Intel Science Talent Search 2008

Intel Science Talent Institute 2008
March 6-11, 2008

The Intel Science Talent Search (Intel STS), America's oldest and most highly regarded pre-college science competition, provides an incentive and an arena for U.S. high school seniors to complete an original research project and have it recognized by a national jury of highly regarded professional scientists, mathematicians and engineers. The projects are a result of inquiry-based learning methods designed to nurture critical reasoning skills, experience science through the use of the scientific method and to demonstrate how math and science skills are crucial to making sense of today's technological world and making the best decisions for tomorrow.

The 40 Finalists of the Intel Science Talent Search 2008, who will be competing for $530,000 in scholarships, represent about 2.5 percent of those who completed entries in this scientific and educational competition. These 14 females and 26 males are awarded an all-expense-paid trip to Washington, D.C. to attend the Intel Science Talent Institute, March 6 -11, 2008. Each Finalist who participates in the Intel Science Talent Institute will receive an Intel® Core™2 Duo processor laptop computer and a scholarship of at least $5,000. Ten of the Finalists will be selected by the board of judges to receive one of the following four-year scholarships: First Place: $100,000, Second Place: $75,000, Third Place: $50,000, Fourth - Sixth Places: $25,000, and Seventh - Tenth Places: $20,000.

The Finalists are 16 to 19 years of age and come from 35 schools in 19 states. Chosen from among 1602 entrants, they submitted a report on their scientific research, the official entry form and supporting documents. Completed entries were received from 45 states, Puerto Rico, the Virgin Islands and two overseas schools.

Finalist ages are listed as of March 11, 2008, the date of the Intel Science Talent Search Awards Gala.

Table of Contents

Many projects are the product of a research environment in which scientist mentors dedicate themselves to the intellectual development and technical training of students who participate in the Intel Science Talent Search. Students are precluded from acknowledging those mentors on their posters to avoid any potential for judging bias.
Intel STS Finalists, Intel and Society for Science & the Public acknowledge with gratitude the guidance, expertise and patience of the experienced researchers who made many of these projects possible.

INTEL SCIENCE TALENT SEARCH

"Finding Tomorrow's Scientists"

History

The Science Talent Search was created to encourage high school seniors who demonstrate exceptional ability in science, math and engineering through individual research projects. Over the years the Science Talent Search has become the most prestigious high school science competition in the country, with broad support of the academic and scientific communities. Educators, scientists, engineers and journalists throughout the U.S. have enthusiastically enabled this annual event.

The Science Talent Search has recognized over 2600 finalists with more than $6 million in scholarships. Many STS participants have gone on to distinguished careers; alumni of the STS include more than 100 recipients of the world's most coveted science and math honors including three National Medal of Science winners, ten MacArthur Foundation Fellows, two Fields Medallists and six Nobel Laureates.

In 1998, Intel Corporation was named the title sponsor of this storied competition. Intel reinvigorated the STS and increased the program's annual awards and scholarships from about $200,000 to $1,250,000. Society for Science & the Public salutes Intel on the tenth anniversary of their STS sponsorship.

Awards and Scholarships

Semifinalists Each of the 300 students named a semifinalist in the Intel STS will receive a $1,000 award for their outstanding science research. These awards will be mailed to the semifinalists after the Science Talent Institute (STI) in the Spring.

Schools Each school will receive an award of $1,000 for each Semifinalist named in the Intel STS. The award must be used to further support excellence in science, math or engineering education at the recipient school. Awards to home schools are arranged with SSP. The award will be mailed to the school in the Spring.

Finalists The top prize will be a $100,000 four-year scholarship. The second place finalist will receive a $75,000 scholarship and the third-prize winner will go home with a $50,000 scholarship. Fourth- through sixth-place finalists each receive a $25,000 scholarship; seventh- through tenth-prize winners will receive a $20,000 scholarship. The remaining 30 finalists will receive a $5,000 scholarship award. In addition to the scholarship awards, each of the finalists participating in the Science Talent Institute will receive an Intel® Core™2 Duo processor laptop computer.

The Process

Each year, over 1600 seniors enter the Intel Science Talent Search. Each completed entry consists of the student's written report on their scientific research, the lengthy official entry form that elicits evidence of student creativity and interest in science, and supporting documents from schools, advisors, mentors.

All Intel Science Talent Search entries are reviewed and judged by top scientists from a variety of different disciplines. The top 300 entrants are selected as semifinalists, and from these semifinalists, 40 finalists are chosen to attend an all-expense-paid trip to Washington, D.C. to the Intel STI, where they will undergo final judging. On the basis of a rigorous round of interviews, 10 top scholarship winners are selected.

While in Washington, DC, students meet leading scientists and visit places of historic and political importance. Past winners have met with the President and First Lady, the Vice President and distinguished science advisers. The young scientists display their prize-winning exhibits at the prestigious National Academy of Sciences, where they describe their research to thousands of visitors—many of them important figures in governmental and scientific communities. Many others studying the exhibits are highly motivated young students who are planning to enter the Intel Science Talent Search in their senior year of high school.

While the purpose of the Intel Science Talent Institute is the science competition, the students say they most value the opportunity to meet and interact with their scientific peers, often for the first time. Friendships and professional associations made during the Intel STI week continue through and beyond college.

State Representation in the Science Talent Search Since 1942

Since 1942, New York State has produced more finalists than any other state, accounting for 903 or 33%. California, 190; Illinois,161; Pennsylvania, 107; Florida, 98; Maryland, 96; New Jersey, 88; Virginia, 86; Massachusetts, 84; Ohio, 82; Texas, 65; Wisconsin, 52; and Indiana, 47.

Other states with impressive results include Michigan, 44; Connecticut, 41; Oregon, 39; Minnesota, 34; Georgia, 30; Colorado, 26; Oklahoma, 25; Arizona 24; Missouri, 22; Washington, 22; District of Columbia, 21; Nebraska, 19; Alabama, 19; Iowa, 19; West Virginia, 19; New Hampshire, 19 ; Tennessee, 18; New Mexico, 17; Montana, 16; North Carolina, 16; Hawaii, 15; Kansas, 14; Louisiana, 12; and Mississippi, 10.

About Intel Education

Intel believes that students everywhere deserve to have the skills necessary to become the next generation of innovators. From local schools to global universities, Intel works to help improve the quality of education around the world. Over the past decade alone, Intel has invested more than $1 billion in cash and in-kind contributions to help teachers teach, students learn and universities innovate. Through programs such as the Intel Science Talent Search, Intel works to engage young people around the world in the building blocks of technical innovation - science, math and engineering.

To learn more about Intel's commitment to education around the world, visit **www.intel.com/education**

About Society for Science & the Public

Society for Science & the Public (SSP) is one of the nation's oldest non-profit organizations dedicated to public engagement in science and science education. Founded as Science Service in 1921, SSP is a leading advocate for the understanding and appreciation of science and the vital role it plays in human advancement. Through its acclaimed education competitions and its award-winning magazine, *Science News*, Society for Science & the Public is committed to inform, educate, and inspire.

