



# Hungarian Teen Wins Computer Society Prize at Intel Science Fair

**D**aniel Ratai of John von Neumann Computer Science High School in Budapest, Hungary, recently received a \$700 IEEE Computer Society prize at the 2005 Intel International Science and Engineering Fair (ISEF) in Phoenix, Arizona. Ratai's project, "Leonar3Do 3D for All," adds 3D and touch screen functionality to an ordinary PC.

Intel ISEF is the world's largest pre-college science fair. Held each May, ISEF brings together more than 1,400 students from around the globe to compete for scholarships, tuition grants, internships, scientific field trips, and the grand prize: a \$50,000 college scholarship. Science Service, a non-profit educational organization, founded ISEF in 1950.

Students compete in 15 categories that represent all branches of the sciences, with projects that represent their

own original works. Professional associations and companies active in the ISEF categories send judges to select winners in their specialty areas. In addition, the Intel Foundation bestows three grand-prize Young Scientist Awards upon the individuals whose projects the judges deem best overall. The Young Scientist Award winners each receive a high-performance computer and a \$50,000 scholarship paid in eight installments.

Nine competitors at Intel ISEF received cash awards from the IEEE Computer Society. Three were first-through third-place individual winners, and the remaining six shared first-, second-, and third-place team awards. Several also received other awards at ISEF.

In addition to the \$50,000 grand prize, the three Intel Young Scientist Award winners receive a trip to the International Youth Science Seminar at the

Nobel Prize ceremonies in Stockholm.

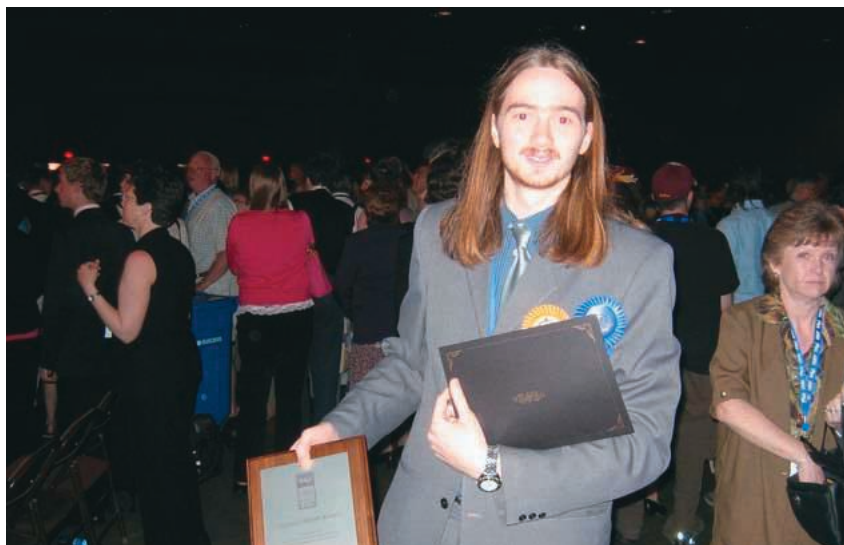
The Young Scientist Award winners at this year's ISEF were IEEE Computer Society award winner Ameen Abdulrasool, 18, of Lane Technical High School in Chicago, for "Prototype for Autonomy: Pathway for the Blind;" Stephen Schulz, 19, of Gesamtschule Buer-Mitte in Gelsenkirchen, Germany for "From Synthesis to Analysis of Radical Inhibitors;" and Gabrielle Alyce Gianelli, 17, of Lake Highland Preparatory School in Orlando, Florida, for "Fractal Dimension Analysis of Putative Martian Coastlines."

## COMPUTER SOCIETY AWARDS

IEEE Computer Society Conferences and Tutorials Board Vice President Christina Schober and John Prohodsky from the Portland, Oregon, chapter of the Computer Society served as volunteer judges at ISEF 2005.

Winners of IEEE Computer Society Awards at ISEF 2005 were

- **First Place, Individual (\$700):** Daniel Ratai, of John von Neumann Computer Science High School, Budapest, Hungary, for "Leonar3Do: 3D for All." (Ratai also won a \$5,000 Intel Foundation Achievement Award, a \$3,000 ISEF First Award in Computer Science, a \$5,000 best-of-category award, and an all-expense paid trip to the Stockholm International Youth Science Seminar and the Nobel Prize ceremonies in December.)
- **Second Place, Individual (\$500):** Ahmad Shakir Manshad, of Las Cruces High School, Las Cruces, New Mexico, for "Braille Accessible Learning System: A Distance



**Computer Society ISEF first-place award-winner Daniel Ratai, of John von Neumann Computer Science High School in Budapest, Hungary.**

Learning Approach.”

