **Magnesium Magic: The Rescue of the Parkinson's Model of *Drosophila melanogaster* With MgCl₂ Supplementation**

<https://isef.net/project/197481>

Kaitlin Kaiting Ho, 17, Senior, North Shore High School, Glen Head, New York, T: Molly Mordechai

ANIM040 **The Effect of Endocrine Disrupting Chemicals on the Social Behaviors of *Lontra canadensis* (North American River Otter)**

<https://isef.net/project/197491>

Willa Grace Olson, 16, Junior, Yorktown High School, Yorktown Heights, New York, T: Edwin Seweryn

BCHM024 **Regulating Cancerous Hyperactive Wnt Signalling Through a Novel Gid8 Mechanism in *Drosophila* and Human Embryonic Kidney Cells**

<https://isef.net/project/197487>

Ashka Shah, 16, Junior, Jericho High School, Jericho, New York, T: Alexis Vandergoot

BEHA038 **Using a Multimodal Approach of Aromatherapy and Jigsaw Puzzles to Improve the Emotional Levels of a Geriatric Population Living With Alzheimer's Disease (AD)**

<https://isef.net/project/197488>

Hailey Madison Richman, 18, Senior, Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York, T: Raymond Tesar

BMED061 **Asymptomatic Intracranial Hemorrhages Correlate With Poor Patient Outcomes and NIHSS Predictivity: A Retrospective Analysis of Post-Thrombectomy Ischemic Stroke Patients**

<https://isef.net/project/197479>

Ashna Muni, 18, Senior, Herricks High School, New Hyde Park, New York, T: Caitlin Etri

BMED062 **S107 Mitigates RyR2-Mediated Cardiac Dysfunction in COVID-19-Infected Rodents**

<https://isef.net/project/197480>

Aaron Weinberg, 17, Senior, The Masters School, Dobbs Ferry, New York, T: Kristina Ardito

CBIO047 **A Novel Computational Generative Model That Identifies Ligands: A Potential Way to Reduce Cost & Time in Identifying Promising Drug Candidates**

<https://isef.net/project/197483>

Chase Aaron Ende, 16, Junior, Harrison High School, Harrison, New York, T: Allison Blunt

CELLO49 **Region-Specific Maintenance of the Blood Brain Barrier by Astrocytes: Implications for Involvement in Selective Vulnerability to Alzheimer's Disease**

<https://isef.net/project/198770>

Sofia Magalhaes, 17, Senior, Ossining High School, Ossining, New York, T: Valerie Holmes

EAEV043 **Using Artificial Neural Networks and Kolmogorov-Zurbenko Filtering to Predict Future Sunspot Numbers and Temperatures**

<https://isef.net/project/197496>

Vedant Balani, 17, Junior, Jericho High School, Jericho, New York, T: Alexis Vandergoot

FINALIST DIRECTORY

- EGSD027** **Optimizing Silicon Anodes: Investigating Ultra-High Carboxyl Density Binders**
<https://isef.net/project/197482>
 Ryan Minwoong Tae, 17, Junior, Jericho High School, Jericho, New York,
 T: Alexis Vandergoot
- ENBM048** **Using Changes in Bioimpedance Values to Infer Applied Force for Tissue-Specific Force-Sensing During Minimally Invasive Robotic Surgery**
<https://isef.net/project/197486>
 Benson Lu Huang, 16, Junior, Half Hollow Hills High School West, Dix Hills, New York,
 T: Mike Lake
- MATS036** **Engineering DNA Nanocrystals for Trigger-Responsive Drug Delivery: A Biocompatible Approach to Nanomedicine**
<https://isef.net/project/197495>
- #
PHYS053 **Modeling Gravitational Wave and Dark Matter Signals With Autoregressive Time Series and Fourier Analyses**
<https://isef.net/project/197497>
 Charlotte Louise Wilke-Olsen, 18, Senior, Somers High School, Lincolndale, New York,
 T: William Maelia
- ROBO045** **MyoAssist: An Innovative AI-Based, User-Driven Exoskeletal Assistive Control System for Individuals With Movement Disabilities**
<https://isef.net/project/197493>
 Chinmayi Goyal, 17, Senior, Yorktown High School, Yorktown Heights, New York,
 T: Edwin Seweryn
- SOFT035** **Optimizing Quantum Support Vector Classifiers in Flood Prediction: Data Specific Quantum Kernel Training for Enhanced Feature Mapping Capabilities**
<https://isef.net/project/197484>
 Mohammad Wasim, 15, Sophomore, Half Hollow Hills High School East, Dix Hills, New York, T: Mike Lake

NORTH CAROLINA

- Concord, USNC01, Charlotte-Mecklenburg Regional Science Fair**
- ENEVO21** **Mitigating Toxicological Effects of PS-NH₂ Nanoparticles on *Chlorella* sp. in Heavy Metal Remediation Systems Using Humic Acid**
<https://isef.net/project/192566>
 Luca Cyrus, 17, Senior, Weddington High School, Weddington, North Carolina,
 T: Oyla Keen
- PHYS038** **Quantifying Sensitivity and Classifying Gravitational Waves: Machine Learning CNN Approach to Data Analysis and Interpretation**
<https://isef.net/project/195821>
 Nachammai Annamalai, 17, Senior, South Iredell High School, Statesville, North Carolina,
 T: Jennifer Cartelli
- Durham, USNC03, North Carolina Science Fair Region 3B**
- BMED028** **Musculoskeletal Effects of Tirasemtiv and *Urtica dioica* on Dstac Gene Knockdown in *Drosophila melanogaster*: Applications Towards STAC3 Disorder (Native American Myopathy)**
<https://isef.net/project/192882>
 Ava Grace Cummings, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Kimberly Monahan
- ENBM016** **Biodegradable Chitosan-Hydroxyapatite Composite Bone Scaffolds Infused With Anti-Microbial Nanoparticles**
<https://isef.net/project/192817>
 June Brewer, 17, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Michael Bruno
- PHYS006** **Discovering Primordial Cosmic Protostructures With a Novel Multi-Scale Infrared Background Inverse Tomographer (IBIT)**
<https://isef.net/project/191680>
- #
 Ankit Biswas, 17, Junior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Michael Falvo

FINALIST DIRECTORY

Raleigh, USNC50, North Carolina State Science Fair

- BMED077** **Investigating the Influence of Coal Ash Heavy Metal Leachate on Thyroid Hormone Concentration, Hormone Receptor Gene Expression and Spectral Sensitivity in *Danio rerio***
<https://isef.net/project/198590>
 Anna Theresa Marie Tringale, 17, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Heather Mallory
- CBIO056** **Promoting Equity: A Novel GAN-Based Framework for Improved MRI-Based Alzheimer's Diagnosis Utilizing Multiple Deep Learning Architectures**
<https://isef.net/project/197831>
 Kenna Jiayue Zhang, 17, Junior, Cary Academy, Cary, North Carolina, T: John Noland
- CELLO35** **Design and *in silico* Validation of a Novel Fc-fusion Protein for the Treatment of Myasthenia Gravis**
<https://isef.net/project/197832>
 Serena Julissa Zhang, 17, Junior, William G. Enloe High School, Raleigh, North Carolina, T: Shawn Culbreth
- CHEM033** **Non-Adiabatic Nanoreactor (NANR): A Novel Tool for *in silico* Photoreaction Discovery Applied to Woodward Hoffmann Ring Opening of Cis/Trans-3,4-Dimethylcyclobutene**
<https://isef.net/project/198339>
 Clare Lee, 17, Junior, Cary Academy, Cary, North Carolina, T: Elisa Pieri
- EAEV064** **The Removal of Heavy Metal Ions From Synthetic Wastewater Using Functionalized Multi-Walled Carbon Nanotubes Decorated With Cobalt Ferrite Nanoparticles**
<https://isef.net/project/198229>
 Kate Njeri Muiruri, 17, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Michael Bruno
- ENBM051** **VAMPIRE: Vital Anti-Aging MiRNAs To Promote Induced Regeneration**
<https://isef.net/project/197836>
 Jamie Cheng, 15, Sophomore, Green Level High School, Cary, North Carolina, T: Aticila Mormando
- MATH035** **Disease Transmission and Epidemic Thresholds on Generalized Random Hypergraph Models**
<https://isef.net/project/198180>
 Grisham Narasimh Paimagam, 15, Sophomore, Myers Park High School, Charlotte, North Carolina, T: Anthony Della Pella
- MATS049** **Enhancing Triboelectric Nano-Generators (TEGs) for Sustainable Energy Harvesting**
<https://isef.net/project/198227>
 Aviva Yerong Wang, 16, Junior, Cary Academy, Cary, North Carolina, T: Fei Yan
- MCRO050** **Harnessing Coral Bacteria as Probiotics to Combat *Vibrio cholerae* Water Contamination**
<https://isef.net/project/198228>
- ##** Isabel Marie Garcia, 17, Junior, Isaac Bear Early College High School, Wilmington, North Carolina, T: Bryan Bishop
- PHYS063** **Analytically Modeling the Gravitational Radiation Generated From a Quasistar System**
<https://isef.net/project/198088>
 Jeremy David Adam, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Jonathan Bennett
- SOFT040** **DISTRACT: Driver Inattention State Transition Recognition Using Attention-Based Convolutional Transformers**
<https://isef.net/project/197830>
 Ronit Dey, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Robert Gotwals
- TMED055** **Unlocking CRAC Channel Modulation: Plant Metabolite-Derived ORAI1 Inhibitors Targeting E106 for Rheumatoid Arthritis Treatment Through Combined AI-Derived Virtual Screening Approaches**
<https://isef.net/project/197839>
 Rishidharan Jayakumar, 16, Sophomore, South Iredell High School, Statesville, North Carolina, T: Jennifer Cartelli

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NORTH DAKOTA

Flasher, USND01, Southwest Central North Dakota Regional Science and Engineering Fair

EAEV068T Smart Soil Monitoring
<https://isef.net/project/198765>

Grant James Hauge, 19, Senior, Tyler Carl Rossow, 17, Senior, Flasher High School, Flasher, North Dakota, T: Tana Schafer

PLNT045 Enhancing Nutrient Uptake in Wheat: Evaluating the Effects of Mycorrhizal Fungi Inoculation

<https://isef.net/project/198353>

Madalyn June Bohl, 15, Freshman, Flasher High School, Flasher, North Dakota, T: Tana Schafer

TMED067 Convolutional Neural Networks Applied to Hematological Analysis

<https://isef.net/project/198352>

Ava Sophia Hauck, 16, Sophomore, Dickinson High School, Dickinson, North Dakota, T: Bridget Jacob

Lidgerwood, USND03, Southeast North Dakota Regional Science and Engineering Fair

BEHA051 A Viewpoint Into People's Perception of the World of Diabetes and Examining Their Results Through In-Depth Analysis

<https://isef.net/project/198179>

Noah John Welch, 17, Junior, Hankinson Public School, Hankinson, North Dakota, T: Patty Kratcha

ENBM079 Effects of the Structure of 3D Printed Structures for Cell Growth

<https://isef.net/project/198942>

Justin Zhide Jiang, 16, Junior, Davies High School, Fargo, North Dakota, T: Long Jiang

PLNT054 The Effect of Common Liquids on *Lemna minor* in the Event of Accidental Contamination in Bodies of Water

<https://isef.net/project/198941>

Brooke E. Homola, 17, Junior, Gackle-Streeter Public School, Gackle, North Dakota, T: Ben Juelfs

East Grand Forks, USND05, Northeast North Dakota Regional Science and Engineering Fair

MATS022 Hydrotectives
<https://isef.net/project/193826>

Amaa Samanmali Wijetunga, 13, Freshman, Red River High School, Grand Forks, North Dakota, T: Delores Clark

Tioga, USND06, Northwest North Dakota Regional Science Fair

BEHA050 Mental Health in the Agricultural Industry

<https://isef.net/project/198178>

Jenilynn Rose Hanson, 18, Senior, Tioga High School, Tioga, North Dakota, T: Debra Moe

PLNT040 Regrowing Lettuce in Different Water Types

<https://isef.net/project/197934>

Creszah Lorraine Ratunil Mahinay, 17, Junior, New Town High School, New Town, North Dakota, T: Sheena Suello

Watford City, USND50, North Dakota State Science and Engineering Fair

BEHA060 Acquiring and Decoding Neural Signals for Sensory Applications

<https://isef.net/project/198591>

Evelyn Jean Chambers, 15, Freshman, Woodhaven Academy, Fargo, North Dakota, T: Victoria Chambers

EGSD035 Renewable Energy Storage Innovation of Air Batteries Using Steel Anodes

<https://isef.net/project/198177>

Radheeka Weeraratne, 16, Junior, Dickinson High School, Dickinson, North Dakota, T: Bridget Jacob

TMED077 The Effect of Psychoactive Substances on the Growth and Treatment of K562 Cell Lines

<https://isef.net/project/198767>

James Conner Gessey, 18, Senior, Flasher High School, Flasher, North Dakota, T: Tana Schafer

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OHIO

Athens, USOH01, Southeastern Ohio Regional Science and Engineering Fair

BCHM031 Inhibition of Protein Enzyme Alliinase Utilizing Ligand Docking and Genetic Algorithms
<https://isef.net/project/198171>

