

Department of Electrical Engineering and Computer Science

The [Department of Electrical Engineering and Computer Science](#) (EECS) remains an international leader in electrical engineering, computer engineering, and computer science by setting standards both in research and in education. In addition to traditional foci on research, teaching, and student supervision, the department is actively engaged in a range of efforts in outreach and globalization and continues to evolve its recent major initiative in undergraduate curriculum reform.

Research within the department is primarily conducted through one of the affiliated interdisciplinary research labs. Research expenditures within the department in FY2010 were \$84.5 million, up 14% from FY2009. In FY2011, research expenditures were \$99 million. (Note that this total may include some EECS-affiliated lab members who are not EECS faculty.) Specific research highlights and expenditures are presented in the separate reports by the affiliated research laboratories.

EECS continues to display enrollment trends that are ahead of national trends. At the undergraduate level, the number of new majors has shown small but steady increases over the past five years. The percentage of women undergraduate majors (31%) has held steady over the past three years.

At the graduate level, we continue to see significant interest in the department, with 2,887 applications this year; 211 of these applicants were offered admission, of whom 46 were women. One hundred and forty-three students accepted, resulting in an acceptance rate of 67.8%, reflecting the high interest in the department. Thirty-five of these students were women, resulting in an acceptance rate of 76% for women who were offered admission.

To foster increased interest in the field, we continue to reach outside the department in a variety of ways. Our [Women's Technology Program](#) for female high school students from across the country just completed its ninth summer. The number of young women passing through this program who choose to pursue engineering careers is remarkably high, with more than 60% of the program's graduates choosing to major in engineering or computer science, more than half of them at MIT. This year EECS will sponsor five projects in the successful Program for Research in Mathematics, Engineering and Science for High School Students ([PRIMES](#)) piloted by the Mathematics Department in AY2011.

The department continues to support several active student groups at the graduate and undergraduate levels; many are involved in outreach endeavors. These student groups include [Eta Kappa Nu](#) at the undergraduate level, the [Graduate Student Association](#) for graduate students, and GW6 for graduate women students. These groups initiate a range of activities, many focused on mentoring and community building within the department. The most recent senior survey indicated a very strong increase in student approval of the atmosphere within the department, ranging from advising, mentoring, and contact outside the department to traditional curricular and academic factors. In support of this trend, we continue to support the [EECS REFS](#) (Resources for Easing Friction and Stress) Program, a student-run mediation system for helping students deal with conflicts and other difficulties in their professional and personal lives.

The department also sponsors a wide selection of student-initiated activities that foster interest in the department; these activities include a set of extremely popular competitions run during Independent Activities Period, ranging from robot challenges to humanoid robots, web programming, and video game agent design. Finally, the department supports several groups and activities in which EECS students participate: the National Society of Black Engineers, the Society of Hispanic Professional Engineers, the Black Women's Alliance Retreat, MasLab 6.186, the Intercollegiate Genetically Engineered Machine (iGEM) Competition, and the Solar Electric Vehicle team.

The department is actively engaged in developing opportunities for global experiences by our students and faculty. Ongoing activities include a large number of EECS students participating in MIT International Science and Technology Initiatives (MISTI) activities (based in part on direct departmental support for MISTI), student exchanges with Cambridge, and curricular outreach through OpenCourseWare. We have also expanded our 6-A internship program to include an international element, with students taking internship positions in China, India, France, and England. In addition, we have pioneered a program to enable faculty from international institutions, initially in China and Hong Kong, to spend time in our department observing our teaching methods and interacting with our faculty and students to learn best practices for effective educational delivery. The first of these scholars have just completed a very successful year in EECS, and our second set of scholars is set to arrive for the fall term. The department is engaged in active discussions of methods to expand this program.

In the past year, EECS and Biology codeveloped a computer science and molecular biology undergraduate degree. This degree was approved in December by a unanimous faculty vote. We are happy to report that as of this writing 24 students (22 rising sophomores and 2 juniors) have declared their intent to major in this new degree. EECS and Biology are planning to offer an MEng option and will work together to design this master's degree in the upcoming year.

EECS research is carried out in a set of affiliated laboratories: the Computer Science and Artificial Intelligence Laboratory (CSAIL), the Research Laboratory of Electronics (RLE), the Microsystems Technology Laboratories (MTL), the Laboratory for Information and Decision Systems (LIDS), and the Laboratory for Electromagnetic and Electronic Systems. Details of research achievements within these units are described in their separate reports. EECS graduate students working in one of these labs are further assigned to a departmental research area that is responsible for monitoring their academic progress. These areas are as follows:

Area I: Systems, Communication, Control, and Signal Processing: Gregory Wornell, chair

Area II: Computer Science: Randall Davis, chair

Area III: Electronics, Computers, and Systems: David Perreault, chair

Area IV: Engineering Physics: Jeffrey Lang, chair

Area VII: Bioelectrical Engineering: Louis Braidia, chair

Service Awards

At this year's EECS annual spring awards event, Vera Sayzew was presented the Richard J. Caloggero Award for dedicated service to the department. Vera was cited for tireless contributions to the smooth operation of the undergraduate office.