- **Third Place, Individual (\$350):** Ameen Abdulrasool, of Lane Technical High School, Chicago, Illinois, for “Prototype for Autonomy: Pathway for the Blind.” (Abdulrasool also won a \$50,000 Intel Foundation Young Scientist Award, a \$3,000 ISEF First Award in Behavioral and Social Sciences, and a \$5,000 best-of-category award.)
- **First Place, Team (\$500 per team member):** Jason Hamid Rezvani and Harish Mayur Srinivasan, of duPont Manual Magnet High School, Louisville, Kentucky, for “Search for Tomorrow: A Study of Associative Linguistics to Optimize Search Technology.”
- **Second Place, Team (\$400 per team member):** Alexa Danielle Sider and Neha Rajendra Hipalgaoonkar, of Lake Highland Preparatory School, Orlando, Florida, for “Generating 3D Anatomical Virtual Models for Medical Training Systems, Phase III.”
- **Third Place, Team (\$300 per team member):** Guan-Long Wu and Hsiao-Ting Yu, of National Taichung First Senior High School, Taichung, Taiwan, for “A Content-Based Grayscale Image Retrieval System Based on Vector Quantization.”

Award winners also receive a gift certificate for any Computer Society publication and a one-year subscription to a Society magazine of their choice.

With the exception of Intel-sponsored prizes, the largest award presented at ISEF is the \$10,000 IEEE President’s Scholarship, which went this year to Adam Daniel Sidman of Colorado Springs. The “Camera Stabilization Design Earns Teen \$10,000 at Intel Science Fair” sidebar describes Sidman’s gyro-based device.

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In 2006, the Intel International Science and Engineering Fair moves to Indianapolis, Indiana. Further

information about ISEF is available at [www.sciserv.org/isef/](http://www.sciserv.org/isef/). ■

### Camera Stabilization Design Earns Teen \$10,000 at Intel Science Fair

Adam Daniel Sidman, a junior at Palmer High School in Colorado Springs, Colorado, recently won the 2005 IEEE Presidents’ Scholarship for his Intel Science and Engineering Fair project, “Camera Stabilization: Take Two,” in which he designed, built, and optimized a low-cost, compact gyro-based servo stabilization device for a professional handheld motion picture camera.

A team of IEEE judges selected his project from a field of more than 1,200 projects. The \$10,000 scholarship, which recognizes an outstanding achievement in information technology or electrical engineering, is the largest award given by a professional association at ISEF. IEEE president-elect Michael Lightner presented the IEEE Foundation-supported scholarship during a special awards ceremony at ISEF.

Sidman’s camera stabilization device uses micro-electromechanical system (MEMS)-based gyroscopic sensors mounted to a gimbaled camera rig to measure the angular rate of the camera’s rotation. The gyro signals are amplified to drive DC servo motors coupled to the camera’s rotational axes. As a gyro measures the camera’s rotation about an axis, the corresponding servo motor applies an opposing torque on the platform to counteract camera rotation.

“I’ve always been really into film and began producing my own films during eighth grade,” Sidman said in remarks to IEEE’s *The Institute* magazine. “Filmmakers are always looking for new ways to move a camera smoothly across a set. I noticed that the two common camera stabilization devices available are rather straining to the operator, difficult to use and maneuver, and pretty cost-prohibitive. I wanted to design a device that would be lightweight, easy to use, and truly portable and that would isolate the camera from the movements of the operator.”

Sidman’s father, Michael D. Sidman, serves as an engineering consultant and is a senior member of the IEEE. His son’s scholarship represents the first time that the Presidents’ Scholarship has been awarded to the child of an IEEE member.



2005 IEEE President’s Scholarship winner Adam Daniel Sidman.

## Taulbee Survey PhD Numbers Rise in 2003-2004

**E**ach year, the Computing Research Association (CRA) conducts a survey of US and Canadian computer science and engineering departments, measuring trends in graduate

employment rates, student enrollment levels, and computer science and computer engineering faculty salaries.

The 189 responding departments reported a total of 1,032 PhDs award-

ed in 2004. This increase of more than 17 percent over last year represents the highest number of PhD graduates in almost a decade.

Based on the growing number of students passing qualifier exams, previous Taulbee reports had predicted a large increase in PhD graduates. According to other published reports from the CRA, the increase in graduate school enrollment can be attributed to a slow recovery in the general economy, and in the dot-com economy in particular. Researchers have noted that in times of slow employment growth, idled workers often choose to return to school.