Prem Arman Koshal, 16, Junior, Athens High School, The Plains, Ohio, T: Sumit Sharma

Mentor, USOH02, Northeastern Ohio Science and Engineering Fair

ANIM029 Investigating Global Warming's Impact on the Metamorphosis of Painted Lady Butterflies
<https://isef.net/project/193839>

Owen Zachary Medved, 16, Sophomore, Mentor High School, Mentor, Ohio, T: Lori Cohen

BMED047 Ferroptosis Sensitivity of HIV-Uninfected vs. HIV-Infected Human Microglia
<https://isef.net/project/195706>

Arielle Margie Klein, 16, Junior, Hawken School, Gates Mills, Ohio, T: Lacy Chick

BMED048 Effects of Gut Microbially Produced Phenolic Acids on Host Metabolic Health
<https://isef.net/project/195707>

Lila Morley, 17, Junior, Hawken School, Gates Mills, Ohio, T: Lacy Chick

ENEVO40 Effortless Alkalinity Analysis Using AI and Smartphone Technology, No Equipment Needed, From Freshwater to Saltwater
<https://isef.net/project/195700>

Zachary Y Han, 17, Senior, Solon High School, Solon, Ohio, T: Judy Zhang

ENEVO41 Biomimicry in Ship Hulls To Reduce Noise Pollution and Harmful Wakes
<https://isef.net/project/195708>

Adonis Musbah Wazni, 17, Junior, University School, Chagrin Falls, Ohio, T: Sara Laux

PHYS033 Optimizing Exoplanet Detection: A Comparison of Neural Networks and Traditional Machine Learning Models on Light Curve Data
<https://isef.net/project/193838>

Bradley Field, 15, Freshman, Chagrin Falls High School, Chagrin Falls, Ohio, T: Ben Ko

ROBO031 Pulmonary Nodules: Utilizing Semantic Segmentation to Identify Early Representations of Lung Cancer
<https://isef.net/project/195701>

Adharsh Narendrakumar, 17, Junior, Saint Ignatius High School, Cleveland, Ohio, T: Tara Henderson

Shaker Heights, USOH05, Hathaway Brown Upper School Fair

BCHM020 Investigating the Role of Nicotinamide Adenine Dinucleotide Precursors in Pancreatic Cancer Prevention
<https://isef.net/project/197296>

Shrividya Regadamilli, 16, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Janna Mino

ENBM046 Developing Cyclodextrin Polymers for Antibiotic Delivery
<https://isef.net/project/197295>

Areesha Nouman, 17, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Janna Mino

PHYS049 Depolarized Dynamic Light Scattering Study of Polymer Grafting on Gold Nanorods
<https://isef.net/project/197297>

Haasini Sanisetty, 17, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Janna Mino

ROBO042 Feature Selection From Virtual Reality Hand Tracking Data for Robot Gripper Teleoperation Control
<https://isef.net/project/197294>

Aashvi Jagetia, 16, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Janna Mino

Bryan, USOH06, Northwest Ohio Science and Engineering Fair

ETSD007 Multi-Stage Ionic Thruster Mark II Advancing Multi-Stage Ionic Thrusters: Optimizing Design and Exploring Sustainable Applications
<https://isef.net/project/191443>

Gunner G McClure, 17, Junior, Patrick Henry High School, Hamler, Ohio, T: David Parry

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- TMED006** **Engineering and Product Testing a Novel Effective Antiperspirant**
<https://isef.net/project/191625>
 Julia Rae Dickinson, 18, Senior, Hilltop High School, West Unity, Ohio, T: Cristin Hagans
- Dublin, USOH50, Buckeye Science and Engineering Fair**
- BMED030** **Intracellular Calcium Oscillation Promotes Migration and Invasion of Liposarcoma Cells**
<https://isef.net/project/192901>
 Elena Tao Zhu, 17, Junior, Upper Arlington High School, Upper Arlington, Ohio,
 T: Wendy Pinta
- CELL012** **Live-Cell Kinetic Assays Reveal That the TGF- β Inhibitor Vactosertib Suppresses T Cell Exhaustion**
<https://isef.net/project/192911>
 John R. D'Cruz, 17, Junior, University School, Chagrin Falls, Ohio, T: Sara Laux
- EAEV020** **The Relationship Between Wind Speeds, Warning Tags and the Distance to the Maximum Damage Point and EF Ratings of Tornadoes**
<https://isef.net/project/192914>
 Kira Florek, 18, Senior, Mentor High School, Mentor, Ohio, T: Lori Cohen
- EBED008** **Gyroscopic Rocket Stabilization via Thrust Vectored Control**
<https://isef.net/project/192050>
 Mateo Johnson, 17, Junior, Metro Early College High School, Columbus, Ohio,
 T: Caleb Caldwell
- EBED015** **NeuroBreath: An AI-Powered Wearable Device for Stress Reduction Using Personalized Mindfulness Techniques Inspired by Buddhist Philosophy**
<https://isef.net/project/192900>
 Anuki Mudalige, 14, Freshman, Olentangy Orange High School, Lewis Center, Ohio,
 T: Sarah Hanna
- EGSD012** **Electrogenic Biotransformation of Organic Substrates: A Bioanodic Approach to Decentralized Energy**
<https://isef.net/project/192898>
 Kyla Kay Fallis, 18, Senior, Bath High School, Lima, Ohio, T: Luke Krohn
- PHYS024** **Novel Flexible Substrate-based 2D MoS₂ Devices and Novel Ionic Liquid Gated MoS₂ Field-effect Transistors on Flexible Substrates**
<https://isef.net/project/192910>
 Michael Jiaqi Zhu, 16, Junior, University School, Chagrin Falls, Ohio, T: Sara Laux
- PLNT017** **Sustainable Technologies for Reducing Phosphorus Leaching Using Plant Growth Promoting Rhizobacteria**
<https://isef.net/project/192899>
- ##**
- TMED025** **A Novel Analysis on the Effects of Changes in the Social Vulnerability Index and Its Subcategories on Changes in Survival Rates for Six Common Cancers From 2000–2020**
<https://isef.net/project/193260>
 Anshul Sharma, 17, Junior, University School, Chagrin Falls, Ohio, T: Sara Laux

OKLAHOMA

- Alva, USOK01, Northwestern Oklahoma State University Regional Science Fair**
- PHYS017** **Gearin' Up**
<https://isef.net/project/192677>
 Haven Stoner, 17, Senior, Burlington Public School, Burlington, Oklahoma,
 T: Jennifer Newlin
- Bartlesville, USOK02, Bartlesville District Science Fair**
- BEHA006** **Design to Decline: Reducing Traffic Speeds Through Neighborhood Design**
<https://isef.net/project/191376>
 Nick Jiaxu Du, 15, Freshman, Bartlesville High School, Bartlesville, Oklahoma,
 T: Shelley Brown

FINALIST DIRECTORY

- ENEV008** **Turning Trash Into Treasure: Creating Sustainable Bioplastic Products From Food Waste Through Innovation**
<https://isef.net/project/191159>
 Jonathan Lai, 14, Freshman, Bartlesville High School, Bartlesville, Oklahoma,
 T: Shelley Brown
- ROBO002T** **HeartGuard: A Model to Detect Heart Disease Using Machine Learning**
<https://isef.net/project/191040>
 Carson Michael Lee, 16, Sophomore, Caylen Nicole Lee, 16, Sophomore, Bartlesville High School, Bartlesville, Oklahoma, T: Jessica Strain
- Tulsa, USOK10, Tulsa Regional Science Fair**
- CBIO022** **Unveiling Protocadherin Expression in Non-Neural Developmental Contexts**
<https://isef.net/project/193792>
 Emma Zhang, 16, Junior, Jenks High School, Jenks, Oklahoma, T: Katelyn Mika
- ETSD012T** **Development and Performance Analysis of a Hybrid Electric-Solid Fuel Propulsion Rocket: Integrating Biofuel Synthesis, Thrust Optimization, and Data-Driven Flight Dynamics Evaluation**
<https://isef.net/project/192565>
- #** William Steven Soranno, 18, Senior, Mason Jude Istre, 18, Senior, Cascia Hall Preparatory School, Tulsa, Oklahoma, T: Chaunna Steen
- Stillwater, USOK50, Oklahoma State Science and Engineering Fair**
- BMED050** **Basal Molecular Profiles for Predicting Physical Performance Enhancements After Endurance Training**
<https://isef.net/project/195850>
 Krish Kalpesh Patel, 18, Senior, Casady School, Oklahoma City, Oklahoma,
 T: Julieta Zesiger
- CHEM022** **Development of an Assay Method for Zirconium Based on Chemiluminescence**
<https://isef.net/project/195876>
 Andrew Hantong Zhang, 17, Junior, Norman North High School, Norman, Oklahoma,
 T: Hanping Ding
- MCRO037** **Understanding the Synergy Between Antibiotics and Phenolic Acids**
<https://isef.net/project/195872>
- #** Alex Kidangathazhe, 16, Junior, Stillwater High School, Stillwater, Oklahoma,
 T: Deepthi Kolady
- PHYS040** **Revolutionizing Spacesuits: Strength Meets Science**
<https://isef.net/project/195863>
 Isabel Adele Thoreson, 14, Freshman, Bartlesville High School, Bartlesville, Oklahoma,
 T: Shelley Brown

OREGON

- Gresham, USOR01, Gresham-Barlow Science Expo**
- CBIO037** **Spatial Transcriptomics and Adaptive Multi-Modal Encoding: A Novel Approach to Early Metastasis Profiling and Therapeutic Targeting Treatment**
<https://isef.net/project/196951>
 Nidhi Yadalam, 17, Junior, Jesuit High School, Portland, Oregon, T: Lara Shamieh
- CHEM024T** **Acid Assisted Demolition**
<https://isef.net/project/197023>
 Ben Graham, 17, Junior, Jack Dillon, 17, Junior, Luong Duy Nguyen, 17, Junior, Gresham High School, Gresham, Oregon, T: Cyrus Harshfield
- MCRO039** **Leveraging Microbiome Data and Machine Learning for the Identification of Novel Biomarkers in Early Detection and Classification of Pancreatic Cancer**
<https://isef.net/project/196953>
 Vrushab Karthik, 16, Junior, Jesuit High School, Portland, Oregon, T: Lara Shamieh
- Portland, USOR02, Portland Public Schools Science Expo**
- BMED036** **The Effects of Hypochlorhydria on the Digestion of Lipids, Carbohydrates, Sugars and Proteins**
<https://isef.net/project/193261>
 Zay Marie Conant, 18, Senior, Leodis V. McDaniel High School, Portland, Oregon,
 T: Tim Kniser

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Beaverton, USOR04, Beaverton-Hillsboro Science Expo

CELL013 **Structure-Guided Engineering of Ancestrally Derived AAV Capsids: Enhancing Precision Gene Therapy Through the Rational De-Targeting of Hepatic Tropism**
<https://isef.net/project/193105>

Srija Attur, 17, Junior, Sunset High School, Portland, Oregon, T: Korin Riske

EBED023 **Microcontroller Based Memcapacitor Emulator**
<https://isef.net/project/193835>

Adrian Gomez-Donato, 18, Senior, Liberty High School, Hillsboro, Oregon, T: Steffan Ledgerwood

ENBM019 **An Ingestible, Self-Propelling, Electroceutical Device With Electroenterogram and Electrical Stimulation Capabilities for Noninvasive Management of Small Intestinal Dysmotility**
<https://isef.net/project/193080>

Akash Ashish Pai, 17, Senior, Sunset High School, Portland, Oregon, T: Korin Riske

MATH019 **Quantum-Sound Factorization: On the Distribution and Structure of Irreducible Sets**
<https://isef.net/project/193079>

Anay Aggarwal, 17, Junior, Westview High School, Portland, Oregon, T: Jose Medina-Hernandez

ROBO022T **M³LungXAI-LF: An Explainable Multi-Modal Late Fusion System for Improved Clinical Early Lung Cancer Diagnosis With Automated Medical Reporting**
<https://isef.net/project/193103>

Raymond Lee, 16, Junior, Rehaan Kadhar, 18, Senior, Westview High School, Portland, Oregon, T: Jose Medina Hernandez

Portland, USOR05, Aardvark Science Exposition

ETSD006 **Flow Control via Bio-Inspired Leading-Edge Tubercles for Enhanced Airfoil Performance**
<https://isef.net/project/191375>

Eric Min, 17, Junior, Oregon Episcopal School, Portland, Oregon, T: Joshua Caditz

MATH007 **Combinatorial Invariants of Stable Curve in Genus 4: Classification and Computation**
<https://isef.net/project/191438>

Frank Kan, 17, Junior, Oregon Episcopal School, Portland, Oregon, T: Ruihua Wang

MATS007 **In situ 4D Printing of Light-Activated Liquid Crystal Elastomers**
<https://isef.net/project/191626>

Elliot Yoo, 17, Junior, Oregon Episcopal School, Portland, Oregon, T: Joshua Caditz

TMED011 **The Development of a Biomarker for Pancreatic Ductal Adenocarcinoma Detection: Investigating Human Antigen R's Expression and Translocation in Response to Cytokine Regulator (cyclic GAMP) and Cytokine (Interferon Gamma) Using Immunocytofluorescence Staining**
<https://isef.net/project/192232>