The Department Head Special Recognition Award was given to Jarina Shrestha, Mira Whiting, and Francis Doughty in recognition of their extra efforts and dedicated service to the operations of the department, which was short-staffed during the interim department head period.

Lisa Bella, Janet Fischer, and Stephanie Seneff were inducted into the Quarter Century Club in FY2011.

Women's Technology Program

This summer marked the 10th year of the Women's Technology Program (WTP) in EECS. Forty students were selected from an applicant pool of 255 female 11th-grade high school students from across the country; participants this year hailed from 19 different states. The WTP high school students are all top math and science performers who are not yet committed to pursuing engineering or computer science; WTP gives them an opportunity to learn more about their aptitude for these fields, shows them some of the exciting research being done here at MIT, and allows them to explore the MIT community.

For four weeks, the WTP EECS students take hands-on, lab-based, college-level classes in electrical engineering, computer science, and discrete mathematics, all designed and taught by a dedicated staff of MIT graduate and undergraduate women students. Four of the summer 2011 WTP EECS staff attended WTP when they were in high school. Collaboration with the Department of Mechanical Engineering also continued this year with the 20-student WTP-ME curriculum track. Of the 346 WTP EECS college-age alumnae from 2002–2010, 145 have come to MIT. Of the 251 WTP EECS alumnae who have declared college majors or graduated, 153 are in a field of engineering or computer science (61%). The summer 2011 WTP students are rising high school seniors; they will apply to colleges in fall 2011.

6-A Internship

The department's 6-A Master of Engineering Thesis Program is in its 94th year. The 6-A International Internship Program is in its sixth year, with two students in Beijing, China, at Microsoft Research Asia. Fifty-four students applied to 6-A for summer 2011 positions at 14 participating companies. Thirty-two students were selected as members of the incoming 6-A class. Currently, there are 29 undergraduates and 19 MEng students in the program.

The 6-A Master of Engineering Program provides leading-edge technology thesis opportunities, with a full calendar year of tuition support for all 6-A MEng students that is company funded by the 6-A Fellowship Program. Since the last report, two students have withdrawn from the 6-A Master of Engineering Thesis Program, as they felt their

needs were better matched with the opportunities available on campus. However, most 6-A students continue to find the program professionally rewarding. Participating companies continue to offer challenging and well-mentored assignments with leading-edge technology MEng thesis topics. We hope that these improved thesis opportunities and funding will result in an increase in EECS student applicants to the 6-A Master of Engineering Thesis Program.

The J. Francis Reintjes Excellence in 6-A Industrial Practice Award was presented at the EECS spring awards ceremony in May to two outstanding 6-A students, Xiawa Wang (Bosch, Palo Alto, CA) and Anh Dang Viet Nguyen (Microsoft Research Asia, Beijing, China). Xiawa and Anh demonstrated outstanding performance in their 6-A work assignments. Xiawa completed her thesis research titled “Flicker Noise Measurement of Atomic Layer Deposition Metal Films.” She will continue her EECS research in the PhD program at MIT. Anh’s thesis, based on his 6-A research, is titled “A Study of Engagement Strategies in Mobile Health.” He has accepted a software engineering position with the Android Mobile Team at Google in Mountain View, CA.

Ooyala Inc., an online video technology company, joined the 6-A program this year. Four undergraduate students and one master of engineering student will be working at Ooyala in Mountain View, CA, during the summer and fall terms. There have been numerous inquiries from companies interested in the 6-A program, and we hope to obtain new members in the near future as well as to increase the number of applicants, positions, and participants in the 6-A Master of Engineering Thesis Program.

Graduate Program

In September, 802 graduate students were enrolled in the department. About 42% were foreign nationals. The department supported 449 research assistants and 96 teaching assistants. In addition, there were 162 full or partial two-term fellowships, including 25 National Science Foundation fellowships and 16 Department of Defense fellowships. The remaining students had fellowship support for one term or less.

During AY2011 the department awarded 84 master of science degrees, 5 engineer degrees, and 101 doctoral degrees.

The department received 2,887 applications for the 2010–2011 year, a 5% increase from 2009; 211 applicants were admitted for the year, which resulted in 143 new graduate students registering in September.