To learn more about Society for Science & the Public and its mission, visit **www.societyforscience.org**

Evan Joseph Babazadeh

Roslyn High School

NEW YORK

Evan Joseph Babazadeh, 17, of **Roslyn**, submitted to the Intel Science Talent Search a **medicine and health** project studying the mechanism by which embryonic stem cells differentiate into functional hematopoietic (blood) stem cells. Using commercially available mouse stem cells, Evan demonstrated that both endothelial cells (cells from the inner lining of blood vessels) and progenitor cells (parent cells) were required to enhance proliferation and differentiation of embryonic cells into a large number of functional blood cells. Although Evan's project concerned mouse cells, his work is expected to readily apply to studies of human cells. This new avenue may provide a means to produce sufficient material for bone marrow stem transplantation into leukemia patients who lack compatible donors. His findings have been submitted as an abstract to an upcoming international meeting of stem cell researchers. At **Roslyn High School**, Evan is a varsity wrestler and president of the medical explorers, environmental and SADD clubs. The son of Amir and Mina Babazadeh, Evan hopes to study molecular biology at the University of Pennsylvania or Cornell in preparation for a career in medicine.

Katherine Rose Banks

Stuyvesant High School

NEW YORK

Katherine Rose Banks, 17, of **Brooklyn**, submitted a **mathematics** project to the Intel Science Talent Search on problems in combinatorial geometry. A lattice polygon in the plane is a polygon each of whose vertices has integer coordinates; such points are called lattice points. Katie gave a proof of a conjecture of S. Rabinowitz, that a convex lattice polygon with nine vertices cannot have exactly eight or nine interior lattice points. Katie attends **Stuyvesant High School** in New York and has perfect SAT scores. Diagnosed at a young age with a neurological condition, she began quizzing doctors about equipment used for her treatments, which led to an informal education of neuroscience. This developed into collaborations with her surgeon on algorithm coding for simulation software used in craniofacial surgery. As a member of the F.I.R.S.T. Robotics team, she created an on-the-fly program during a competition that earned her team the top programming award. Katie enjoys acting and technical theater, as well as rocketry, ham radio, photography and playing cricket. The daughter of Paul and Carrie Banks, Katie hopes to teach math following her studies at MIT or Cornell.

Jeremy Evan Blum

Byram Hills High School

NEW YORK

Jeremy Evan Blum, 17, of **Armonk**, developed a cost-effective, intelligent control method for below-elbow prosthetic hands for his Intel Science Talent Search **engineering** project. Current methods of activating prosthetics use expensive, surgically implanted myoelectrodes to measure electrical activity in muscles. Jeremy, instead, used force sensors mounted in a cast around the residual arm to detect pressure and a microprocessor to activate the prosthesis based on muscle bulge. To compare the two methods he wrote a computer program and found that his force sensors are very effective at detecting muscle activation. Jeremy believes his work could lead to an inexpensive, noninvasive form of prosthetic control in the future. At **Byram Hills High School**, Jeremy is president of the robotics club and head layout artist for the school newspaper. He volunteers his computer skills to a nonprofit agency and has launched three successful businesses: a video production company, a computer repair business and a web design firm. Among his many awards is the Rensselaer Medal. Jeremy plans to study engineering at Cornell or MIT and own an engineering firm. He is the son of Allen Blum and Stacy Wilder.

Ashok Chandran

Smithtown High School East

NEW YORK

Ashok Chandran, 17, of **Nesconset**, submitted a **medicine and health** project to the Intel Science Talent Search studying the relationship between nicotine and specific cellular functions in mammary cells. Based on prior research that found that adolescent female smokers are 80 percent more likely to develop breast cancer by age 50 than non-smoking females, Ashok's work builds on speculation that teenage girls typically start smoking when their mammary tissue is most susceptible to damage. Ashok's research explored the possibility that nicotine may be linked to human breast cancer by facilitating or speeding the development of malignant processes. Specifically, he tested the hypothesis that nicotine would alter mammary cell gene expression and create a cellular environment more akin to that of a breast cancer cell. His work also suggests that nicotine increases abnormal cell growth and that chemotherapeutic drugs are less effective on nicotine-treated cells. The son of Prem and Latha Chandran, Ashok attends **Smithtown High School East** in St. James, where he plays varsity tennis. Ashok has perfect scores on his SATs and hopes to attend Princeton or Columbia.

Timothy Zuchi Chang

Stuyvesant High School

NEW YORK

Timothy Zuchi Chang, 16, of **Rego Park**, entered the Intel Science Talent Search with an **environmental science** project. He designed and constructed microbial fuel cells (MFC) using bacteria from ordinary wastewater to produce free electrons that can be harvested as electricity while cleaning sludge. Using readily available materials (Plexiglas® cubes, ceramic tubes, graphite cathode rods and carbon anode cloth), Tim assembled MFCs to grow bacterial biofilm communities. He selected the bacteria most likely to simultaneously generate electrons for power while degrading organic nitrogen and carbon in wastewater sewage sludge – dual attributes that strongly suggest the potential for bioremediation in electricity-producing MFCs. His work is part of a provisional patent filed in 2007. Tim hopes MFCs can help bring both clean water and clean energy to underdeveloped regions of the world. At **Stuyvesant High School** in New York, Tim edits the school paper, and participates in Model UN and Big Sibs, the freshman orientation program. The son of Hungyun and Blanche Chang, Tim enjoys science fiction, Chinese chess and cooking and plans to study engineering in college.

Eric Nelson Delgado

Bayonne High School

NEW JERSEY

Eric Nelson Delgado, 18, of **Bayonne**, studied the use of novel efflux pump inhibitors (EPI) to improve the efficacy of antibiotics against multidrug resistant bacteria for his Intel Science Talent Search **medicine and health** project. One way bacteria disable antibiotics is to use an efflux pump mechanism to expel the antibiotics from their cells. Eric tested a compound known to disable a simple efflux pump in *S. aureus* on a more complex pump in *E. coli*, a nonpathogenic bacteria. The compound was not initially effective because it could not penetrate the *E. coli* membrane, but Eric found that a modified form of it, diosmetin, could enter the *E. coli* cell and effectively disable the more complex pump. Eric states that further research will be required to determine if diosmetin is also effective against virulent strains of bacteria. Eric is captain of the mock trial and debate teams and president of the science club at **Bayonne High School** and works as a veterinary assistant. His many awards include an Intel ISEF 2007 Best in Category Grand Award in microbiology. The son of Nelson Delgado and Virginia Davila, he hopes to study molecular biology at Princeton or Harvard and work with under-privileged teens interested in science.