Chandra Shriya Sai Myneni, 17, Senior, Oregon Episcopal School, Portland, Oregon, T: Joshua Caditz

Wilsonville, USOR06, CREST-Jane Goodall Science Symposium

EGSD011 **De novo Protein Generation for Enhanced Efficiency in Biohybrid Solar Cells**
<https://isef.net/project/192885>

Arush Goswami, 17, Junior, Wilsonville High School, Wilsonville, Oregon, T: CJ Koll

MCRO019 **AAVehicle: Novel Assembly Activating Protein Domain Shuffling for Enhanced Adeno-Associated Virus Capsid Formation and Gene Therapy as Treatment for Genetic Disorders**
<https://isef.net/project/192883>

Suhaani Garg, 17, Senior, West Linn High School, West Linn, Oregon, T: Danielle Schroeder

PHYS030 **QuasarCodex: Quantifying AGN Feedback in High-Redshift Quasars Through Outflow Kinematics**
<https://isef.net/project/193252>

Annika Martin, 17, Junior, Wilsonville High School, Wilsonville, Oregon, T: Danielle Schroeder

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- TMED024 Advancing Opioid Overdose Intervention: Formulating Novel Spray-Dried Naloxone Microparticles for Pulmonary Delivery**
<https://isef.net/project/193251>
 Anvi Singh, 15, Sophomore, Wilsonville High School, Wilsonville, Oregon,
 T: Roxanne Kilpatrick
- Salem, USOR07, Central Western Oregon Science Expo**
- SOFT015 The Forensic Potential of MacOS Spotlight PSID.DB: Tracking Illicit Storage Drive Activity Through Artifact Reverse Engineering, Scripting and Analysis**
<https://isef.net/project/192742>
 Ethan Tyler Hale, 16, Junior, South Eugene High School, Eugene, Oregon, T: Andy Crain
- Bend, USOR08, Central Oregon Community College Regional Science Expo**
- MATS061T Developing and Evaluating Conductive Filaments for 3D Printing Applications**
<https://isef.net/project/198946>
- # Connor Timothy Huet, 18, Senior, Tristan Frank Huet, 18, Senior, Summit High School,
 Bend, Oregon, T: David Bermudez
- Banks, USOR50, Northwest Science Expo**
- BCHM035 Mechanistic *in silico* and *in vivo* Approaches With Phytochemicals in *C. elegans* for Synergistic Neuroprotection and Bioisostere-Based Screening in Alzheimer's Disease**
<https://isef.net/project/198594>
- # Shriya Pai, 17, Junior, Jesuit High School, Portland, Oregon, T: Lara Shamieh
- BMED088 Single-Cell Analysis Based Identification of Unique Markers and Metastasis Mechanism in Triple-Negative Breast Cancer**
<https://isef.net/project/199186>
- Aashi Dixit, 16, Junior, Catlin Gabel School, Portland, Oregon, T: Maguerite Mckean
- EAEV070 A Multilayer Perceptron Based Neural Network Model to Identify Optimal Camera Locations for Early Detection of Wildfires**
<https://isef.net/project/198948>
- Sohan Govindaraju, 17, Junior, Jesuit High School, Portland, Oregon, T: Lara Shamieh
- PHYS075 Optimizing Tidal Disruption Event Detection: A Photometric Analysis of Host Galaxies**
<https://isef.net/project/198947>
- Zoe Kramer, 16, Sophomore, South Eugene High School, Eugene, Oregon,
 T: Jimmy Lynch
- ROBO066T IntelliCane: An Agentic Approach to Real-Time Obstacle Avoidance and Intelligent Decision-Making for the Visually Impaired Through a Monocular Servo-Guided Cane Using Deep Learning-Based Environmental Mapping**
<https://isef.net/project/198773>
- # Tanay Chitlur, 16, Junior, Akash Ragam, 17, Junior, Westview High School, Portland,
 Oregon, Jesuit High School, Portland, Oregon, T: Lara Shamieh
- TMED088 Colorectal Cancer Imaging and Classification—A Deep Learning Approach to Classify Histopathological Images**
<https://isef.net/project/199237>
 Shyam Ravidath, 15, Sophomore, Sunset High School, Portland, Oregon, T: Korin Riske

PENNSYLVANIA

- Duncannon, USPA01, Capital Area Science and Engineering Fair**
- CBIO032 An Uncertainty-Aware Predictive Modeling Tool Towards Effective Clinical Monitoring of Sepsis Using Electronic Health Records From Hospitalized Patients**
<https://isef.net/project/195870>
- # Shaunak Dalal, 17, Junior, Hershey High School, Hershey, Pennsylvania, T: Jason Sibbach
- ENEVO44 Reducing Methane Emissions by Implementing Strategic Hydroponics Into the *Bos taurus* Diet**
<https://isef.net/project/195871>
- ## Ian James Lentz, 18, Senior, Camp Hill High School, Camp Hill, Pennsylvania,
 T: Amy Diehl

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Lancaster, USPA02, North Museum Science and Engineering Fair	
MATS023	<p>"HEA You, Stop That Radiation!" Polyimide-Taped High Entropy Alloys (HEAs) vs. Ionizing Radiation Shielding https://isef.net/project/193859 Ansh Dwivedi, 17, Senior, Warwick High School, Lititz, Pennsylvania, T: Doug Balmer</p>
MATS024	<p>Reel Problems, Reel Solutions: Combatting Microplastics in Aquatic Ecosystems With Biodegradable Fishing Lures https://isef.net/project/193860 Ethan Albright, 17, Junior, Hempfield High School, Landisville, Pennsylvania, T: Neal Kuhn</p>
Exton, USPA03, Delaware Valley Science Fairs	
ANIM052	<p>Enhancing Targeted Crop Pollination by Training Apis mellifera Using Synthetic Mimic Odors and AI-based Analysis https://isef.net/project/198949</p>
#	<p>Matthew Lo, 16, Sophomore, The Haverford School, Haverford, Pennsylvania, T: Daniel Goduti</p>
BEHA047	<p>The Impact of Puzzle-Solving on Memory Retention and Concentration: A Study of Cognitive Enhancement https://isef.net/project/197933 Nazifa Arna, 16, Sophomore, Upper Darby High School, Drexel Hill, Pennsylvania, T: Roseann Burns</p>
BMED082	<p>Multi-omics Predictive Model for Personalized Breast Cancer Prognosis https://isef.net/project/198774 Audrey Yu, 17, Junior, Germantown Academy, Fort Washington, Pennsylvania, T: Sarah Kesten</p>
CELLO50	<p>Bioengineering an Antibody Drug Conjugate for Uveal Melanoma https://isef.net/project/198950 Prisha Jayesh Parmar, 17, Senior, Central Bucks High School South, Warrington, Pennsylvania, T: Mark Hayden</p>
EAEV069	<p>Analyzing and Filtering Microplastics in Drinking Water https://isef.net/project/198775 Aaditri Suresh, 14, Freshman, Parkland High School, Allentown, Pennsylvania, T: Michael Post</p>
ENBM065	<p>GastroSense — Non-invasive Method to Efficiently Detect Various GI Issues Unaccompanied by Deleterious Effects on the GI Tract https://isef.net/project/198357</p>
###	<p>Grace Samer Yacobe, 18, Senior, Academy of Notre Dame de Namur, Villanova, Pennsylvania, T: Jessica Reid</p>
MATS063	<p>An Alternative Suture Material Synthesized From Marine Invertebrates https://isef.net/project/199063 Chloe Carey Wnek, 16, Junior, Marine Academy of Technology and Environmental Science, Manahawkin, New Jersey, T: John Wnek</p>
MCRO048	<p>Combating Inflammatory Disease: Anti-inflammatory Effect of Nisin (Bacteriocin) on Lipopolysaccharide-Stimulated THP-1 Cell https://isef.net/project/197932 Sean S W Jeon, 15, Freshman, Parkland High School, Allentown, Pennsylvania, T: Kaitlin Heintzelman</p>
MCRO055	<p>Pentavax: Pentraxin Proteins With Dengue Virus Immunoreactivity https://isef.net/project/198776 Soumil Sharma, 18, Senior, Central Bucks High School East, Doylestown, Pennsylvania, T: Mark Hayden</p>
PHYS066	<p>Enhancing Sensitivity in Quantum Optomechanical Systems Through Quantum Control https://isef.net/project/198356 Eric Guo, 14, Freshman, High Technology High School, Lincroft, New Jersey, T: Craig Queenan</p>

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- SOFT051** **Enhancing Diagnostic Reliability and Safety in Diabetic Retinopathy (DR) Screening on the Clinical Edge: A Scalable Deep Ensemble Meta-Learning Framework With Enhanced Uncertainty Estimation (Year 2)**
<https://isef.net/project/198242>
 # Jophy Lin, 17, Junior, Manalapan High School, Manalapan Township, New Jersey, T: Jelena Komitas
- TMED059** **WoundView: A Novel Comprehensive Tool Utilizing Machine Learning Models for Remote, Cost-Effective, Real-Time Wound Risk Assessment**
<https://isef.net/project/198170>
 # Yash Bhavsar, 16, Sophomore, Moorestown High School, Moorestown, New Jersey, T: Sean Watson
- Pittsburgh, USPA04, Pittsburgh Regional Science & Engineering Fair**
BMED083 **A Newly Identified Chromatin Remodeling Pathway in the Lens Enables a Proof-of-Concept Gene Therapy for Posterior Capsule Opacification**
<https://isef.net/project/198779>
 Evan Keyu Xiang, 16, Junior, Shady Side Academy, Pittsburgh, Pennsylvania, T: Wade Znosko
- ENBM077** **Human Epithelial Cell Attachment on Prosthetic-Based Mesh Using Collagen Biopolymer**
<https://isef.net/project/198781>
 Eva Nicole Nealen, 17, Junior, Indiana Area Senior High School, Indiana, Pennsylvania, T: Emily Hixson
- ENBM078** **ARISE: An Adaptive Robotic Exoskeleton Regarding Physical and Cognitive Rehabilitation To Reduce Energy Expenditure and Injury**
<https://isef.net/project/198787>
 Avyukt Iyer, 16, Junior, North Allegheny Senior High School, Wexford, Pennsylvania, T: Keith Zielen
- PHYS073** **High-Cadence Adaptive Reverberation Mapping of Variable Quasars to Resolve Light-Hour Accretion Disk Structures in Supermassive Black Holes**
<https://isef.net/project/198782>
 Thomas Jichen Wang, 17, Junior, Shady Side Academy, Pittsburgh, Pennsylvania, T: Kerry Handron
- TMED069** **QuanTear: A Tear Test for Stroke Detection and Monitoring**
<https://isef.net/project/198596>
 # James Xiao, 17, Junior, North Allegheny Senior High School, Wexford, Pennsylvania, T: Keith Zielen
- TMED078** **Dethroning the King of Cancers: Pancreatic Cancer Diagnosis From Blood Enabled by a Cocktail of Antibody-Magnetic Nanospheres**
<https://isef.net/project/198780>
 Audrey Zheng, 16, Junior, North Allegheny Senior High School, Wexford, Pennsylvania, T: Keith Zielen
- Reading, USPA05, Reading and Berks Science and Engineering Fair**
EAEV032 **Using *Lepomis macrochirus* Fish Scales as Biological Indicators of Stream Health**
<https://isef.net/project/195698>
 Samson Christopher Evans, 18, Senior, Muhlenberg High School, Reading, Pennsylvania, T: Audrey Smeltzer-Schwab
- MATS026** **Shrimp-Wrap: Fabrication and Characterization of a Strong, Biodegradable Chitosan Bioplastic Composite**
<https://isef.net/project/195699>
 William Charles Ferencich, 17, Junior, Wilson High School, West Lawn, Pennsylvania, T: Joseph Melograna
- York, USPA06, York County Science and Engineering Fair**
CELLO46T **The Effect of Ascorbic Acid on DNA Repair-Deficiency: A Study on *Saccharomyces cerevisiae* Strains**
<https://isef.net/project/198545>
 Veronika Falevich Saavedra, 16, Junior, Mack Christopher Rizzo, 16, Junior, Red Lion Area Senior High School, Red Lion, Pennsylvania, T: Charlene Wyrick

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- ENEV078** **From Waste to Worth: Comparing Varying Cellulase Enzyme Concentrations on the Separation of Mixed Poly-Cotton Fibers**
<https://isef.net/project/198951>
Eden Jubilee Kleinfeld, 16, Junior, York Academy Regional Charter School Upper School, York, Pennsylvania, T: Roni Reed

RHODE ISLAND

Warwick, USRI50, Rhode Island Science and Engineering Fair

- ANIM047** **β -Cyclodextrin Reduces the Cognitive and Survival Impacts of Imidacloprid Exposure in Honey Bees (*Apis mellifera*)**
<https://isef.net/project/198042>

Jimin Shon, 19, Senior, Portsmouth Abbey School, Portsmouth, Rhode Island,
T: Stephen Zins

- EAEV042** **Exploring Biogeochemical Climate Solutions for Nutrient Removal in the Narragansett Bay Estuarine Ecosystem**
<https://isef.net/project/197470>
Enyu Zhang, 17, Senior, Portsmouth Abbey School, Portsmouth, Rhode Island,
T: Stephen Zins