Undergraduate Program

Enrollment of undergraduates averaged 749 in 2010–2011, slightly higher than 2009–2010, with 13% in the electrical engineering program (6-1), 43% in the computer science program (6-3), and 44% in the electrical engineering and computer science program (6-2). From the Class of 2013, 234 students enrolled in Course 6. About 270 students from the Class of 2014 have so far selected Course 6, an increase of approximately 16%. In addition, as mentioned earlier, 22 students from the Class of 2014 enrolled in the joint

6-7 program with Biology, meaning that almost 300 rising sophomores will be enrolled in Course 6 in the upcoming year.

The master of engineering (MEng) program entered its 17th year with an average of 160 students.

Faculty Notes

EECS department head Eric Grimson stepped down to become the chancellor of MIT. He succeeds Phillip L. Clay, who in November announced his decision to step down after serving in the role for nearly 10 years. Professor Grimson's appointment as chancellor became effective March 1.

Terry Orlando stepped down as EECS graduate officer and Leslie Kolodziejcki became the new graduate officer. Department head Grimson announced the change to EECS faculty colleagues, saying: "After many years of superb service, Terry Orlando is stepping down as graduate officer for the department. Terry has been an invaluable member of the department's team: smoothly running the immense task of admissions, carefully stewarding our nearly 800 graduate students through our degree system, and serving as a thoughtful and knowledgeable mentor to students having difficulties. We greatly appreciate Terry's contributions to the department and especially to our graduate students. I am delighted to inform you that Leslie Kolodziejcki will take on the responsibilities of graduate officer for the department. Leslie will start assuming many of the responsibilities of running the graduate office immediately."

Faculty on sabbatical leave:

Karl Berggren	fall 2010/spring 2011
Louis D. Braid	fall 2010
Jesús del Alamo	fall 2010/spring 2011
Jongyoon Han	spring 2011
Tommi Jaakkola	spring 2011/fall 2011
Daniel Jackson	fall 2010/spring 2011
Hae-Seung Lee	fall 2010/spring 2011
Samuel Madden	spring 2011/fall 2011
Robert Miller	fall 2010
Asuman Ozdaglar	spring 2011/fall 2011
Pablo Parrilo	fall 2010/spring 2011
Seth Teller	fall 2010/spring 2011
Antonio Torralba	fall 2010
Alan Willsky	fall 2010/spring 2011
Lizhong Zheng	fall 2010

Faculty on leave:

Hal Abelson	fall 2010
Akintunde I. Akinwande	fall 2010/spring 2011
Dave Karger	fall 2010
Li-Shiuan Peh	spring 2011
Rajeev Ram	fall 2010/spring 2011
Daniela Rus	fall 2010
Charles Sodini	spring 2011
Madhu Sudan	fall 2010/spring 2011

The department notes with sadness the passing of the following faculty:

Donald E. Troxel, 1934–2011. Don Troxel received a BS degree in electrical engineering from Rutgers University in 1956. He followed with studies in electrical engineering at MIT, earning SM and PhD degrees in 1960 and 1962, respectively. After completing his studies, Troxel remained at MIT as a Ford Foundation postdoctoral fellow and then joined EECS as an assistant professor in 1964, reaching full professor in the department in 1985. He retired as professor emeritus in July 2004. Troxel’s early research was concerned with tactile communications and sensory aids for the blind. From 1968 onward, his principal research interests focused on digital systems design and image processing, including bandwidth compression, enhancement, and graphic arts applications. Troxel was a principal investigator with both RLE and MTL. His teaching activities centered on electronics and digital systems laboratories. Professor Troxel was noted for teaching 6.111 Introductory Digital Systems Laboratory for nearly 20 years.

Jerome Lettvin, 1920–2011. An early pioneer in bio/neuroelectrical engineering, Jerome (“Jerry”) Lettvin came to MIT in 1951 under Jerry Wiesner, then director of RLE, who later served as MIT president. Along with Lettvin, Wiesner hired Walter Pitts and Warren McCulloch, creating what would become a prolific team of neurophysiology researchers. Lettvin is most noted for publication in 1959 of the paper “What the Frog’s Eye Tells the Frog’s Brain.” The paper became one of the most cited papers in the Science Citation Index. Lettvin and his team, including mathematician (and lifelong associate) Walter Pitts, Humberto Maturana, Warren McCulloch, and Oliver Selfridge, demonstrated how specific neurons respond to specific features of a visual stimulus. Early skepticism regarding this new explanation gave way to a profound and lasting impact on the fields of neuroscience, physiology, and cognition. In addition to his work on vision, Lettvin carried out many important studies of the neurophysiology of the spinal cord and information processing in nerve cell axons. Though he is best known for his work in neurology and physiology, he also published on philosophy, politics, and poetry.

Since July, six new faculty members have joined the department or have been hired.