Yihe Dong

Cedar Shoals High School

GEORGIA

Yihe Dong, 17, of **Athens**, studied the effects of parental dietary restrictions on the offspring of fruit flies (*Drosophila melanogaster*) for her Intel Science Talent Search **zoology** project. While previous studies had shown that reduced caloric intake increased longevity and oxidative stress resistance to herbicides in fruit flies, Yihe wondered if their offspring would be similarly affected. In a seven-month investigation, she studied 3,200 virgin offspring of regular diet (R) vs. diet-restricted (DR) parents. Her data suggests that the offspring of DR parents have improved stress resistance, but may have reduced longevity. She believes her findings can further understanding of the evolutionary trade-off between quality and quantity in *Drosophila* reproduction. Yihe is first in her class of 275 at **Cedar Shoals High School** where she is president of student government. The founder of Young Partners for a Prosperous Athens, her many honors include First Place and Best of Category Grand Awards in animal sciences at the Intel ISEF 2007. A native of China, she is fluent in Chinese, English and German. The daughter of Wubei Dong and Fengrui Guo, Yihe hopes to continue her studies at MIT or Harvard.

Benjamin Edward Dozier

Los Alamos High School

NEW MEXICO

Benjamin Edward Dozier, 18, of **Los Alamos**, studied the logical complexity of describing random bit strings for his Intel Science Talent Search project in **mathematics**. Any finite string of 0's and 1's can be completely described by a sentence of first order logic. Ben investigated the complexity of this description for random bit strings of length *n* which are equipped with a function *p(n)* giving the likelihood that any entry in the string has value 1. He found asymptotic bounds in the case of very sparse strings (few 1's) and also in the case where *p(n)* does not vary with *n*. Ben is first in his class of 278 at **Los Alamos High School** where he serves as the math club president and enjoys playing tennis. The winner of numerous math and science awards, Ben was the first-ever qualifier from his school and the only student from New Mexico in the 2006 USA Mathematical Olympiad. That year he also earned an Honorable Mention in the National Peace Essay contest, was a semifinalist in the Ayn Rand Anthem Essay contest, and traveled to Croatia, Hungary and the UK. The son of Miguel Dozier and Esther Kovari, Ben hopes to continue his research at MIT or Harvard.

Sappho Zoe Gilbert

Thomas Jefferson High School for Science & Technology

VIRGINIA

Sappho Zoe Gilbert, 18, of **McLean**, entered the Intel Science Talent Search with a **medicine and health** project that evaluated the expression of survivin – a protein that inhibits cell death in cancer cells – as a biomarker for prognosis and drug treatment of children and young adults with Ewing Sarcoma Family Tumors (ESFT). She evaluated archival tissue samples from ESFT patients and observed that those with low survivin had a higher survival rate. In further experiments she was able to reduce the production of survivin in cells through gene therapy, which increased the cancer's sensitivity to anticancer drugs. The results of her study may lead to novel alternate treatments for ESFT. Sappho attends **Thomas Jefferson High School for Science & Technology** in Alexandria, where she has earned varsity letters in track, cross country and gymnastics. Fluent in modern Greek, the recipient of numerous science honors and co-author of an article submitted to *Clinical Biochemistry*, she is president of Tomorrow's Women in Science and Technology. The daughter of Samuel Gilbert and Elisavet Vrahopoulou, Sappho plans to study biomedical engineering, earn an M.D./Ph.D and conduct research.

Herman Gudjonson

Ward Melville High School

NEW YORK

Herman Gudjonson, 17, of **East Setauket**, entered the Intel Science Talent Search with a **medicine and health** project studying the role that mutation of a human gene plays in the severity of Bardet-Biedl syndrome (BBS), a rare genetic disorder that has been related to defects in sensory structures called primary cilia and is characterized by obesity, inability to smell, retinal degeneration and other defects. For his research, Herman created a mutant fruit fly with an inability to taste by deleting the fly-equivalent of the human gene linked to BBS. Flies taste with their feet, and when a fly walks over sugar, it reflexively extends its proboscis. By observing proboscis extension reflex, Herman noted that flies that lack the gene cannot sense sugar, suggesting that the fly gene's human counterpart might play a similar role in BBS. At **Ward Melville High School**, Herman plays on the varsity tennis team. In 2006, he won singles and doubles titles at the International Friendship Games in Holland. He has studied violin with several world-renowned violinists and performed internationally. He also composes for the piano. The son of Gudjon Hermannsson and Yingxing Wang, he hopes to attend Princeton or MIT.

Nathaniel Edward Hipsman

Lassiter High School

GEORGIA

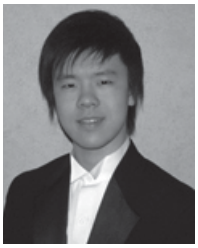
Nathaniel Edward Hipsman, 18, of **Marietta**, submitted a **physics** project to the Intel Science Talent Search studying today's most accurate timekeeping devices – atomic clocks. Nathan's theoretical study investigated ways to further improve their precision. Using two combinations of oscillating spin states of quantum mechanical particles (2-spin and 3-spin), Nathan concluded that 3-spin clocks could improve timekeeping accuracy over 2-spin clocks by slightly more than the predicted factor. He further suggested that using additional spin states may make the clocks even more precise. Such timekeeping research could improve the accuracy of GPS devices, data transmission and time-sensitive scientific experiments. First in his class of 487 at **Lassiter High School,** Nathan has perfect SATs and describes himself as an avid golfer and musician. His many awards range from the Rensselaer Medal to first place in a county invention competition as a kindergartener for a clip to help tots tie their shoelaces. He also invented an automated damper-closing system for fireplaces. Nathan hopes to attend Harvard or the University of Chicago. He is the son of Steven and Linda Hipsman.

Olivia Hu

Stuyvesant High School

NEW YORK

Olivia Hu, 17, of **Little Neck**, submitted a **behavioral and social sciences** project to the Intel Science Talent Search that studied brain lateralization in Chinese-English bilingualism. Previous studies have shown that, when read, Chinese characters are processed in the right hemisphere of the brain whereas English involves the left. Olivia asked four graduate students, Chinese natives residing in the United States for less than three years, to perform two tasks that tested their reading abilities in both languages. Using magnetoencephalography she recorded neural activity and gathered data as their English proficiency improved. Olivia observed an inverse shift in lateralization over time, with English processed more on the right and Chinese more on the left as the subjects became more proficient in the second language, suggesting that bilingualism directly affects how people think. Olivia, a member of the policy debate team, takes a proactive stance on important social issues and helped raise thousands of dollars for national charities. The daughter of Anthony Fa Xiang Hu and Jessie Jian Wen Huang, she attends **Stuyvesant High School** in New York and plans to attend Stanford or Harvard.