Although some observers suspected that global labor practices would prompt North American graduates to seek employment overseas, the proportion of PhD graduates reported as doing so remained somewhat constant. This year's rate of 4.5 percent who found positions abroad is similar to that of the previous three years (4.1, 4.5, and 4.1 percent, respectively).

The percentage of incoming undergraduates who indicated that they would major in computer science or a related field declined by more than 60 percent between 2000 and 2004, and is now 70 percent lower than its peak in the early 1980s. In 2004, less than 0.5 percent of freshmen women and fewer than 3 percent of freshmen men indicated that they would be likely to major in the field. In 1983, those numbers stood at more than 4 percent of women and nearly 6 percent of men.

The Taulbee survey is named in honor of the late Orrin Taulbee, a University of Pittsburgh researcher who conducted the survey for the CRA until 1984. For data from previous surveys and a detailed breakdown of the findings of the 2003-2004 Taulbee survey, visit [www.cra.org/statistics/](http://www.cra.org/statistics/). ■

### Nominations Open for IEEE Division V Director-Elect

IEEE Computer Society members are invited to submit nominations for candidates to serve as 2007 IEEE Division V director-elect and 2008-2009 Division V director.

Division directors represent the members of IEEE societies on the IEEE Board of Directors and the Technical Activities Board; Division V and VIII directors represent the Computer Society membership. Elections for Division V director are typically held in even-numbered years, and Division VIII elections are held in odd-numbered years. The elected representative then serves one year in the director-elect role before assuming a two-year division director term.

Gene Hoffnagle currently serves as 2004-2005 IEEE Division V director. Stephen Diamond is serving as 2005-2006 IEEE Division VIII director.

Submit nominations by **8 October 2005** to Carl Chang, Chair, Nominations Committee, IEEE Computer Society, 1730 Massachusetts Ave. NW, Washington, DC 20036-1992; [c.chang@computer.org](mailto:c.chang@computer.org).

### Microchip Pioneer, Nobel Laureate Jack Kilby, 1923-2005

Jack St. Clair Kilby, an important figure in the invention of the microchip, passed away recently in Dallas, Texas, at age 81. Kilby invented the monolithic integrated circuit at Texas Instruments 47 years ago, laying the foundation for the entire field of modern microelectronics. His breakthrough made possible the sophisticated high-speed computers and large-capacity semiconductors of today's information age. The holder of more than 60 US patents, Kilby also invented the first handheld electronic calculator, in 1967, and the thermal printer.

Kilby succeeded in integrating electronic components, including the still-new transistor, onto a single piece of silicon, which made possible low-cost high-volume manufacturing of electronic circuits. Intel cofounder Robert Noyce, then at Fairchild Semiconductor, subsequently conceived the process for economical production of the new integrated circuits.

The winner of the 2000 Nobel Prize in Physics, Kilby also received two of the United States' most prestigious honors in science and engineering: He received the National Medal of Science in a 1970 White House ceremony, and he was inducted into the National Inventors Hall of Fame in 1982.

A Fellow of the IEEE and an elected member of the National Academy of Engineering, in his lifetime Kilby received the IEEE Medal of Honor, the Cleo Brunetti Award, and the David Sarnoff Award; the NAE's Vladimir Zworykin Award and Charles Stark Draper Prize; the Franklin Institute's Stuart Ballantine Medal; and the American Society of Mechanical Engineers' Holley Medal.

# IEEE Computer Society Announces New and Returning Editors in Chief

**A**t a recent meeting, the IEEE Computer Society Board of Governors approved several new and returning editors in chief for Society publications. Their terms will begin in January 2006.

Laxmi Bhuyan, a professor of computer science and engineering at the University of California, Riverside, has been appointed to head *IEEE Transactions on Parallel and Distributed Systems*.

Arnold Bragg, a principal scientist at MCNC Research and Development

Institute in North Carolina, will lead *IT Professional* magazine.

The new editor in chief of *IEEE Design & Test of Computers* magazine will be Tim Cheng, a professor of electrical and computer engineering at the University of California, Santa Barbara.

Ravishankar Iyer of the Center for Reliable and High-Performance Computing at the University of Illinois' Urbana-Champaign campus was reappointed to a second term at the helm of *IEEE Transactions on Dependable*

*and Secure Computing*.

Jeffrey Kramer, head of the department of computing at the University of London, will become editor in chief of *IEEE Transactions on Software*.

Editors in chief of IEEE Computer Society publications serve initial two-year terms, with the possibility of reappointment for two more years. Two new opportunities to serve as an editor in chief are detailed in the "Call for IEEE Computer Society Editor in Chief Applicants" sidebar. ■

## Call for IEEE Computer Society Editor in Chief Applicants

The IEEE Computer Society is seeking nominations and applications for volunteers interested in serving as editor in chief of either *IEEE MultiMedia* or *IEEE Software* magazine.