SOUTH CAROLINA

Charleston, USSC03, Low Country Science Fair

- ENBM032** **VADAM: VOC Analyte Diagnostic Aid Machine**
<https://isef.net/project/195862>

Francesco Hamilton, 17, Junior, Academic Magnet High School, North Charleston, South Carolina, T: Katharine Metzner-Roop

Columbia, USSC04, USC Central South Carolina Region II Science and Engineering Fair

- MCRO047** **Examining the Antimicrobial Mechanisms of a Bile Acid-Derived Antibiotic - Implications for Tackling Superbug Infections**
<https://isef.net/project/197882>

Colin Tang, 17, Junior, Spring Valley High School, Columbia, South Carolina,
T: Michelle Spigner

Hartsville, USSC05, Sand Hills Regional Science Fair

- BCHM017T** **Development of Pre-Clinical Models to Study How Biophysical Forces Alter Metastatic Breast Cancer**
<https://isef.net/project/197018>

Grace Hanjia Zhang, 17, Senior, Audrey Mae Howard, 18, Senior, South Carolina Governor's School for Science and Mathematics, Hartsville, South Carolina,
T: Joshua Witten

Spartanburg, USSC07, Piedmont South Carolina Region III Science Fair

- EGSD024** **Testing Different Angled Wind Turbine Blades To Find the Optimal Blade Angle**
<https://isef.net/project/196970>

Gavin Fabian Kuronya, 16, Sophomore, James F. Byrnes High School, Duncan, South Carolina, T: Charlee Stoehr

Central, USSC08, South Carolina Region 1 Science Fair

- BMED046** **The Association of Structural Variation in Medically Relevant and Complex Genes, Such as GPI on Chromosome 19, With the Production of Novel Gene Transcripts and Its Influence on Gene Expression**
<https://isef.net/project/195697>

Alejandra Rodriguez, 18, Senior, Easley High School, Easley, South Carolina,
T: Mark Loftus

- PLNT034** **Testing Salt Tolerance To Improve Crop Sustainability**

<https://isef.net/project/197477>
Tinisha Singh, 16, Junior, D. W. Daniel High School, Central, South Carolina,
T: Jenifer Tidwell

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SOUTH DAKOTA

Aberdeen, USSD01, Northern South Dakota Science and Math Fair

BCHM029 Food Additives and Their Effect on Enzyme Activity

<https://isef.net/project/198100>

Breckan Gray Santjer, 17, Junior, Aberdeen Central High School, Aberdeen, South Dakota, T: Amy Dix

EAEV049 Anthocyanin in *Zooxanthellae*

<https://isef.net/project/197738>

Kirra Stillman, 18, Senior, Aberdeen Central High School, Aberdeen, South Dakota, T: Charles Hermansen

ENBM050T AI Personalized 3D Printing for Transcatheter Aortic Valve Replacement

<https://isef.net/project/197740>

Anna Rose Ahlberg, 18, Senior, Corban David Landis, 15, Freshman, Aberdeen Central High School, Aberdeen, South Dakota, T: Charles Hermansen

Brookings, USSD02, Eastern South Dakota Science and Engineering Fair

BCHM025 Molecular Modeling Design of Anti-Inflammatory Drugs

<https://isef.net/project/197509>

Kerrick He Zhang, 15, Freshman, Brookings High School, Brookings, South Dakota, T: Laura Hummel

BMED076 Dye-ing to Discover: Investigating the Production of β -Carotene in the Yeast *Rhodotorula mucilaginosa* as Natural Pigments

<https://isef.net/project/198359>

Anika Hooda, 17, Junior, Brookings High School, Brookings, South Dakota, T: Laura Hummel

Rapid City, USSD03, High Plains Regional Science and Engineering Fair

CELLO48 My Family Pedigree

<https://isef.net/project/198684>

Catherine Van Winkle, 16, Sophomore, Van Winkle Homeschool, Sturgis, South Dakota, T: Jenelle Fleagle

TENNESSEE

Chattanooga, USTN01, Chattanooga Regional Science and Engineering Fair

BCHM013 Optimization of One-Component Ionizable Amphiphilic Janus Dendrimer Design for Enhanced Dendrimersome Nanoparticle mRNA Delivery

<https://isef.net/project/195857>

Joshua Hyungwan Kim, 16, Junior, McCallie School, Chattanooga, Tennessee, T: Ashley Posey

BEHA028 Unveiling the Neurophysiological Mechanisms of Self-Cognition and Its Impact on Working Memory: A Comprehensive Mobile EEG Investigation Into Cognitive Engagement and Attention in Task-Oriented Processing

<https://isef.net/project/195858>

Anthony Minshuo Xian, 16, Junior, McCallie School, Chattanooga, Tennessee, T: Ashley Posey

Knoxville, USTN04, Southern Appalachian Science and Engineering Fair

MATSO57 Recycling Polymers for Use in Additive Manufacturing Through Screw-Based Extrusion

<https://isef.net/project/198564>

Levi Dunn, 16, Junior, L&N STEM Academy, Knoxville, Tennessee, T: Bryan Schultz

MCRO053 Assessing the Ecotoxicological Impact of Sucralose on Freshwater Phytoplankton Dynamics

<https://isef.net/project/198565>

Bethanie Nicole Bryant, 17, Senior, Greeneville High School, Greeneville, Tennessee, T: Cynthia Propst

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Memphis, USTN05, Memphis-Shelby County Science and Engineering Fair

CBIO074 Dopavision: A Novel Supervised Machine Learning Model for Predicting Post-Cocaine Phasic Mesolimbic Dopamine Activity in Male C57BL/6J Mice

<https://isef.net/project/198955>

Sumin Yoon, 17, Junior, Collierville High School, Collierville, Tennessee, T: Deranda Lester

Nashville, USTN06, Middle Tennessee Science and Engineering Fair

ENEV079 Unlocking the Untapped Potential of Microalgae Harvesting Through Foam Flotation

<https://isef.net/project/199062>

Nicolas Peter Nociti, 16, Sophomore, Dickson County High School, Dickson, Tennessee, T: Wesley Allen

ETSD045 Dynamic Aero-Adaptation: A Biomimetic Approach to Active Vehicle Wings

<https://isef.net/project/198047>

Aditya Salvi, 16, Junior, Independence High School, Thompson's Station, Tennessee, T: Luke Finley

SOFT061 Re-Engineering Digital Assessments: A Multi-Modular HCI Framework for Minimizing Cognitive Load in Standardized Testing Through CLT-Driven Interface Redesign

<https://isef.net/project/199158>

Evalyn Nyitong Ujwok, 17, Junior, Rutherford County Virtual School, Murfreesboro, Tennessee, T: Jennifer Courtney

TEXAS

Dallas, USTX01, Beal Bank Dallas Regional Science and Engineering Fair

ANIM016 Utilizing Ants to Mitigate MSW Landfill-Generated Methane Production Through Novel Aerobic Digester System for Anthropogenic Food Waste Decomposition

<https://isef.net/project/192745>

Ananya Gulur Nagendra, 17, Junior, Plano East Senior High School, Plano, Texas, T: Julie Baker

BEHA010 SpeakNow: AI-Powered Early Detection of Developmental Speech and Language Disorders in Children

<https://isef.net/project/192234>

Evelyn Ding, 18, Senior, Plano West Senior High School, Plano, Texas, T: Emily Sharma

BMED018 Building a Machine Learning Algorithm to Predict Cardiovascular Disease and Coding an Application to Provide Personalized Feedback

<https://isef.net/project/192233>

Shreyas Kolan, 15, Freshman, T.C. Jasper High School, Plano, Texas, T: David Kraft

CHEM019 2-Phenylalkynylsilyl Acetaminophen as a Less Toxic and More Effective Pain Medication

<https://isef.net/project/193834>

Chloe Yehwon Lee, 17, Senior, Plano East Senior High School, Plano, Texas, T: Julie Baker

EAEV021 A Novel Approach to Measuring the Impact of Thawing Permafrost on Carbon Emissions Using Remote Sensing

<https://isef.net/project/192974>

Arav Agarwal, 17, Junior, School for the Talented and Gifted at Yvonne A Ewell Townview Magnet Center, Dallas, Texas, T: Mark Leon

EBED007 Modality Matched Sensory Smart Skin System to Restore Tactile Sensation for Amputees With Adaptive Visuo-Tactile Predictive Texture Recognition

<https://isef.net/project/191728>

Varun Mukund Sridhar, 17, Senior, Plano East Senior High School, Plano, Texas, T: Julie Baker

ENBM006 Wearable, High Sensitivity Bio-Transistor for the Detection of Lactate in Sweat (Year II)

<https://isef.net/project/191677>

Sravva Pilla, 16, Sophomore, T.C. Jasper High School, Plano, Texas, T: David Kraft

ETSD010 ASCEND: Autonomous Structure Construction With Novel Agent Swarms

<https://isef.net/project/192214>

Ryan Xu, 16, Junior, Plano West Senior High School, Plano, Texas, T: Beverley Mahoney

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- ROBO011T** **GaitGuardian: Real-Time IMU Processing and Visual Monitoring Using Machine Learning (ML) for Advanced Parkinson's Disease Patients (II)**
<https://isef.net/project/192308>
 # Viren Rayappa Bankapur, 18, Senior, Keshav Gopalan Anand, 15, Sophomore, Independence High School, Frisco, Texas, Plano East Senior High School, Plano, Texas, T: Julie Baker
- El Paso, USTX02, Sun Country Science Fair**
- BMED025** **Anti-Plaque Toothpastes Effect on Plaque Growth**
<https://isef.net/project/192848>
 Abigail Lynn Lowe, 17, Junior, Radford School, El Paso, Texas, T: Vicki Landersman
- EAEVO19** **Computational Analysis of Surface and Groundwater to Support Sustainable Irrigation and Agricultural Production in the Lower Rio Grande Sub-Basin, Year II**
<https://isef.net/project/192717>
 Gwen Sophie Rodriguez, 16, Sophomore, Harmony Science Academy-El Paso, El Paso, Texas, T: Anais Vazquez
- ENEVO27** **HeatLeaf: A Small Scale Hybrid Renewable Energy System That Incorporates Biomimicry**
<https://isef.net/project/192847>
 Hanah Koh, 15, Freshman, Harmony Science Academy - El Paso, El Paso, Texas, T: Anais Vazquez
- Arlington, USTX03, Fort Worth Regional Science and Engineering Fair**
- BCHM007** **Natural Therapy for Alzheimer's Disease: Novel Regulation of Gastrointestinal Amyloid-Beta Peptides Using Nutrition**
<https://isef.net/project/192886>
 Presley Melanie Andrews, 16, Sophomore, E.A. Young Academy, Roanoke, Texas, T: McKensie Kreutzer
- BMED029** **Spatial Tumor-Immune Analysis: Insights From Pathology Slides and Breast Cancer Survival**
<https://isef.net/project/192888>
 Jonathan Wang, 18, Senior, Colleyville Heritage High School, Colleyville, Texas, T: Sonya Loughran
- CBIO012** **The Utilization of Deep Learning Based Universal Gene Function Prediction to Identify Gene Synergy to Further Predict Drug Synergy**
<https://isef.net/project/192890>
 Zihan Nicole Huang, 16, Junior, Colleyville Heritage High School, Colleyville, Texas, T: Sonya Loughran
- CHEM011** **Devising Metal-Organic Framework Technology for Scalable Direct Air Capture of CO₂**
<https://isef.net/project/192892>
 Elliott Reno Slaughter, 18, Senior, Texas Academy of Mathematics and Science, Denton, Texas, T: James Duban
- ENEVO29** **Tackling Forever Chemicals PFAS for Environmental Stewardship**
<https://isef.net/project/192889>
 Erin Nam Choi, 17, Junior, Flower Mound High School, Flower Mound, Texas, T: Hyeok Choi
- MCRO020** **Combating *S. aureus* Resistance: Inhibiting graRS with Hesperidin and Punicalagin and Development of Natural Treatment for *S. aureus* Infections**
<https://isef.net/project/192891>
 Aditi Srikanth, 16, Sophomore, Carroll Senior High School, Southlake, Texas, T: Jessica Merrill
- TMED018** **Neuroprotective Effects of Nutraceutical Supplementation for Chronic Traumatic Encephalopathy**
<https://isef.net/project/192887>
 Santiago Ricardo Lumbreras, 16, Sophomore, Granbury High School, Granbury, Texas, T: Priscilla Lumbreras
- Weslaco, USTX04, Rio Grande Valley Regional Science and Engineering Fair**
- BEHA074** **A Children's Book About the Union-Closed Sets Conjecture**
<https://isef.net/project/199157>
 Serene Yi Feng, 16, Junior, Science Academy of South Texas, Mercedes, Texas, T: Luis Gasca