Alexander Chi-Jan Huang

Plano Senior High School

TEXAS

Alexander Chi-Jan Huang, 17, of **Plano**, submitted to the Intel Science Talent Search a mathematical model for his **biochemistry** project that predicts the behavior of the circadian clock of *Neurospora crassa*, the fungus also known as bread mold. In most organisms, the circadian clock dictates the daily biological rhythm of many physiological and molecular activities. Working with his laptop computer at home, Alex created a genetic feedback mathematical model calculating time-series plots that illustrated the daily oscillations of key activating and repressing proteins responsible for circadian rhythms. His model was validated by experimental data and not only showed, but also explained the laboratory phenomena called singularity behavior – the suppression of circadian rhythms by a single pulse of stimulus. Circadian clock research may provide clues to combating jet lag. At **Plano Senior High School**, Alex is president of the math club and winner of numerous science and debate awards. The son of David and Chao-yin Huang, he is lead attorney and prosecutor for the Plano Teen Court and enjoys spoken-word poetry and the mathematics of origami. Alex hopes to study at Caltech or MIT.

Jonathan Hunter Huggins

Middlesex School

MASSACHUSETTS

Jonathan Hunter Huggins, 19, of **Arlington**, conducted research in computational linguistics – a discipline involving the "training" of computers to understand certain aspects of natural human language – for the **computer sciences** project he submitted to the Intel Science Talent Search. Jonathan studied named entity recognition software attempting to differentiate among five categories of data appearing in diverse business media, ranging from newspapers to Web site entries. Then he compared three different methods of improving computer performance. He found all three to be beneficial, but most effective when used together – an approach that reduced computer error by half. Jonathan believes his research could improve the accuracy of the automated analysis of financial news, and he is co-author of a paper on his findings that will be submitted for publication. At **Middlesex School** in Concord, he plays cello in the chamber ensemble and is the literary magazine editor. Jonathan leads the robotics club and is also an artificial intelligence researcher. The son of Christopher Huggins and Helene Mary Sullas-Huggins, he has myriad academic awards and plans to study physics and computer science.

Isha Jain

Freedom High School

PENNSYLVANIA

Isha Jain, 17, of **Bethlehem**, studied the mechanisms of bone growth in the caudal fin rays of zebrafish for her Intel Science Talent Search **zoology** project. Isha had expected the bone segments to grow at a constant rate. Her examination of cell proliferation during segment growth using a confocal microscope instead revealed that the number of dividing cells fluctuates, and segment growth appears to be the result of several pulses of cell division. Isha developed a mathematical representation of her results providing statistical significance and a model describing her data. She believes that her novel findings will further our understanding of human bone development. Isha is the co-author of five published scientific articles including a report of her zebrafish research in the *Journal of Developmental Dynamics*. She attends **Freedom High School** where she is a member of the ski club and the student council and on the student advisory board for her school district. Her many awards include a First Place Grand Award at the Intel ISEF 2007. Trained in classical Indian dance, she is the daughter of Himanshu and Sweety Jain. Her plans include attending Harvard or Yale and a career researching genetic disorders.

Chun-Kai Kao

George School

PENNSYLVANIA

Chun-Kai Kao, 18, of **Newtown**, studied ways to optimize the efficiency of pollution-free polymer electrolyte membrane (PEM) fuel cells for his Intel Science Talent Search project in **materials science**. Kenny's research was inspired by his recurring allergy flair-ups when returning to his native Taiwan. To improve the PEM catalytic process, he synthesized gold (Au) and palladium (Pd) nanoparticles and deposited them onto a PEM using various processing pressures and coating frequencies. He characterized the size, shape and composition of the deposited nanoparticles using transmission electron microscopy and electron diffraction pattern analyses, and then he explored the impact of hydrogen flow rate on power output. Submitted as a patent application and to *Nature* for publication, Kenny's work suggests that the addition of primarily stepped, disc-like, Au-nanoparticles with maximum substrate contact increased power output of the fuel cells by more than 500 percent. A top debater in Taiwan, he attends **George School**, where he heads the Model UN and math club. The son of Ho-Jui Kao and Shu-Chen Tseng, Kenny hopes to study engineering and business at MIT or Stanford.

Clifford Byungho Kim

North Allegheny Senior High School

PENNSYLVANIA

Clifford Byungho Kim, 18, of **Wexford**, used two Pyrex plates, a wedge, four liquids, a camera and graph paper to reconfirm and expand concepts developed in 1712 for his Intel Science Talent Search project in **chemistry** on capillary action in narrow gap space. In his home laboratory, Cliff verified that the rise of fluids in narrow tubes was inversely related to tube diameter and further demonstrated that fluid viscosity, surface tension and fluid adhesion to Pyrex modified these relationships when tube diameters were significantly less than 1 mm. Water wicking in concrete basements and the development of new non-wetting materials may potentially benefit from his studies. Cliff's project was inspired by his earlier research using gum balls and M&M candies to explore particle packing densities in tubes of various sizes. A gold, silver and bronze medalist at the World Piano Competition, he has soloed twice at Carnegie Hall and once at the U.N. Performance for Peace. First in his class of 656 at **North Allegheny Senior High School**, Cliff aspires to study physical science at Harvard or MIT, and teach and conduct academic research in the surface sciences. Cliff is the son of Hong and Yookyung Kim.

Lauren Rose Lisann

Half Hollow Hills High School West

NEW YORK

Lauren Rose Lisann, 18, of **Dix Hills**, studied the role of two specific genes that are possibly responsible for developmental dyslexia – a reading disability – for her Intel Science Talent Search project in **medicine and health**. In the course of her research, Lauren developed a MATLAB computer program that analyzed neuron locations in brain tissue samples from rats transfected *in utero* with plasmids targeted against these genes. Her program automated the process and broadened the scope of the counts to each single neuron's coordinates rather than comparing neurons grouped into deciles, improving the laboratory's standard methodology. Her results and analysis suggested that both genes synergistically caused changes in the migration of neurons in the cortex, leading to visible malformations. Similar observations have been made in studies of the brains of dyslexic humans. Lauren is first in her class of 353 at **Half Hollow Hills High School West**, where she participates in crew and cross country. She received the Harvard Book Award and enjoys hiking, painting, and piano. The daughter of Neal and Debra Lisann, Lauren is captain of the Dix Hills Fire Department Juniors Program.

Benjamin Brice Lu

Richard Montgomery High School

MARYLAND

Benjamin Brice Lu, 18, of **Potomac,** studied signaling molecules involved in cancer cell growth for his Intel Science Talent Search project in **zoology**. He particularly focused on G protein-coupled receptors (GPCRs), the largest family of cell surface receptors involved in signal transmission, whose ability to stimulate the expression of certain genes has emerged as a key mechanism in the growth and metastatic spread of many highly prevalent human cancers. Throughout his investigation, Ben followed a multiplicity of experimental approaches, including cell transfection, RNA interference, Western blotting and AP-1 gene reporter experiments. The project not only resulted in the discovery of a novel signaling mechanism by which cell surface receptors regulate gene expression, but also helped identify numerous potential drug targets for cancer therapy. At **Richard Montgomery High School** in Rockville, Ben is active in the science, engineering and drama clubs. He is also the inventor – patent pending – of an educational game, using an intriguing story and puzzle to stimulate logical thinking. The son of Bai Lu and Liya Shen, Ben hopes to study biology at Stanford or Harvard.