### *IEEE MultiMedia*

Applications for editor in chief of *IEEE Multimedia* should include a complete curriculum vita, a brief plan for the future of *MultiMedia*, and a letter of support from the candidate's institution or employer.

The plan should include six key items: the candidate's perspective on the challenges and opportunities facing *MultiMedia*; the expected tasks to be undertaken if appointed as EIC; the objective milestones associated with each task; a proposed schedule for the tasks and milestones; the projected organization needed to accomplish the tasks; and any funding requirements needed to accomplish the tasks.

Application packages should be submitted electronically, as Word or .pdf files, to Robin Baldwin at [rbaldwin@computer.org](mailto:rbaldwin@computer.org). The due date for nominations and applications is **15 August 2005**.

### *IEEE Software*

Applicants for 2007-2008 editor in chief of *IEEE Software* magazine should possess a good understanding of the industry, academic, and government aspects of the publication's field. In addition, candidates must demonstrate the managerial skills necessary to process manuscripts through the editorial cycle in a timely fashion.

Prospective candidates must provide a complete curriculum vita, a brief plan for the publication's future, and a letter of support from their institution or employer.

Application packages should be submitted electronically, as .pdf files, to [software@computer.org](mailto:software@computer.org), with "EIC Search" in the subject line. The due date for nominations and applications is **1 November 2005**.

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## Computer Society Offers Scholarships to College Students

Each year, the IEEE Computer Society sponsors the Computer Society International Design Competition and participates in the Intel International Science and Engineering Fair to encourage students to create functional engineering prototypes. To support students with potential in the course of their day-to-day studies, the Computer Society also offers scholarships to both graduate and undergraduate Society student members.

Applications for two opportunities to receive student support—the Lance Stafford Larson Student Scholarship and the Upsilon Pi Epsilon Student Award for Academic Excellence—are due by 31 October 2005.

### Larson Best Paper Contest

The Lance Stafford Larson Student Scholarship awards \$500 to a Com-

puter Society student member for the best paper submitted on a computer-related topic. Established in memory of Lance Larson, son of IEEE Past President Robert Larson and a University of Maryland undergraduate at the time of his death, the Larson competition was created to encourage engineering students to improve their communication skills. Any undergraduate student member with a GPA of 3.0 or above is welcome to compete.

### Upsilon Pi Epsilon Student Award for Academic Excellence

Presented in conjunction with the international computing honor society of the same name, the Upsilon Pi Epsilon Student Award for Academic

Excellence recognizes high achievement in the computing discipline.

The UPE scholarship is awarded based on a student's academic record, letters of recommendation, and extracurricular involvement related to the computing field. Any Society member who is a full-time undergraduate or graduate student with a minimum 3.0 GPA—the required GPA for Upsilon Pi Epsilon membership—can apply.

Up to four awards of \$500 each are given annually to the winning applicants. Winners also receive their choice of a one-year subscription to any Computer Society periodical.

For information on entering either contest, see [www.computer.org/students/schlrshp.htm](http://www.computer.org/students/schlrshp.htm). ■

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### IEEE Computer Society Launches *Computer Architecture Letters*

The IEEE Computer Society Technical Committee on Computer Architecture recently announced the debut of its quarterly forum, *Computer Architecture Letters*, as an official IEEE publication, beginning in 2006.

The editors are seeking short technical papers addressing all aspects of computer architecture, including compiler-hardware and operating system-hardware interactions, interconnect architectures, memory and cache systems, power and thermal issues, network and embedded-systems processors, and reconfigurable systems.

Accepted papers will be published in the print edition that is mailed to all members of the TCCA and will be included in the IEEE Computer Society Digital Library. Members of both the TCCA and the ACM's Sigarch receive regular notifications of new papers.

Serving as editor in chief of *Computer Architecture Letters* is Yale N. Patt of the University of Texas at Austin.

The TCCA also sponsors several major conferences each year, including the International Conference on Parallel Architectures and Compilation Techniques (PACT), the International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunications Systems (MASCOTS), and the High-Performance Computer Architecture Symposium (HPCA.) Computer Society members can join up to four Technical Committees, Councils, or Task Forces at no extra cost.

For further information, visit the *Computer Architecture Letters* Web site at [www.cs.virginia.edu/~tcca/index.html](http://www.cs.virginia.edu/~tcca/index.html), or contact associate editor in chief Kevin Skadron at [tcca@cs.virginia.edu](mailto:tcca@cs.virginia.edu).