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CBIO073	AI Driven Drug Discovery: Designing Cancer Inhibiting Molecules With Genetic Algorithm https://isef.net/project/198952 Claire Kim, 15, Sophomore, Lamar Academy, McAllen, Texas, T: Jose Gomez Capetillo
EAEVO39	A Comprehensive Review and Field Study of Arsenic in Texas Drinking Water, Local and Statewide: Seeking Safe Water, Quantifying Public Health Risks, and Assessing the Effect of Climate Change https://isef.net/project/197203 Zeviel Abraham Nicanor Pineda, 17, Junior, Veterans Memorial Early College High School, Brownsville, Texas, T: Sandra Sanchez
#	
SOFT058T	Aiding Visual Impairments: Eliminating Object Detection Disparities Through the Use of a Yolo Algorithm https://isef.net/project/199012 Andres Manuel Talamantes, 18, Senior, Javier Logan Mendez, 17, Senior, Hanna Early College High School, Brownsville, Texas, T: Nelda Rogers
Houston, USTX05	Science Engineering Fair of Houston
ANIM014	Year II: Assessing Marine Bivalves as Novel Invertebrate Models for Targeting Anti-Apoptotic BCL-2 Family Proteins in Blood Cancer: The in vivo Effects of Ursolic Acid and Gossypol Acetic Acid on Tumor Cells in <i>Mercenaria mercenaria</i> https://isef.net/project/192718 Iris Shen, 17, Junior, College Park High School, The Woodlands, Texas, T: Larissa Coffee
BCHM006	One Blood Drop to New Hope: A Novel Test Method To Improve Fertility Assessment https://isef.net/project/192881 ## Melina Esha Kumar, 17, Senior, Clear Lake High School, Houston, Texas, T: Robin Mayeaux
BMED031	Optimizing Liver Transplant Success: A Data-Driven Approach Incorporating MELD for Accurate Survival Prediction and Equitable Organ Allocation https://isef.net/project/192908 Nia Shetty, 15, Sophomore, Saint John's School, Houston, Texas, T: David Castillo
CHEM009	Translation Between the Opacity of Photochromic Dye and UV Index https://isef.net/project/192740 Carter Daniel Collison, 14, Freshman, College Park High School, The Woodlands, Texas, T: Larissa Coffee
CHEM010	Improving Alkaline Electrolyzers: The Role of Forced Convection in Hydrogen Generation https://isef.net/project/192852 Prachi Natoo, 17, Junior, College Park High School, The Woodlands, Texas, T: Stephanie Marts
ETSD018T	Revolutionizing Rocket Propulsion: Development of a 3D-Printed Regeneratively Cooled Aerospike Nozzle for Extended Burn Propulsion https://isef.net/project/193110 Suman Muppavarapu, 16, Junior, Asa Gangjee, 16, Junior, Saint John's School, Houston, Texas, T: Franco Posa
MATH015	Utilizing Wavelet Transform and Fourier Transform to Detect Cardiac Arrest Through Electrocardiogram Analysis https://isef.net/project/192720 Caleb Foo, 16, Sophomore, College Park High School, The Woodlands, Texas, T: Rebecca Mooney
PHYS023	Investigating the Effect of Qubit Type on Quantum Computing Viability https://isef.net/project/192907 ## Jesse Miller, 18, Senior, College Park High School, The Woodlands, Texas, T: Rayniel Cruz
PLNT026	Examining the Synergistic Effects of Hydrotropism, Magnetotropism, and Simulated Microgravity on <i>Allium fistulosum</i> Morphology Using a Novel 3D Clinostat https://isef.net/project/193825 # Aarushi Pandey, 17, Senior, College Park High School, The Woodlands, Texas, T: Courtney Sweebe

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- ROBO023T** **Soft Robotics in Gastrointestinal Endoscopy: Engineering a Hydraulic AI-Assisted Colonoscope to Minimize Patient Risks and Enhance Usability**
<https://isef.net/project/193111>
 Sai Spoorthi Maram, 16, Sophomore, Jiya Joshi, 16, Sophomore, William B. Travis High School, Richmond, Texas, T: Matthew Hindmarch
- TECA018** **Unobstructed Voice for Signers: A Real-Time Centered Sign Language Recognition System**
<https://isef.net/project/193255>
 May Lynn Espinola, 17, Junior, Obra D. Tompkins High School, Katy, Texas, T: Bryan Johnson
- TMED029** **Decoding PDAC: A scRNA-seq Omics Analysis to Unveil and Inhibit Key Protein Using a Novel in silico, Structure-Based Drug Design Pipeline**
<https://isef.net/project/193790>
 Sriram Susarla, 16, Junior, Dulles High School, Sugar Land, Texas, T: Kristin Mathew
- Kilgore, USTX06, East Texas Regional Science Fair**
- MCRO028T** **Staph Isn't Mint to Be**
<https://isef.net/project/193256>
 Irvin Anthony Cruz, 18, Senior, Gezle Raus Genio Usón, 18, Senior, Bryan Martinez, 18, Senior, Nacogdoches High School, Nacogdoches, Texas, T: Lindy Arbuckle
- Laredo, USTX07, United Independent School District Regional Science Fair**
- BMED011** **Nanoparticle-Enhanced Amoxicillin Conjugated With BabA Inhibitor**
<https://isef.net/project/191681>
 Ashmita Ghosh, 14, Junior, John B. Alexander High School, Laredo, Texas, T: Nancy Martinez
- Lubbock, USTX08, South Plains Regional Science and Engineering Fair**
- CHEM012** **Platinum Electrode for Green Hydrogen Production via Electrocatalytic Conversion of Ion-Rich Agricultural Fertilizer Runoff**
<https://isef.net/project/192895>
 Felipe Amato Regis de Farias, 17, Junior, Lubbock High School, Lubbock, Texas, T: Christine Teaff
- EBED014** **A Novel Treatment of Obstructive Sleep Apnea Using Continuous Wave Interferometry Radar**
<https://isef.net/project/192894>
 Geyang Xu, 17, Senior, All Saints Episcopal High School, Lubbock, Texas, T: Penny Carpenter
- Odessa, USTX09, Permian Basin Science & Engineering Fair**
- PHYS021** **Quest for the Stars. Exploring Rocket Staging and Its Effect on Fin Configurations, Year 3**
<https://isef.net/project/192884>
 Evan David Cave, 16, Sophomore, Cave Homeschool, Ballinger, Texas, T: Amber Cave
- # San Antonio, USTX11, Alamo Regional Science and Engineering Fair**
- BCHM003T** **The Antiproliferative, Cell Wall Disrupting, and DNA Fragmenting Effects of Flavonoid Extraction From *Tillandsia recurvata***
<https://isef.net/project/191676>
 # Kunling Wu, 16, Sophomore, Aadhya Bobbala, 14, Sophomore, Keystone School, San Antonio, Texas, T: Jason Nydegger
- BMED008** **Assembling Multifunctional Drug Capsules From Safe and Accessible Materials for Selective Cancer Treatment and Diagnosis: Synergizing Fluorescent and Iron-Based Magnetic Therapy**
<https://isef.net/project/191151>
 # Rashmi Rani Basu, 18, Senior, Keystone School, San Antonio, Texas, T: Jason Nydegger
- CBIO004** **A Novel Genomic Framework for Personalized Medicine: Optimizing LMTX for Tau Proteins in Alzheimer's**
<https://isef.net/project/191675>
 Prajesh Mishra, 16, Sophomore, BASIS San Antonio Shavano Campus, San Antonio, Texas, T: Sarah Chavez

FINALIST DIRECTORY

EAEV006	Metamorphosis Under Artificial Light and Added Melatonin https://isef.net/project/191150
###	Josephine Elizabeth Schultz, 17, Senior, Winston Churchill High School, San Antonio, Texas, T: Noemi Andalco
EAEV010	Livestock Emissions and Coconut Waste: Analyzing the Inhibitory Potential of Coconut Waste Products in Cattle Manure Methane Emissions https://isef.net/project/192049
	Mitul Sendilkumar, 16, Junior, BASIS San Antonio Shavano Campus, San Antonio, Texas, T: Sarah Chavez
EBED005	SubArc: An Inexpensive, High Resolution, Open Source, Absolute Magnetic Rotary Encoder https://isef.net/project/191627
#	Frank Eugene Lucci, 17, Junior, BASIS San Antonio Shavano Campus, San Antonio, Texas, T: Sarah Chavez
EBED006	Giving Robot Hands a Feeling https://isef.net/project/191630
#	Edward Ming Bao, 17, Junior, BASIS San Antonio Shavano Campus, San Antonio, Texas, T: Sarah Chavez
Waco, USTX12, Central Texas Science and Engineering Fair	
ANIM009	Behind the Banner: Antibiotic Resistance in Livestock Show Bacteria https://isef.net/project/192487
	Gracelynn Diane Singer, 15, Sophomore, McGregor High School, McGregor, Texas, T: Debbie Schwake
MATS004	Development of an Ecofriendly and Economic Alternative to Oak Wood in Construction, Utilizing a Composite Prototype of Recycled Polyethylene Terephthalate (PET), Polycarbonate, and Agave Sisalana (Year 4) https://isef.net/project/191372
#	Jorge David Leon Martinez Morris, 17, Junior, China Spring High School, China Spring, Texas, T: Jonathon Richarme
Austin, USTX13, Greater Austin Regional Science and Engineering Fair	
BEHA005	Dopamine Induction Within Teen Cognitive Function: The Effects of Differing Dopamine Induction Strategies on Adolescent Working Memory and Neural Activity https://isef.net/project/191374
	Sunwoo Choi, 17, Junior, Westwood High School, Austin, Texas, T: Avni Kantawala
BMED015	Paving the Path to the Impossible: Regenerating Neurons Using Prostaglandin E2 Regulation as a Therapeutic Strategy https://isef.net/project/192048
#	Uma Sthanu, 17, Junior, Westwood High School, Austin, Texas, T: Avni Kantawala
CBIO021	De novo Structure-Based Design of TEM-171 Beta-Lactamase Protein Inhibitors Using Integrated Deep Learning and Multi-Scale Simulations to Combat Bacterial Resistance https://isef.net/project/191451
	Krishiv Potluri, 16, Sophomore, Basis Cedar Park, Cedar Park, Texas, T: Roopadarshini Veerappa
EBED004	Novel Implementation of Additive Construction Through Autonomous UAVs https://isef.net/project/191452
	Sol Oberoi Mahajan, 16, Junior, Westwood High School, Austin, Texas, T: Avni Kantawala
MATS006	From Trash to Nano-Treasure: Engineering Sustainable, Safe, and Biodegradable Quantum Dots for Use in Bioimaging, Medicine, and Agriculture https://isef.net/project/191450
	Vibha Hirsave, 16, Junior, Westwood High School, Austin, Texas, T: Avni Kantawala
PHYS004	Development and Demonstration of a Low-Cost, Strip-PET Scanner Prototype https://isef.net/project/191453
#	Samikshya Mahapatra, 17, Senior, College Station High School, College Station, Texas, T: Ian Taulli

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Laredo, USTX14, Laredo Independent School District Science Fair

BCHM008 From Invader to Innovator: Bioplastic Synthesis From Carrizo Cane to Keep Laredo Beautiful

<https://isef.net/project/193390>

Austlynn Quiroz, 18, Senior, Joseph W. Nixon High School, Laredo, Texas, T: Mike Gabrillo

Corpus Christi, USTX15, Coastal Bend Regional Science Fair

BMED027 Discovery and Development of Novel Metabotropic Glutamine Receptor 2 (mGluR2) Agonists for Treatment of Nicotine Addiction: A Preclinical Study

<https://isef.net/project/192877>

Sharmada Palakurthi, 17, Junior, W.B. Ray High School, Corpus Christi, Texas, T: Pedro Benavidez

TECA005 Color-Haptic Fusion: Mapping Color to Touch Using Haptic Feedback

<https://isef.net/project/192853>

Cuauhtemoc Zamora, 18, Senior, Veterans Memorial High School, Corpus Christi, Texas, T: Porfirio Zamora

Burkburnett, USTX16, Red River Regional Science and Engineering Fair

CBIO005T Prosthesis: Detecting Finger Movements for Prosthetics by Employing Deep Learning Algorithms via Non-Invasive Electromyogram Signals

<https://isef.net/project/192075>

Jun Eugene Park, 18, Senior, Jimin Park, 16, Junior, Evan Liang, 18, Senior, Wichita Falls Memorial High School, Wichita Falls, Texas, T: Bryce Henderson

College Station, USTX50, Texas Science and Engineering Fair

BEHA059T Enhancing Autism Therapeutics: The Influence of Acute Cannabidiol Treatment and the Estrous Cycle on Social Behavior and Hormone Changes in Adult Male and Female Mice

<https://isef.net/project/198570>

Evan Zhang, 17, Junior, Abigail Windscheffel, 17, Junior, Health Careers High School, San Antonio, Texas, Alamo Heights High School, San Antonio, Texas, T: Ronald Malasky

EAEV056T Acoustic Filtration II: Scaling an Ultrasonic Microplastic Filtration Device and Exploring the Physical Phenomenon of Acoustic Blocking

<https://isef.net/project/197938>

Justin Yizhou Huang, 18, Senior, Victoria Ou, 18, Senior, College Park High School, The Woodlands, Texas, T: Larissa Coffee

EGSD046 Enhancing Efficiency in Quantum Dot Solar Cells Through Quantum Computational Simulations for Sustainable Energy and Environmental Health

<https://isef.net/project/198598>

Prince Nallamothula, 15, Freshman, Centennial High School, Frisco, Texas, T: Derek McDowell

ENBM062T NeuroFlex: A Cost-Effective, Non-Invasive EEG-Controlled Bionic Prosthesis for Transfemoral Amputees