Brian Davis McCarthy

Liberty High School

OREGON

Brian Davis McCarthy, 18, of **Hillsboro**, focused his research on developing new types of solar cells for his Intel Science Talent Search project in **chemistry.** Brian synthesized extremely thin and fragile films and verified his results using scanning electron microscopy techniques. His films consisted of interfacially polymerized combinations of porphyrins and phthalocyanines – plant-like photosynthetic materials found in nature that are photoactive and photoconducting – both properties of functioning solar cells. Brian's novel polymer films responded electrically to light indicating that they could act as solar cells and may be a less expensive option to today's silicon-based solar cell technology, and help meet increasing demands for renewable energy. A Rensselaer Medal award winner, Brian hopes to attend MIT or Harvard and one day join a research team developing new sources of energy. He is first in his class of 293 at **Liberty High School** and belongs to the varsity track and field team. In his spare time, Brian works with the community emergency response team and enjoys strategy games, Legos and studying aviation history. He is the son of Brian and Karen McCarthy.

Shravani Mikkilineni

Detroit Country Day School

MICHIGAN

Shravani Mikkilineni, 17, of **Bloomfield Hills**, studied the computation of continued fraction expansions of the square roots of positive integers for her Intel Science Talent Search project in **mathematics**. Continued fractions provide approximations to the square roots of non-square integers, but are not easily computed. Let d be the largest integer less than the square root of k. Shravani found an accessible computation in the case where $2d / (k - d^2)$ is a half integer. At **Detroit Country Day School** in Beverly Hills, Shravani is captain of the varsity tennis team and senior editor of the yearbook. Originally the only female on the team, she has emerged as a leader on her school's F.I.R.S.T. Robotics Team. Shravani played violin in the Detroit Symphony Orchestra Sinfonia, and enjoys performing classical Indian dance. Her work in biology and math has earned numerous national awards, and she organized a fundraiser for a nonprofit charitable organization which benefits children orphaned by HIV/AIDS in Ghana, collecting both electronics and school supplies. The daughter of Prasad and Jhansi Mikkilineni, she hopes to continue her math and biology research at Harvard, MIT or Stanford.

Evan Neal Mirts

Jefferson City High School

MISSOURI

Evan Neal Mirts, 18, of **Jefferson City**, observed changes in volume and surface area of spinach chloroplasts using a scanning ion conductance microscope (SICM) for his Intel Science Talent Search **biochemistry** project. Chloroplasts, key components in photosynthesis, have been observed *in vitro* to undergo reversible morphological changes – either volume shrinkage or swelling. When conventional analytical techniques are used to study chloroplasts, they are destroyed, thus preventing the ability to directly measure any reversible light-induced changes. But by using SICM, possible cellular reversibility can be non-destructively studied. Evan's results suggest that light-induced changes in the shape and surface area of chloroplasts result from supporting surface orientation rather than volume changes. His research promotes the future possibility of using SICMs as key tools for measuring submicron cellular structural changes. At **Jefferson City High School**, Evan plays violin in the school orchestra. He has been awarded for his achievement in Latin and practices Tae Kwon Do. The son of Gary and Linda Mirts, he hopes to attend Washington or Truman State Universities.

Philip Mocz

Mililani High School

HAWAII

Philip Mocz, 18, of **Mililani**, developed a novel statistical algorithm and used it to discover previously unidentified patterns in the distribution of nearby stars for his Intel Science Talent Search project in **space science**. He dissected the solar neighborhood into 300 thin slices to analyze the spatial arrangement of star types and found that groups of stars tend to contain star types with low to medium surface temperatures, or cool stars mixed with much warmer ones – a finding that challenges the standard assumptions about random stellar mixing in our galaxy. Philip believes that his unique analysis method may have uses beyond astronomy and could be applied to pattern analysis in ecology, urban planning, archeology and other disciplines. Philip is first in his class of 540 at **Mililani High School**. President of the math club, he also plays violin and is concertmaster of the school's string ensemble. Philip has earned numerous honors and awards in math and astronomy. Fluent in Hungarian, he is the son of Gabor and Eva Mocz. Philip plans to study astronomy, physics and math, become a professor of astronomy and pursue dedicated research in the field.

Benjamin Julius Mueller

John L. Miller-Great Neck North High School

NEW YORK

Benjamin Julius Mueller, 18, of **Great Neck**, submitted a **behavioral and social sciences** project to Intel Science Talent Search studying the neural mechanisms underlying a parent's decision to reward or punish children. Ben used functional magnetic resonance imaging (fMRI) to measure brain activity in five adult volunteers as they responded to a child's hypothetical actions. He located specialized neural networks used by the adults when they decided to reward or punish; the decision to reward was largely a frontal lobe function while the parietal lobe was primarily responsible for the decision to punish. Based on this, and contrary to initial expectations, Ben concluded that the decision to reward involves a deeply ingrained emotional response while the decision to punish is a higher-level cognitive judgment. At **John L. Miller-Great Neck North High School**, Ben captains the varsity soccer and basketball teams and founded the microfinance club. The son of Thomas Mueller and Eleanor Berger, Ben hopes to study neurobiology and psychology at Yale, continuing reseaarch such as his work in 2006 that resulted in a published paper that he co-authored and a research grant from NSF.

Stefan Klein Muller

Paul D. Schreiber High School

NEW YORK

Stefan Klein Muller, 17, of **Port Washington**, created a computer program to model a largely unknown process involved in the body's inflammatory response to damaged tissue for the **medicine and health** project he submitted to the Intel Science Talent Search. Because it is extremely difficult to experimentally study the migration of leukocytes through blood vessels as they move between vascular endothelial cells to the inflammation site, Stefan created a cellular automaton model that computationally simulates real-life processes using known information. He confirmed the model's predictions through experimentation with human umbilical cells, and believes it will help increase our understanding of inflammation. First in his class of 377 at **Paul D. Schreiber High School**, Stefan is active in the drama club, technical managing editor of the school paper, president of the math honor society. He's been an active member of the National Youth Rights Association since eighth grade and was elected vice president last summer and sings in the choir. The son of William and Joan Muller, he hopes to study mathematics or physics at Harvard or the University of Chicago.

Alexis Marie Mychajliw

Paul D. Schreiber High School

NEW YORK

Alexis Marie Mychajliw, 16, of **Port Washington**, combined her interests in animal behavior and environmental science for the **zoology** project she submitted to the Intel Science Talent Search. As a participant in a statewide survey tracking Odonate family populations (dragon flies and damsel flies), she decided to collect additional data to discover the nature of population distribution and its application to conservation policy. Field research was conducted in two undisturbed wetland habitats with varying levels of vegetative cover, where catch-and-release means were used to assess Odonate behavior in relation to their habitat. Her findings indicate that – regardless of vegetative coverage – females are more likely to remain in adjoining meadows and males within wetlands, suggesting that both habitats are crucial for the survival of the entire Odonate population. At the **Paul D. Schreiber High School**, Alexis has been editor of the literary magazine for four years. A violinist and tennis player, she is also an imaginative cook, creating new dishes based on her grandmother's traditional Ukrainian recipes. The daughter of Peter and Belinda Mychajliw, she hopes to study at Cornell or Brown University.

Avanthi Raghavan

Lake Highland Preparatory School

FLORIDA

Avanthi Raghavan, 17, of **Orlando**, submitted a **biochemistry** project to the Intel Science Talent Search studying the mechanisms of protein transport critical to the survival and virulence of the malaria parasite, which infects the human host's red blood cells. Using fluorescent markers and confocal laser scanning microscopy imaging, Avanthi built on research she began three years ago on the parasite, which is responsible for more than two million deaths every year. She hopes her work will help researchers find exploitable targets for the development of new drug therapies to attack malaria parasites that have developed a resistance to existing anti-malarial drugs such as quinine, chloroquine and amodiaquine. At the **Lake Highland Preparatory School,** Avanthi is vice president of the pre-med club and volunteers with Give Kids the World, a nonprofit dedicated to fulfilling the wishes of children with terminal illnesses. In addition to her interests in piano and knitting, Avanthi explores her Indian culture through Carnatic music. The daughter of Chakravarthy and Vasanthy Raghavan, Avanthi hopes to study biochemistry at the University of Pennsylvania or Johns Hopkins.

Vinay Venkatesh Ramasesh

Texas Academy of Mathematics & Science

TEXAS

Vinay Venkatesh Ramasesh, 18, of **Fort Worth**, submitted a **chemistry** project to the Intel Science Talent Search involving recently developed algorithms – known as local methods – to accurately determine molecular thermodynamic properties of large molecules, such as proteins. Using the Molpro suite of computational chemistry programs, he ran thousands of calculations at reduced computational cost (computer time, memory and disk space) and identified aspects of the localization methods that required further effort. He is first author of a paper on his work submitted to *Theoretical Chemistry Accounts.* Vinay's earlier projects include exploring the links between math and music – specifically, parallels between music and fractals (complex mathematical constructs) – and building several robots, one designed to pick up laundry! At the **Texas Academy of Mathematics & Science** in Denton, he plays leadership roles in the math and engineering clubs and academic competitions. Active in community service and an accomplished pianist, Vinay also enjoys tennis and ping pong. The son of Ranga and Nalini Ramasesh, he hopes to study math and physics at MIT or Caltech.

Anastasia Nast Roda

Lancaster Catholic High School

PENNSYLVANIA

Anastasia Nast Roda, 18**,** of **Lancaster**, explored the impact of New Jersey's Oyster Creek nuclear plant on its surrounding ecosystem for her Intel Science Talent Search **environmental science** project. Anastasia designed and built her own apparatus to study water quality and the benthic, plankton, biofouling (living organisms that degrade underwater surfaces) and microbial communities inhabiting the reactor's intake and discharge creeks as well as a control creek. She concluded that water quality was changed (especially temperature, pH, velocity and turbidity) and organism populations were severely altered in both reactor creeks. Anastasia has already earned five varsity letters at **Lancaster Catholic High School** and is a Division One college goalkeeper recruit in field hockey. Honored with many science fair awards, Anastasia plans to attend Harvard and aspires to be an environmental scientist and lawyer. She is the recipient of two EPA grants to write and illustrate a booklet for vacationers about protecting New Jersey's Barnegat Bay, where she has conducted independent research since seventh grade. Anastasia is the daughter of Joseph Roda and Dianne Nast.

David Alex Rosengarten

John L. Miller-Great Neck North High School

NEW YORK

David Alex Rosengarten, 18, of **Great Neck**, studied dark matter and the controversial galactic rotational curves for his Intel Science Talent Search **physics** project. Dark matter, which is theorized to make up 25 percent or more of the universe, emits little or no detectible radiation but exerts observed gravitational force on stars and galaxies. To avoid the complications of modeling matter in the physical fourth dimension, David's calculations were conducted in a fifth dimensional model, allowing him to mock-up galactic rotation models without describing visible matter. His results showed that Einstein's General Relativity Theory, in principle, could modify rotation curves without including dark matter. Fourth dimensional calculations, in contrast, support the existence of dark matter. David, who attends **John L. Miller-Great Neck North High School,** captains the chess team and also the math team, which advanced from 105th to 4th place nationally under his leadership. The son of William and Elissa Rosengarten, David is an accomplished cellist, a nationally ranked chess player and the recipient of many math and science awards. He hopes to study at Harvard or MIT.

Ayon Sen

Westwood High School

TEXAS

Ayon Sen, 17, of **Austin,** investigated the natural processes by which the ocean transports heat for his Intel Science Talent Search project in **earth and planetary science**. He developed a MATLAB software interface for deep water ocean current velocity data and integrated it with surface water velocity data from satellite altimeters. He subsequently determined that a significant amount of energy is dissipated in the ocean depths due to a mechanism called quadratic bottom boundary layer drag, and believes that his research makes the first quantitative estimate of this phenomenon. Because energy dissipation drives "mixing" in the ocean – a process analogous to the manner in which a ceiling fan transports heat by mixing warm and cold air – it has important implications for maintaining global climate. Ayon is first author of a paper on this project that has been submitted to *Geophysical Research Letters*. At **Westwood High School**, he is a member of the school orchestra, active in Junior Statesmen of America and a staff writer for its publication. The son of Mrinal and Alo Sen, he is an award-winning pianist and hopes to study applied mathematics at Caltech or Harvard.

Artem Serganov

Bronx High School of Science

NEW YORK

Artem Serganov, 17, of **New York**, studied riboswitches, a potentially new class of antimicrobial drug targets, for his Intel Science Talent Search project in **biochemistry**. Riboswitches are mRNA regions that control gene expression by sensing cellular metabolites. Artem synthesized and crystallized two widespread classes of riboswitches (using biochemical and biophysical techniques) in the ongoing determination of their 3D molecular structure using data from Advanced Photon Source synchrotron for x-ray crystallography analysis. When this 3D structure is better understood, these natural metabolites may be redesigned to modern drug standards and form the basis for novel classes of antibiotics. Artem is co-author of a chapter in a book to be published soon on the technical aspects of riboswitch crystallization. Born in Russia, Artem attends **Bronx High School of Science** where he is captain of the swim team. He is an award-winning essayist and enjoys tennis, mountain skiing and has been honored for excellence in Tae Kwon Do. He hopes to attend Columbia or Cornell University and contribute to antibiotics research. Artem is the son of Alexander Serganov and Inna Serganova.