<https://isef.net/project/198329>

Samuel Denisovich Skotnikov, 17, Junior, Chanyoung Kim, 16, Sophomore, Eeshaan Dev Prashanth, 16, Sophomore, Marcus High School, Flower Mound, Texas, T: Christopher Hinsley

MCRO046 Paracoccus for Bioremediation: Optimizing Formate Dehydrogenase in Paracoccus denitrificans for Development of a Non-Toxic Bioremediation Strategy for Toxic C1 Compounds in Water

<https://isef.net/project/197844>

Prisha Bhat, 17, Senior, Plano East Senior High School, Plano, Texas, T: Julie Baker

PHYS068 The Power of a Star in a Jar: Using Nuclear Fusion for Medical Radioisotope Production

<https://isef.net/project/198567>

Yosef Joaquin Herrera, 18, Senior, Science Academy of South Texas, Mercedes, Texas, T: Luis Gasca

PLNT050T A Green Alliance: Evaluating the Synergistic Dynamics of PETase Expression and Plant-Microbe Interactions in Enhancing Microplastic Degradation Pathways in *S. alterniflora*

<https://isef.net/project/198597>

Vibhan Kiran Emmi, 17, Junior, Adam Zaid Siddiqi, 17, Junior, College Park High School, The Woodlands, Texas, T: Larissa Coffee

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- ROBO053** **AutoMates: Automating With Self-Learning Intelligent Agents**
<https://isef.net/project/197889>
 # Dhroov Veeral Bharatia, 16, Junior, Plano Senior High School, Plano, Texas,
 T: Elizabeth Carson
- SOFT046** **AssemblyComplete: 3D Combinatorial Construction With Deep Reinforcement Learning**
<https://isef.net/project/197935>
 Alan Jiaqi Chen, 18, Senior, Westlake High School, Austin, Texas, T: Elizabeth Phillips
- TECA010** **HandTalk: A Two-Way Translation System for American Sign Language**
<https://isef.net/project/198348>
 Ana Spiride, 15, Sophomore, Plano East Senior High School, Plano, Texas, T: Julie Baker

UTAH

- Farmington, USUT01, North Davis Area Science and Engineering Fair**
- CELL026** **Targeting Hif1a: Attenuating in vivo Growth and Ferroptosis in Glioblastoma Cells**
<https://isef.net/project/196068>
 ## Neve Eliza Bawden, 16, Junior, Bountiful High School, Bountiful, Utah, T: Jana Barrow
- ETSD029** **Evaluating Ahmed Bodies as Predictors for Surface Dimpling on Automotive Drag**
<https://isef.net/project/195869>
 Austin William Nelson, 18, Senior, Farmington High School, Farmington, Utah,
 T: Jana Barrow
- MCRO033** **Expanded Salt Tolerance of *Escherichia coli* Through Adaptive Laboratory Evolution**
<https://isef.net/project/195696>
 # Zack Aaron Nelson, 18, Senior, Farmington High School, Farmington, Utah,
 T: Jana Barrow
- PLNT029** **Effect of Different Colored LEDs on Early Stages of Plant Growth**
<https://isef.net/project/195868>
 Philip Thomas, 17, Junior, Woods Cross High School, Woods Cross, Utah,
 T: Janette Duffin
- Cedar City, USUT02, Southern Utah Science and Engineering Fair**
- CHEM047** **Using Microfluidic Devices to Filter Algae at High Flow Rates—Year 3**
<https://isef.net/project/199187>
 # Emma Monson, 17, Senior, SUCCESS Academy-SUU, Cedar City, Utah,
 T: Kimberly McCollum
- MCRO040** **Antimicrobial Effect of Copper Alloys on *E. coli*, *S. enterica*, and *S. aureus***
<https://isef.net/project/196967>
 Whitney Curtis, 16, Junior, Success Academy DSU, St. George, Utah, T: Megan Liljenquist
- PLNT033** **The Effect of Water Depth on *Lactuca sativa* in an Aquaponics System**
<https://isef.net/project/197429>
 Emily Corine Garrett, 16, Junior, Success Academy DSU, St. George, Utah,
 T: Megan Liljenquist
- Ogden, USUT03, Weber Area Science and Engineering Fair**
- BMED022** **Investigating the Pathogenesis of Amyotrophic Lateral Sclerosis (ALS) Using Mutant Metal-Deficient SOD1 Protein**
<https://isef.net/project/192560>
 ## Denali E. Perman, 18, Senior, Northern Utah Academy for Math, Engineering and Science, Layton, Utah, T: Debra Titmus
- ETSD009** **Energy in Motion: Engineering a Pendulum Basketball Launcher Using the Coefficient of Restitution to Predict the Launch Path**
<https://isef.net/project/191852>
 Dustin James Hall, 17, Senior, West Field High School, Ogden, Utah, T: Stacey Floyd
- MATH013** **Knot Link Surfaces**
<https://isef.net/project/192563>
 Indiana Jones, 16, Junior, West Field High School, Ogden, Utah, T: Stacey Floyd
- MCRO038T** **Evaluating Antimicrobial Efficacy of Commercial Mouthwashes**
<https://isef.net/project/196067>
 Hadley Hansen, 17, Junior, Kennedy Hansen, 17, Junior, Fremont High School, Plain City, Utah, T: Robert Riley

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PHYS014	Analyzing Captured Spectroscopic Data From Altair, Vega, and Mirach: Implications for Stellar Classifications and Characteristics https://isef.net/project/192564 Nicole Aguayo, 16, Sophomore, Roy High School, Roy, Utah, T: Claire Lindstrom
PHYS029	The Effect of Powder Grain Size on a 44 Magnum Performance https://isef.net/project/193250 Kolby Sean Lambert, 15, Freshman, Fremont High School, Plain City, Utah, T: Frances Austin
SOFT011	Efficient Lexical Encoding of Natural Language https://isef.net/project/192559 Brian Lukas Heers, 16, Junior, InTech Collegiate High School, North Logan, Utah, T: Tracy Davidson
TECA004	Identification of Musical Key, Mode, and Style Using Various Supervised Machine Learning Methods https://isef.net/project/191851 Henry Minh Nhat Trinh, 15, Freshman, InTech Collegiate High School, North Logan, Utah, T: Tracy Davidson
TMED013	Knockdown of $\beta 2$ Microglobulin in MHC 1 Molecule to Prevent Transplant Rejection in RPE Cells https://isef.net/project/192562 Shreya Garg, 16, Sophomore, Logan High School, Logan, Utah, T: Christina Howell
#	Provo, USUTO4, Central Utah STEM Fair
BEHA045	Changing ADHD Brains Through Music https://isef.net/project/197880 Isabella Pretel Bueno, 17, Senior, Westlake High School, Saratoga Springs, Utah, T: Justin Meek
EGSD030	Electrified Bubbles https://isef.net/project/197747 Davonna Hailey Smith, 15, Freshman, Early Light Academy, South Jordan, Utah, T: Darci Cordero
EGSD031	Electrifying Lake Mud https://isef.net/project/197748
###	Fianna Jean Smith, 18, Senior, Herriman High School, Herriman, Utah, T: Cameron Vongsawad
MCRO056	Directed Evolution of T4 Bacteriophage https://isef.net/project/198777 Daniel Joel Monson, 18, Senior, American Fork High School, American Fork, Utah, T: Robert Adamson
Salt Lake City, ANIMO36	USUTO5, University of Utah Science and Engineering Fair Visualizing Avian Vocal Diversity Through Chladni Resonances https://isef.net/project/197008
#	Aadhi Umamageswaran, 16, Junior, West High School, Salt Lake City, Utah, T: Enrique Larreta
BEHA031	Engaging Minds, Debunking Lies: Using Moral Foundations To Fight Misinformation https://isef.net/project/196998 Aadi Mishra, 16, Sophomore, The Waterford School, Sandy, Utah, T: Julie Ransom
BMED054	The Role of the Small GTPase ARF6 in Mediating Oxidative Stress-Induced Senescence in the Retinal Pigment Epithelium https://isef.net/project/196974 Samuel Lu, 17, Junior, Rowland Hall- Lincoln Street Campus, Salt Lake City, Utah, T: Guoxin Ying
CBIO044	In silico Investigation of Biophysical Relationships Between a Unique Codon Reassignment and Morphological Plasticity in Candida Fungal Pathogens of the CTG Clade https://isef.net/project/197242
##	Eli Daniel Hatton, 18, Senior, Rowland Hall- Lincoln Street Campus, Salt Lake City, Utah, T: Padmashree Rida

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- ENBM040** **Cutting the Cord: Using Inductive Coupling and Litz Coils to Wirelessly Power and Retrieve Data From Implanted Batteries and Sensors**
<https://isef.net/project/197001>
Krishnam Goel, 18, Senior, West High School, Salt Lake City, Utah, T: Hilary Thirlwell
- ETSD034** **A Novel Axial Flux Synchronous Reluctance Induction Hybrid Motor**
<https://isef.net/project/197245>
Ethan Erik Bo, 16, Junior, Judge Memorial High School, Salt Lake City, Utah, T: Tara Bo

VERMONT

- Northfield, USVT50, Vermont Science, Technology, Engineering and Mathematics Fair**
- CBIO060** **The Development of a U-Net Model for Pancreatic Tumor Segmentation in Computed Tomography Scans**
<https://isef.net/project/197922>
Clay Austin Nicholson, 16, Junior, Champlain Valley Union High School, Hinesburg, Vermont, T: Katie Antos-Ketcham

VIRGINIA

- Bailey's Crossroads, USVA01, Northern Virginia Science and Engineering Fair**
- CBIO010** **RNA Knot: Topological-Based Prediction of Proviral DNA Expression**
<https://isef.net/project/192722>
Anna Mohanty, 17, Senior, Washington-Lee High School, Arlington, Virginia, T: Lourdes Sotomayor
- ETSD015** **The Analysis of the Effect of Input Power on the Efficiency of a Magnetoplasmadynamic Thruster Using Magnetic Deflection and Phosphor Screen Emission**
<https://isef.net/project/192721>
Declan John Leighton, 17, Junior, Yorktown High School, Arlington, Virginia, T: Deborah Waldron
- Charlottesville, USVA02, Virginia Piedmont Regional Science Fair**
- ENEVO53** **Self-Recycling System for Microplastic Removal: Development of a Novel Ferrofluid-Based Filtration Technology for Affordable Water Treatment**
<https://isef.net/project/197476>
Mia Heller, 17, Junior, Mountain Vista Governor's School, Warrenton, Virginia, T: Stephanie Burke
- ETSD025** **Insights Into a Novel Electrostatic Motor Design for Electric Vehicles and Other Applications**
<https://isef.net/project/195695>
Micah Appiah, 15, Freshman, Albemarle High School, Charlottesville, Virginia, T: Kevin Huff
- Fairfax, USVA03, Fairfax County Regional Science and Engineering Fair**
- BMED065** **VISTA Inhibitor CA170 Synergizes With KRAS Vaccine in Lung Cancer in a Single-Cell RNA Sequencing Analysis**
<https://isef.net/project/197741>
Chloe Giglio, 16, Sophomore, McLean High School, McLean, Virginia, T: Christina Hicks
- CBIO052** **A Mathematical Model to Predict the Impact of Chemotherapy on Risk for Richter Syndrome in Patients With Chronic Lymphocytic Leukemia**
<https://isef.net/project/197742>
Ethan Jaemin Lee, 17, Junior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Aubrie Holman
- CBIO053T** **KAN-Fusion: Interpretable Multimodal Networks for Novel Neurodegenerative Disease Target Discovery**
<https://isef.net/project/197824>
Daniil Prokofev, 15, Sophomore, Isaac Rhys Leetyn, 16, Sophomore, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Nicole Kim
- EBED033T** **BrailleSense: A Modular, Low-Cost Solution for Accessible Braille Displays**
<https://isef.net/project/197713>
Anush Devkar, 16, Junior, Ansh Malhotra, 17, Junior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Shane Torbert