Hamsa Sridhar

Kings Park High School

NEW YORK

Hamsa Sridhar, 18, of **Kings Park**, developed a low cost optical tweezers system for her Intel Science Talent Search **physics** project. An optical tweezers system uses laser light to trap and suspend microscopic particles. Hamsa designed a system consisting of a single cylinder lens, a donated laser and $1,000 worth of materials. Her simplified single lens mode converter (SLMC) demonstrated quicker alignment, decreased sensitivity to sample deviations and minimized power loss, while still enabling manipulation and three-dimensional rotation of microscopic particles at high magnification. Equivalent optical tweezers systems cost approximately $100,000. The International Society of Optical Engineering awarded Hamsa first place at last year's Intel ISEF for her research, which has applications in medical and DNA research, micromachines and microfluidic systems. Hamsa is first in her class of 328 at **Kings Park High School**. She has been recognized for her achievements in science, math and French, and is published in the National Anthology of Poetry. The daughter of Sridhar Vijayaraghavan and Gayathri Sridhar, Hamsa was born in India and hopes to attend MIT or Harvard.

Shivani Sud

Charles E. Jordan High School

NORTH CAROLINA

Shivani Sud, 17, of **Durham**, submitted a **bioinformatics and genomics** project to the Intel Science Talent Search that focused on identifying stage II colon cancer patients at high risk for recurrence and the best therapeutic agents for treating their tumors. The standard method of characterizing tumors relies on visual information, including size, degree of metastasis and microscopic structure. Shivani's 50-gene model for predicting the recurrence of colon cancer instead uses gene expression profiles to link multiple genetic events that characterize various tumor types. She created her model using two public data sets containing 125 patient samples and coupled it with clinical data to plot statistically significant survival curves. She then used her model to identify drugs that may be effective in treating stage II colon cancer. The daughter of Ish and Anu Sud, Shivani is first in her class of 358 at **Charles E. Jordan High School** and represents the students at school board meetings. She is a Teen Court student attorney, a Durham Rescue Mission volunteer and performs classical and modern Indian dance. Shivani plans to attend Princeton or Harvard, earn an M.D./Ph.D. and have a career in research.

Graham William Wakefield Van Schaik

Spring Valley High School

SOUTH CAROLINA

Graham William Wakefield Van Schaik, 17, of **Columbia**, completed a two-year study of the long-term effects of exposure to pyrethroids, commonly found in household and agricultural pesticides, for his Intel Science Talent Search project in **environmental science**. Graham had become interested while helping his grandmother in her tomato garden, and subsequently designed two novel experiments to investigate the possible effect of pyrethroids on breast cancer and neurodegeneration. His work included plant cultivation, liquid-phase extraction, gas chromatography, tissue culture, cell viability assays, ANOVA testing and linear regression analysis. His findings showed that realistic levels of pyrethroids promote significant cellular proliferation in human breast cells, a sign of cancer, and neurite retraction in rat PC12 neurons, a sign of neurodegenerative disease, like Alzheimer's. He is first in his class of 421 at **Spring Valley High School,** and his honors include a Best in Category Grand Award at the Intel ISEF 2007. He has also founded and raised funding for a summer science camp for more than 300 at-risk grade school students. Graham is the son of Douglas and Joan Van Schaik.

Matthew Michael Wage

Appleton High School East

WISCONSIN

Matthew Michael Wage, 17, of **Appleton**, submitted an Intel Science Talent Search **mathematics** project that extended earlier results on arithmetic functions. The starting point for Matt's project in number theory is Lehmer's Conjecture, still open, that an arithmetic function defined by Ramanujan, the *tau*-function, is nonzero at each natural number *n*. Murty, Murty and Shorey showed that *tau* takes on any given value only finitely often. Matt extends this result to a wider class of arithmetic functions, sometimes at the cost of adding restrictions to the choice of *n*. Matt attends **Appleton High School East** where he is active in varsity football, varsity tennis and the ping pong club. Matt has won regional competitions in math, and his volunteer efforts as a coach helped the school's math team earn the top rank in the state. He also enjoys playing chess, bridge and guitar. Matt's quest for understanding the world around him has fueled his passion to learn everything from ideal gas laws to the propaganda genius of Genghis Khan. The son of Michael Wage and Kathy Vogel, Matt plans to study mathematics and medicine and pursue a career as a physician or mathematician.

Louis Eric Wasserman

Montgomery Blair High School

MARYLAND

Louis Eric Wasserman, 17, of **Derwood**, studied the lower bound of the number of gates needed to compute explicit functions for combinatorial mathematical models for his Intel Science Talent Search project in **computer science**. Using only AND and OR gates (monotone circuits), Louis produced the first exact characterization of P in terms of monotone circuits, a class of problems that can be solved in polynomial time by a computer. This accomplishment suggested a possible solution to NP – problem sets with polynomial verifiers, such as those used in encryption – and may answer daunting questions such as, "Is there a possibility of efficiently breaking through the encryption security that protects our credit cards during Internet purchases?" The son of Robert and Lori Wasserman, Louis attends **Montgomery Blair High School** in Silver Spring where he is president of the computer club, chief copy editor for the online newspaper and plays Ultimate Frisbee. Volunteer for The Dwelling Place, a national finalist in the USA Computing Olympiad and recipient of awards in computer science and math, Louis hopes to study both, calling mathematics "the supreme accomplishment of mankind."

Xiaoyun Yin

Stuyvesant High School

NEW YORK

Xiaoyun Yin, 17, of **Forest Hills**, studied the effect of maternal separation on neurogenesis – the creation of new brain cells or neurons – in the hippocampus, an area of the brain associated with behavior, for her Intel Science Talent Search project in **behavioral and social sciences**. The mammalian hippocampus retains the ability to undergo neurogenesis in adulthood. In Linda's study, tissue collected from mice separated from their parents during their developmental phase demonstrated an increased number of neurons at abnormal locations. Linda believes similar proliferation and migration of neurons in humans could lead to abnormal synapse formation, which could cause psychological disorders in adults such as anxiety or depression. A pianist since the age of four and a self-taught guitarist, Linda is passionate about all kinds of music. She co-founded The Mixtape, an alternative rock music club at **Stuyvesant High School** in New York. Born in China and fluent in Chinese, she tutors students of Mandarin after school. Linda is the daughter of Deqi Yin and Yun Li. She hopes to attend MIT or Yale, become a physician and also conduct biological research.

Qiaochu Yuan

Bellevue High School

WASHINGTON

Qiaochu Yuan, 17, of **Bellevue**, submitted an Intel Science Talent Search **mathematics** project connecting the classical normal form for an elliptic curve with a recent normal form. Qiaochu's work in algebraic geometry gave an explicit normal form for curves of genus 1 as the intersection of two quadric surfaces, together with their group laws. In doing so, he translated the classical formulation to the new normal form for elliptic curves introduced recently by H. M. Edwards. Such intersections are easy to compute, and may be of practical use in computer-aided design. Qiaochu, who was born in China, is first in his class of 334 at **Bellevue High School**. He participates in the Seattle Infinity Math Circle, and earned perfect SAT scores. He also enjoys playing piano, guitar, Ultimate Frisbee, and is an active participant in online math and problem solving forums. The son of Feng Yuan and Ying Peng, Qiaochu enjoys independent research and taught himself multiple computer programming languages, as well as advanced theories in math. He hopes to enroll at MIT or Princeton, and aims to discover deep connections between disparate areas of math.

Xiaomeng Zeng

West High School

IOWA

Xiaomeng Zeng, 18, of **Iowa City**, studied the long-standing debate of whether public library funding from either government or private sources might adversely affect funding from the other group, for her Intel Science Talent Search project in **behavioral and social sciences**. Using Iowa public library statistics and U.S. census datasets, Jessica constructed an econometric model that included public funding, private donations, population size, and local economic and demographic factors. Although her data was restricted to Iowa, comprising mainly of small towns, she reached the surprising conclusion that funds from private and public sources are relational – as one increases, so does the other – an effect called "crowding in." Jessica attends **West High School** where she's active in the Federal Reserve challenge, academic decathlon and chemistry club. The daughter of Yu Zeng and Hongbo Xie, she enjoys tennis, yoga and playing the violin, and hopes to study pro-social behavior after attending Harvard or Yale. Jessica immigrated to the US at age nine from the People's Republic of China, and hopes her research will benefit the public libraries that helped her learn the English language.

Intel Science Talent Search 2008
Finalists Listed by State

Florida	Avanthi Raghavan, *Lake Highland Preparatory School*	17
Georgia	Yihe Dong, *Cedar Shoals High School*	7
	Nathaniel Edward Hipsman, *Lassiter High School*	9
Hawaii	Philip Mocz, *Mililani High School*	15
Iowa	Xiaomeng Zeng, *West High School*	23
Maryland	Benjamin Brice Lu, *Richard Montgomery High School*	13
	Louis Eric Wasserman, *Montgomery Blair High School*	22
Massachusetts	Jonathan Hunter Huggins, *Middlesex School*	10
Michigan	Shravani Mikkilineni, *Detroit Country Day School*	14
Missouri	Evan Neal Mirts, *Jefferson City High School*	14
New Jersey	Eric Nelson Delgado, *Bayonne High School*	6
New Mexico	Benjamin Edward Dozier, *Los Alamos High School*	7
New York	Evan Joseph Babazadeh, *Roslyn High School*	4
	Katherine Rose Banks, *Stuyvesant High School*	4
	Jeremy Evan Blum, *Byram Hills High School*	5
	Ashok Chandran, *Smithtown High School East*	5
	Timothy Zuchi Chang, *Stuyvesant High School*	6
	Herman Gudjonson, *Ward Melville High School*	8
	Olivia Hu, *Stuyvesant High School*	9
	Lauren Rose Lisann, *Half Hollow Hills High School West*	12
	Benjamin Julius Mueller, *John L. Miller-Great Neck North High School*	15
	Stefan Klein Muller, *Paul D. Schreiber High School*	16
	Alexis Marie Mychajliw, *Paul D. Schreiber High School*	16
	David Alex Rosengarten, *John L. Miller-Great Neck North High School*	18
	Artem Serganov, *Bronx High School of Science*	19
	Hamsa Sridhar, *Kings Park High School*	20
	Xiaoyun Yin, *Stuyvesant High School*	22
North Carolina	Shivani Sud, *Charles E. Jordan High School*	20
Oregon	Brian Davis McCarthy, *Liberty High School*	13
Pennsylvania	Isha Jain, *Freedom High School*	11
	Chun-Kai Kao, *George School*	11
	Clifford Byungho Kim, *North Allegheny Senior High School*	12
	Anastasia Nast Roda, *Lancaster Catholic High School*	18
South Carolina	Graham W.W. Van Schaik, *Spring Valley High School*	21
Texas	Alexander Chi-Jan Huang, *Plano Senior High School*	10
	Vinay Venkatesh Ramasesh, *Texas Academy of Mathematics & Science*	17
	Ayon Sen, *Westwood High School*	19
Virginia	Sappho Zoe Gilbert, *Thos. Jefferson HS for Science & Technology*	8
Washington	Qiaochu Yuan, *Bellevue High School*	23
Wisconsin	Matthew Michael Wage, *Appleton High School East*	21

Intel Science Talent Search 2008

Finalists Listed by Last Name

Babazadeh, Evan Joseph	Roslyn, NY	4
Banks, Katherine Rose	Brooklyn, NY	4
Blum, Jeremy Evan	Armonk, NY	5
Chandran, Ashok	Nesconset, NY	5
Chang, Timothy Zuchi	Rego Park, NY	6
Delgado, Eric Nelson	Bayonne, NJ	6
Dong, Yihe	Athens, GA	7
Dozier, Benjamin Edward	Los Alamos, NM	7
Gilbert, Sappho Zoe	McLean, VA	8
Gudjonson, Herman	East Setauket, NY	8
Hipsman, Nathaniel Edward	Marietta, GA	9
Hu, Olivia	Little Neck, NY	9
Huang, Alexander Chi-Jan	Plano, TX	10
Huggins, Jonathan Hunter	Arlington, MA	10
Jain, Isha	Bethlehem, PA	11
Kao, Chun-Kai	Newtown, PA	11
Kim, Clifford Byungho	Wexford, PA	12
Lisann, Lauren Rose	Dix Hills, NY	12
Lu, Benjamin Brice	Potomac, MD	13
McCarthy, Brian Davis	Hillsboro, OR	13
Mikkilineni, Shravani	Bloomfield Hills, MI	14
Mirts, Evan Neal	Jefferson City, MO	14
Mocz, Philip	Mililani, HI	15
Mueller, Benjamin Julius	Great Neck, NY	15
Muller, Stefan Klein	Port Washington, NY	16
Mychajliw, Alexis Marie	Port Washington, NY	16
Raghavan, Avanthi	Orlando, FL	17
Ramasesh, Vinay Venkatesh	Fort Worth, TX	17
Roda, Anastasia Nast	Lancaster, PA	18
Rosengarten, David Alex	Great Neck, NY	18
Sen, Ayon	Austin, TX	19
Serganov, Artem	New York, NY	19
Sridhar, Hamsa	Kings Park, NY	20
Sud, Shivani	Durham, NC	20
Van Schaik, Graham W.W.	Columbia, SC	21
Wage, Matthew Michael	Appleton, WI	21
Wasserman, Louis Eric	Derwood, MD	22
Yin, Xiaoyun	Forest Hills, NY	22
Yuan, Qiaochu	Bellevue, WA	23
Zeng, Xiaomeng	Iowa City, IA	23

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