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- EGSD029** **Micro Closed-Loop, Pumped, Hydro-Power System Turbine Assessment**
<https://isef.net/project/197744>
 Thomas Sparling, 15, Sophomore, Oakton High School, Vienna, Virginia, T: Grace Wang
- EGSD040** **A Hybrid Hydrogel-Heat Sink for Enhancing GPU Performance, Solar Panel Efficiency, and Electric Vehicle Range**
<https://isef.net/project/198238>
 Oliver Wang, 17, Junior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Jared Seyler
- ENEV056** **From Waste to Worth: Repurposing Resistant Starches in Wasted Rice Into Controlled-Release Fertilizer**
<https://isef.net/project/197745>
 Samanvi Tummala, 16, Junior, Chantilly High School, Chantilly, Virginia, T: Jennie Lee
- ENEV059T** **Integrating AI-Guided Robotics, Mathematical Optimization, and GAN-Based Crop Analysis for Precision Methyl Jasmonate Pest Control in Autonomous Smart Agriculture**
<https://isef.net/project/198044>
 Jason Pan, 16, Sophomore, Bennett Huang, 16, Sophomore, Langley High School, McLean, Virginia, T: Jeromy Gilman
- ETSD039** **Parametric Optimization and Discovery of a Low-Noise Toroidal Quadrotor Propeller With a Leading Blade Segment Height Offset for Responsible Wildlife Research**
<https://isef.net/project/197743>
 Erim Can Ozcan, 18, Senior, The Potomac School, McLean, Virginia, T: Isabelle Cohen
- MATS044** **Utilizing PcTx1 Loaded Lipid Nanoparticles as a Novel Anticoagulant in the Development of a Low-Cost Microneedle Device for Rapid Ischemic Stroke Treatment**
<https://isef.net/project/198169>
 Heman Bekele, 16, Sophomore, Wilbert Tucker Woodson High School, Fairfax, Virginia, T: Ashley Neal
- Harrisonburg, USVA04, Shenandoah Valley Regional Science and Engineering Fair**
- SOFT029** **Meta's Interaction SDK Allows for Accurate American Sign Language Detection**
<https://isef.net/project/197004>
 Jack Harrison Snyder, 18, Senior, Sherando High School, Stephens City, Virginia, T: Susan Saylor
- Lynchburg, USVA05, Central Virginia Regional Science Fair**
- BMED035** ***Galleria mellonella* as a Proxy for the Human Immune Response: *Allium sativum*'s Effectiveness Against *Enterobacter cloacae***
<https://isef.net/project/193253>
 Leo Wang Chang, 17, Junior, Central Virginia Governor's School for Science and Technology, Lynchburg, Virginia, T: Michelle Douglass
- PHYS028** **Exploring Continuous Wave Laser-generated Combustion Spectroscopy: Developing a Cost-effective Metal Identification System**
<https://isef.net/project/193112>
 Shane Bright, 16, Junior, Central Virginia Governor's School for Science and Technology, Lynchburg, Virginia, T: Michele Chamot
- Manassas, USVA06, Prince William-Manassas Regional Science and Engineering Fair**
- ANIMO42T** **The Effect of Microplastics on the Fertility of *Caenorhabditis elegans***
<https://isef.net/project/197712>
 Aysha Jafar, 15, Freshman, Adriana Ponciano, 15, Freshman, Osbourn Park High School, Manassas, Virginia, T: Devin Burda
- BEHA046** **Scents and Sensibility: Demographics and Heritability of Olfaction and Its Association With Mental Health, Migraine, and Substance Use**
<https://isef.net/project/197884>
 Rania Sophia Lateef, 18, Senior, Governor's School at Innovation Park, Manassas, Virginia, T: Alexis Patanarut
- ETSD036** **Parametric Optimization of Propeller Guards for Enhanced Hydrodynamic Performance and Acoustic Profile of Underwater Vehicles**
<https://isef.net/project/197310>
 Hannah Brooke Jansen, 18, Senior, Governor's School at Innovation Park, Manassas, Virginia, T: Elizabeth Romano
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- PHYS057** **The Effect of Nose Cone Geometry on Rocket Aerodynamics**
<https://isef.net/project/197709>
 Devika Thampi, 15, Sophomore, Patriot High School, Nokesville, Virginia,
 T: Deborah Fisher
- PLNT038T** **The Allelopathic Effects of Natural Plant Extracts on Seed Germination of Invasive Species *Lolium perenne***
<https://isef.net/project/197826>
 Willow Weeks, 18, Senior, Aerin Kim, 17, Senior, Kayla Jacqueline Minter, 18, Senior,
 Governor's School at Innovation Park, Manassas, Virginia, T: Elizabeth Romano T:
 Elizabeth Romano
- Ashburn, USVA07, Loudoun County Science and Engineering Fair**
- BCHM019T** **Limiting Esophageal Cancer Metastasis With KRT16 siRNA**
<https://isef.net/project/197222>
 Sanjay Lakshmanan, 17, Senior, Naija Shah, 18, Senior, Academies of Loudoun, Leesburg,
 Virginia, T: Melissa Willis
- BMED059** **Determining Small Molecule Inhibitors of Calpain To Promote Cholesterol Efflux in Macrophage-Derived Foam Cells**
<https://isef.net/project/197234>
 Nithya Vinodh, 17, Senior, Academies of Loudoun, Leesburg, Virginia, T: Melissa Willis
- CBIO043** **Development of a Novel Multi-Omics Enhanced Quantitative Structure-Activity Relationship (ME-QSAR) Model for Pancreatic Ductal Adenocarcinoma Inhibitor Discovery**
<https://isef.net/project/197230>
 Naitik Oza, 15, Sophomore, Freedom High School, Chantilly, Virginia, T: Craig Elliott
- ROBO046T** **MobyGlobal: Real-Time Whale Detection Network Powered by a Custom CNN and 3D Printed Buoys**
<https://isef.net/project/197563>
 Taha Rawjani, 16, Junior, Matthew Li, 17, Junior, Academies of Loudoun, Leesburg,
 Virginia, T: Tobie Juleau T: Tracy Matthews
- TMED047** **An Adaptive Grad-CAM Thresholding Technique to Improve AI Interpretability in MRI-Based Prostate Cancer Risk Stratification**
<https://isef.net/project/197306>
 Yash Sreepathi, 17, Junior, Broad Run High School, Ashburn, Virginia, T: Patricia Brown
- Roanoke, USVA08, Western Virginia Regional Science Fair**
- CBIO023** **Automated Identification of Novel Dehydrogenase Mutations Linked to Chemotherapy Sensitivity by Integrating Computational Mutation Predictions**
<https://isef.net/project/193824>
 John Michael Janiga, 17, Junior, Roanoke Valley Governor's School for Science and
 Technology, Roanoke, Virginia, T: Mark Levy
- ETSD032** **Automatic Pill Dispenser: A Reliable and Efficient Solution for Timely Medication Delivery**
<https://isef.net/project/196959>
 Jacob Robert Stewart, 18, Senior, Roanoke Valley Governor's School for Science and
 Technology, Roanoke, Virginia, T: Andrew Hurst
- TMED039** **CAD-EDT: Using Meta-Ensemble Machine Learning to Power an Application Specializing in the Early Detection of Coronary Artery Disease Using Easily Accessible Risk Factors and Cardiac Clinical Data**
<https://isef.net/project/196973>
 Aryan Madan, 15, Sophomore, Roanoke Valley Governor's School for Science
 and Technology, Roanoke, Virginia, T: Mark Levy
- Norfolk, USVA09, Tidewater Science and Engineering Fair**
- PHYS052** **Bubble Curtains: Exploring How Bubble Density and Water Temperature Affect Underwater Sound Propagation**
<https://isef.net/project/197469>
- #** Eleanor Rossi, 16, Junior, Jamestown High School, Williamsburg, Virginia, T: Jiashi Hou

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- ROBO044** **Image Data Collection Rig for Training AI in Orientation and Distance Detection**
<https://isef.net/project/197430>
 Sarah Gage, 17, Junior, New Horizons Governor's School for Science and Technology, Hampton, Virginia, T: Jana Eggleston
- Radford, USVA10, Blue Ridge Highlands Regional Science Fair**
- ANIM020** **Partying Parulidae: Interspecific Social Networks of Parulidae Warblers in Active Migratory Passage**
<https://isef.net/project/193109>
- # Xavier Gitre, 17, Junior, Blacksburg High School, Blacksburg, Virginia, T: Katharine Davis
- CBIO013** **AI-Augmented Computational Modeling of Bispecific Antibody Targeting B7H4+ Cancer Cells and CD3e+ CAR T-Cells for Targeted Therapy in Solid Tumors**
<https://isef.net/project/193065>
 Rishi Nair, 17, Junior, Blacksburg High School, Blacksburg, Virginia, T: Katharine Davis
- Roanoke, USVA50, Virginia State Science and Engineering Fair**
- BEHA049** **Implications of Resveratrol on Memory Retention in *Dugesia tigrina***
<https://isef.net/project/198098>
 Alina Albeik, 17, Junior, George C. Marshall High School, Falls Church, Virginia, T: Nicole Shook
- ENBM080** **Revolutionizing Non-Invasive Blood Glucose Monitoring With AI-Powered Infrared Spectroscopy**
<https://isef.net/project/198953>
 Sarah Park, 15, Sophomore, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Adam Smolinsky
- ENEV073T** **EcoForge: Novel Sustainable Geopolymer Alternative to Concrete Optimized With Machine Learning for Compressive Strength and Pollution Mitigation**
<https://isef.net/project/198568>
 Lang Xiong, 16, Junior, Adithya Pillai, 17, Junior, Langley High School, Mclean, Virginia, T: Michael Barnett
- PHYS069T** **A Comprehensive Machine Learning Paradigm for Space Debris Surveillance: An Integrated Triple Model Framework for Identification, Orbital Prediction and Collision Risk Evaluation**
<https://isef.net/project/198569>
 Nikhil Krishna, 17, Junior, Nived Nandakumar, 17, Junior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Shane Torbert
- TECA012** **BrainSync: Advanced Neural Decoding With fMRI and EEG for Reconstruction of Visual Perception in Neurological States**
<https://isef.net/project/198683>
- ## Yashvir Sabharwal, 18, Senior, Battlefield High School, Haymarket, Virginia, T: Rebecca Utter

WASHINGTON

- Prosser, USWA01, Mid-Columbia Regional Science and Engineering Fair**
- BEHA040** **ASDetect: Detecting Early Signs of Autism Spectrum Disorder Using AI-Based Facial Recognition Techniques**
<https://isef.net/project/197503>
- ## Advaita Motkuri, 17, Senior, Richland High School, Richland, Washington, T: Lauren Caslin
- CBIO036** **Cracking the Seizure Code: A Deep Learning Approach to Neonatal Seizure Detection Utilizing Hybrid Architecture for Multi-Scale EEG Analysis**
<https://isef.net/project/196066>
 Sonali Santhosh, 16, Junior, Hanford High School, Richland, Washington, T: Brian Palmer
- ROBO041** **The Design and Engineering of an Intelligent Remotely Operated Vehicle for Coral Reef Research and Monitoring**
<https://isef.net/project/197016>
 Sydney Renee West, 18, Senior, Hanford High School, Richland, Washington, T: Brian Palmer

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Dallas, USWA03, Central Sound Regional Science & Engineering Fair

CBIO014 **Unraveling Molecular Carcinogenicity Through Computational Insights**

<https://isef.net/project/193106>

Bryan Zhu, 17, Junior, Bellevue Senior High School, Bellevue, Washington, T: Jie Yao

EAEV022 **Enhancing Cloud Seeding Efficiency: Augmentation of Cloud Condensation Nuclei Hygroscopicity and Identification of Optimal Cloud Targets**

<https://isef.net/project/193107>

Yuti Purohit, 17, Junior, Interlake High School, Bellevue, Washington, T: Philip Allen

MCRO025 **Computational Design of Novel Small-Molecule Activators Targeting the AtIA Autolysin in Multi Drug-Resistant *Staphylococcus aureus* to Combat Antibiotic Resistance Through Internal Cell Death Mechanisms**

<https://isef.net/project/193095>

Srishti Boral, 16, Junior, Eastlake High School, Sammamish, Washington, T: Lara Dean

PHYS026 **ForeCAT: Advancing Clear Air Turbulence Prediction for Aviation Safety With Atmospheric Physics Informed Neural Networks and Spatiotemporal Weather Data**

<https://isef.net/project/193094>

Aditya Sengupta, 16, Junior, The Overlake School, Redmond, Washington,

T: Chris Schwalm

TECA006 **SmartStrings: A Novel Low-Cost Multimodal System for Intelligent Violin Pedagogy With Real-time Corrective and Sensory Feedback Through Artificial Intelligence**

<https://isef.net/project/193108>

Anusha Arora, 14, Freshman, Interlake High School, Bellevue, Washington, T: Philip Allen

Edgewood, USWA04, Southwest Washington Science and Engineering Fair

EBED021 **VoltMatrix: An Analog Computing AI Chip Architecture for Scalable and Energy-Efficient Inference**

<https://isef.net/project/193804>

Shangqiu Li, 17, Junior, Camas High School, Camas, Washington, T: Brianna Abraham

Spokane, USWA05, Eastern Washington Regional Science and Engineering Fair

BMED039 **The Efficacy of Ribosomal-Targeting Antibiotics on Breast Cancer Cell Proliferation: A Comparative Study of Chloramphenicol and Gentamicin Impact on Eukaryotic Ribosomal Subunits**

<https://isef.net/project/193822>

Michelle Chen, 18, Senior, Joel E. Ferris High School, Spokane, Washington,

T: Darci Hastings

PLNT025 **Unlocking Barley's Potential: Improving the Bioavailability of Barley With Ipa Mutants**

<https://isef.net/project/193823>

Jane Park, 16, Sophomore, Pullman High School, PULLMAN, Washington,

T: Marla Haugen

Silverdale, USWA50, Washington State Science and Engineering Fair

CBIO061 **Exploring the Use of Polyprenylated Benzophenones in Enhancing Efficacy of β -Lactam Antibiotics Through Molecular Docking in AutoDock Vina**

<https://isef.net/project/198096>

Arnav Vishwakarma, 16, Sophomore, Eastlake High School, Sammamish, Washington,

T: Lara Dean

EAEV052 **A Novel Method of Water Purification: Optimizing Foam Fractionation for Effective Broad-Spectrum Removal of DBP Precursors in Chlorinated Drinking Water**

<https://isef.net/project/197837>

Lakshmi Agrawal, 17, Junior, Stanford Online High School, Redwood City, California,

T: Nick DeMello

EGSD032 **Improving Vertical Axis Wind Turbine Efficiency by Integrating Hammerhead Shark Hydrodynamic Features Into the NACA0015 Blade Design**

<https://isef.net/project/197835>

Akshara Malyadha Srinivas, 15, Freshman, Eastlake High School, Sammamish,

Washington, T: Gopi Prashanth Gopal

ENBM053 **Personalized Diabetic Wound Healing: A CRISPR Based Synthetic Biology Approach Using Engineered Probiotics**

<https://isef.net/project/198095>

Priya R Emani, 16, Sophomore, Interlake High School, Bellevue, Washington,

T: Usha Emani

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- ETSD042** **PhoenixH2: Improving Commercial Viability of Sustainable Aviation by Developing and Flight Testing a Clean Aircraft With Onboard Hydrogen Generation**
<https://isef.net/project/197891>
 Aadesh Kumar, 17, Junior, Eastlake High School, Sammamish, Washington,
 T: John Stratton
- ETSD044** **How a High-Temperature Superconducting Magnetic Energy Storage System Can Be Implemented in Vehicles as an Exceptionally Eco-Friendly Power Supply**
<https://isef.net/project/197936>
 # Isabella Alexandria Pinto, 18, Senior, Hanford High School, Richland, Washington,
 T: Joyce Stark
- MATS042** **First Fabrication of High Q-Factor Rho-SiTaN for Optical Spectroscopy: Enabling Low-Cost Breathalyzer Detection of Lung Cancer**
<https://isef.net/project/198097>
 Kireeti Kompella, 16, Sophomore, Interlake High School, Bellevue, Washington,
 T: Phillip Allen
- ROBO051** **Utilizing Multi-Agent Reinforcement Learning With Encoder-Decoder Architecture Agents to Identify Optimal Resection Location in GBM Patients**
<https://isef.net/project/197848>
 Krishna Arun, 15, Sophomore, Eastlake High School, Sammamish, Washington,
 T: Eilene Klaka
- TMED054T** **Discovery and Structure-Based Optimization of Highly Selective PTP1B Inhibitors: A Multi-Stage in silico Workflow Integrating Machine Learning for Ligand-Based Virtual Screening and Molecular Docking & Dynamics Simulations To Enhance Insulin Sensitivity in Type-2 Diabetes**
<https://isef.net/project/197838>
 Sanshray Cherukumilli, 16, Junior, Aditi B Kuthanoor, 16, Junior, Issaquah High School, Issaquah, Washington, T: Gaurav Sharma
- WEST VIRGINIA**
Charleston, USWV50, West Virginia State Science and Engineering Fair
- CBIO020** **Machine Learning Optimized *in silico* Design of a *de novo* RAGE inhibitor: A Small Molecule Approach To Slowing The Progression Of Inflammatory Disease**
<https://isef.net/project/193391>
 Pavan Subramani, 15, Sophomore, Morgantown High School, Morgantown, West Virginia, T: Elvira Stanesco
- CELLO16** **Unraveling the Mechanisms of Duckweed Tolerance to UV-B Radiation Stress: Insights Into Adaptive Plant Responses**
<https://isef.net/project/193262>
 # Manvitha Adagoor Sanjaya, 16, Sophomore, George Washington High School, Charleston, West Virginia, T: John Vencill
- ETSD019** **Heat Exchanger Design and Optimization**
<https://isef.net/project/193395>
 Maya Panta, 17, Junior, Woodrow Wilson High School, Beckley, West Virginia,
 T: Selena Lucas
- WISCONSIN**
Glendale, USWI02, Nicolet Science and Engineering Fair
- ENEVO13** **A Novel Device for in situ Removal of Microplastics From Riverbed Sediment via Laser-Induced Particle Fluorescence**
<https://isef.net/project/191848>
 # Luksina Ziddane Isahaku, 18, Senior, Nicolet High School, Glendale, Wisconsin,
 T: Stephanie Rasmussen
- Milwaukee, USWI03, University School of Milwaukee - Science Fair**
- BMED013** **Combining Single Cell RNA Sequencing With Functional Analysis: An Analytic Pipeline to Optimize Selection of CAR T Cell Therapy vs. BiTEs**
<https://isef.net/project/191846>
 # Anand Sebastian George, 17, Junior, University School of Milwaukee, Milwaukee, Wisconsin, T: Robert Juranitch

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- CBIO017** **A Novel CNN-Based Method Using Genetic Data for Early Prediction of Alzheimer's Disease**
<https://isef.net/project/193374>
 Angela Wang, 17, Junior, University School of Milwaukee, Milwaukee, Wisconsin,
 T: Robert Juranitch
- CELL017** **Harnessing the Mechanistic Similarities Between Natural Killer (NK) Cells and CAR T-cells to Reveal Apolipoprotein B Receptor's Hidden Role of Low-Density Lipoprotein (LDL) Uptake on NK Cell Cytotoxicity and Functionality**
<https://isef.net/project/193375>
 Eashan Anne, 17, Junior, University School of Milwaukee, Milwaukee, Wisconsin,
 T: Robert Juranitch
- Madison, USW104, Capital Science and Engineering Fair**
- ETSD028** **A Novel Morphing Nose Cone Mechanism for Aerodynamic Optimization of a Supersonic Airplane**
<https://isef.net/project/195861>
 Daniel Michael Ott, 17, Junior, Holmen High School, Holmen, Wisconsin, T: Svetlana Ott
- TMED020** **ParkinAid: A Multimodal AI-Powered Diagnostic and Robot-Assisted Rehabilitation System for Parkinson's Patients**
<https://isef.net/project/192917>
- #** Liyang Han, 17, Junior, Brookfield Central High School, Brookfield, Wisconsin,
 T: Ryan Osterberg
- Fond du Lac, USW150, Badger State Science and Engineering Fair**
- BMED038** **Targeting TP53 Methylation Inhibition With RG108 for Cancer Prevention**
<https://isef.net/project/193819>
 Sai Siva Mohan Kandukuri, 16, Junior, Middleton High School, Middleton, Wisconsin,
 T: Surya Mohan Kandukuri
- PHYS032** **Innovative Machine Learning Approaches for Exoplanet Detection and Anomaly Identification: Applying Computational Techniques to Uncover Hidden Patterns in TESS Data**
<https://isef.net/project/193820>
 Aditi Muduganti, 16, Junior, Onalaska High School, Onalaska, Wisconsin,
 T: Sindhu Ghanta
- TMED030** **Computational Analysis of Known HIV-1 Protease Inhibitors to Investigate Their Therapeutic Potential for Fatal Malaria Prevention**
<https://isef.net/project/193821>
 Eliana Chiamaka Igweke, 17, Junior, University School of Milwaukee, Milwaukee, Wisconsin, T: Robert Juranitch

WYOMING

- Greybull, USWY01, Northern Wyoming District Science Fair**
- EAEO024** **Determining the Possible Detrimental Effects and Bioaccumulation in *Daphnia* Populations Exposed to Coal Fly Ash Leachate**
<https://isef.net/project/193257>
 Caden Thacker, 17, Junior, Greybull High School, Greybull, Wyoming, T: Joel Kuper
- Laramie, USWY50, Wyoming State Science Fair**
- BMED012** **Potential Impacts of Kratom (*Mitragyna speciosa*) to the Viability of SIM-A9 (Mouse) Brain Cell Cultures**
<https://isef.net/project/191844>
 Grainger James Russell, 18, Senior, Greybull High School, Greybull, Wyoming,
 T: Joel Kuper

UNITED STATES VIRGIN ISLANDS

- Kingshill, United States Virgin Islands, TEVI02, Good Hope Country Day School Science Fair**
- EBED043** **Detecting Drafts: An Automated Solution to Energy Efficiency**
<https://isef.net/project/199147>
- #** Tristan Samuel, 15, Sophomore, Good Hope Country Day School, Kingshill, United States Virgin Islands, T: Jane Coles

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ENBM076T **Bioimpedance and Electrocardiogram Monitor for Astronauts Using AI Integrated Technology**

<https://isef.net/project/198755>

Cai Gwilliam, 17, Junior, Vedant Mittal, 17, Junior, Good Hope Country Day School, Kingshill, United States Virgin Islands, T: Jane Coles T: Jane Coles

VENEZUELA

Caracas, Venezuela, VEN001, Kurios Competition

ROBO071 **CATCH System: Prototype of an Autonomous Vehicle for the Collection of Table Tennis Balls**

<https://isef.net/project/199162>

Jose Tomas Perera Giansante, 16, Junior, C.E Colegio Fray Luis AmigO, San Felipe, Yaracuy, Venezuela, T: Darwin Pardo

ROBO072T **A Friendly Companion: A Robot That Is Capable of Connecting to Human Emotions and Able To Sustain a Conversation Through AI and Sensors**

<https://isef.net/project/199178>

Victoria Valentina Galindo Diaz, 16, Junior, Armando Jose Mendoza, 18, Junior, Diego Alejandro Serrano, 16, Junior, Unidad Educativa Colegio Madison, Caracas, Miranda, Venezuela, T: Cipriano Lopez

VIETNAM

Ha Noi City, Vietnam, VNM001, Ha Noi Science Fair

BCHM032T **Metabolic Engineering of Vibrio natriegens for Biosynthesis of BETA-Nicotinamide Mononucleotide**

<https://isef.net/project/198333>

Dat Huy Tuan Pham, 18, Senior, Phuong Vu Thao Tran, 18, Senior, High school of Education Sciences, University of Education - Vietnam National University Hanoi, Hanoi, Vietnam, T: Dung Nguyen

BEHA043T **Identifying Influential Factors of University Major Selection and Designing a Criteria Set To Help High School Students Self-Assess Their Major Choices**

<https://isef.net/project/197829>

Dan Thi Linh Nguyen, 17, Senior, Anh Mai Hong Do, 17, Senior, Lam Son High School for the Gifted, Thanh Hoa, Vietnam, T: Thuy Le Thi

BMED074T **Research on Generation of Neutralizing Antibodies to Botulinum Neurotoxin Type A Based on Nanobody Technology**

<https://isef.net/project/198331>

Anh Tran Bao Dang, 17, Junior, Trang Tam Mai, 17, Senior, High School for Gifted Students, Hanoi University of Science, Hanoi, Vietnam, T: Hanh Vu Minh Nguyen

CHEM040T **Emulsion Containing Zinc Oxide Quantum Dot in Self-Cleaning and Antibiotic Application**

<https://isef.net/project/198778>

Tho Anh Nguyen, 16, Junior, Thinh Duc Chu, 17, Senior, An Duong High School, Hai Phong, Vietnam, T: Nhung Nguyen

CHEM042T **High-Performance Oxidizing Materials: Lithium Vanadium Oxide for Environmental Treatment Applications**

<https://isef.net/project/199061>

Phuong Ha Do, 17, Senior, Thai Duc Nguyen, 15, Sophomore, Viet Duc Upper Secondary School, Hanoi, Vietnam, T: Huyen Bui

ENBM063T **Deep-Learning Based Solution for Male Reproductive Health Self-Evaluation at Home**

<https://isef.net/project/198330>

Khue Mai Nguyen, 17, Junior, An Quang Phuc Pham, 16, Junior, HUS High School for Gifted Student, Hanoi, Vietnam, T: Dung Nguyen

ROBO061T **TalkiEVBot - An Educational Support Robot for Children With Speech Disorders**

<https://isef.net/project/198332>

Kiet Nhat Tuan Nguyen, 17, Senior, Hung Huy Huynh, 17, Senior, Le Quy Don High School for the Gifted, Da Nang, Vietnam, T: Chi Le

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ROBO065T Autonomous Wheelchair for Mobility and Communication Assistance for ALS Patients
<https://isef.net/project/198682>

Quan Trung Cao, 17, Senior, Hieu Minh Le, 18, Senior, Quang Tri Town High School,
Quang Tri Town, Vietnam, T: Long Le

TECA021T Integration of Deep Learning in Automatic Music Generation, Aiming at Preserving and Developing Don Ca Tai Tu
<https://isef.net/project/199014>

Duc Tan Nguyen, 17, Junior, Bao Nhat Ha, 17, Junior, Le Hong Phong High School for the Gifted, Ho Chi Minh, Vietnam, T: Triet Do

ZIMBABWE

Harare, Zimbabwe, ZWE001, Zimbabwe National Science Fair

CHEM006 Using Nano Technology to Purify Polluted Water in a Local Lake

<https://isef.net/project/192304>

Adriana Tadiwa Musonda Chulu, 18, Senior, Arundel School, Harare, Harare, Zimbabwe,
T: Emmanuel Mlambani

ENBM011 AI-Powered Portable Eye Screening Device for Early Detection of Pediatric Eye Diseases in Low-resource Settings

<https://isef.net/project/192302>

Thomas Anesuishe Machingaidze, 17, Senior, Saint George's College, Harare, Zimbabwe,
T: Saneliswe Moyo

SOFT010 Reboot and Recover: The Bacteriophage Initiative - Harnessing the Power of Biomimicry to Replicate Nature's Defenders and Revolutionize Cybersecurity Against Digital Threats

<https://isef.net/project/192489>

Gigi Dara Nyambirai, 18, Senior, Peterhouse Girls School, Marondera, Mashonaland East, Zimbabwe, T: Samantha Satumba

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