Wojciech Matusik received his BS in electrical engineering and computer science from the University of California, Berkeley, in 1997 and his SM and PhD in electrical

engineering and computer science from MIT in 2001 and 2003, respectively. In 2004, he was named one of the world's top 100 young innovators by MIT's *Technology Review* magazine. He has worked at Mitsubishi Electric Research Laboratories, Adobe Systems, and Disney Research Zurich. In 2009, he received the Significant New Researcher Award from the Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH) of the Association for Computing Machinery (ACM). His primary research is in the area of computer graphics with broad applications in other disciplines, such as digital communications, materials science, and biomechanics. Wojciech was hired as an associate professor without tenure and joined EECS in February, as well as becoming a member of CSAIL.

Dana Moshkovitz received her PhD from the Weizmann Institute of Science in 2008. During 2009–2010, she was a postdoctoral fellow in the joint program of the theoretical computer science group at Princeton University and the theoretical computer science and discrete mathematics group at Princeton's Institute for Advanced Study. She is a theoretical computer scientist with a focus on probabilistically checkable proofs, pseudo-randomness, and coding theory. She received the Best Paper Award at the Foundations of Computer Science Conference in 2008 for her work on probabilistically checkable proofs. Dana joined EECS in September as an assistant professor and is a member of CSAIL.

Michael Watts received his BSEE from Tufts (1996) and his SM (2001) and PhD (2005) from MIT. From 1996 to 1999 he was a member of the technical staff at Draper Laboratory, and from 2005 to 2010 he was a member of the technical staff at Sandia National Laboratories, where he led their silicon microphotronics effort. Mike's research focuses on electromagnetics, photonics, and optical networks, with a particular interest in microphotonic circuits for application in communication networks, high-frequency scenarios, and new sensor modalities. A key example of Mike's work is an ultralow-power, high-bandwidth silicon microphotonic communications platform. Mike joined EECS in July 2010 as an assistant professor and is a member of RLE. He will be promoted to associate professor without tenure July 1, 2011.

Adam Chlipala's research applies computer theorem proving and type systems to problems throughout the software stack, from assembly to high-level, higher-order languages. His focus is reducing the human cost of mathematically rigorous assurance about software. He finished his PhD at Berkeley in 2007, with a thesis on compiler verification for higher-order source languages. After starting as a postdoc at Harvard, he continued that line of work, as well as becoming involved with semiautomated correctness verification for imperative programs via separation logic, first with the Ynot project, which focuses on high-level functional programs, and more recently with the Bedrock project, which deals with assembly-level reasoning. Chlipala also has a longstanding interest in web application programming, including the development of several domain-specific languages. Through his company Impredicative LLC, he has recently become involved in consulting based on his latest web language, Ur/Web. Chlipala will join EECS and CSAIL July 1, 2011, as an assistant professor.

Nir Shavit received BA and MSc degrees from Technion and a PhD from the Hebrew University, all in computer science. He was a postdoctoral researcher at the IBM Almaden Research Center and Stanford University and a Rothschild postdoctoral fellow at MIT. In addition to being on the faculty of the computer science department at Tel-

Aviv University, he was a technical staff member at Sun Labs and later at Oracle Labs. Shavit was awarded the Israeli Industry Research Prize in 1993 and the ACM/European Association for Theoretical Computer Science Godel Prize in Theoretical Computer Science in 2004. His is a coauthor of the textbook *The Art of Multiprocessor Programming*. His research interests include software aspects of multiprocessor synchronization, the design and implementation of concurrent data structures, and the theoretical foundations of asynchronous computability. Shavit will join EECS and CSAIL July 1, 2011, as a full professor.

Yury Polyanskiy received an MS degree (with honors) in applied mathematics and physics from the Moscow Institute of Physics and Technology in 2005 and a PhD in electrical engineering from Princeton University in 2010. During 2000–2005, he was with the Department of Surface Oilfield Equipment at Borets Company LLC, where he rose to the position of chief software designer. His research interests include information theory, coding theory, and the theory of random processes. Polyanskiy won a silver medal at the 30th International Physics Olympiad, held in Padova, Italy. He was presented Best Student Paper Awards at the 2008 and 2010 Institute of Electrical and Electronics Engineers (IEEE) International Symposia on Information Theory. His final year of graduate studies was supported by a Princeton University Honorable Dodds Fellowship (2009–2010). Polyanskiy will join EECS and LIDS as an assistant professor as of September 1, 2011.

The department hosted six visiting faculty this year: associate professor Khurram Afridi, professor Vincent Blondel, associate professor Mike Collins, associate professor Edmund Lam, professor Zhi-Quan Luo, and associate professor Martin Wainwright.

Faculty Honors

Scott Aaronson and Manolis Kellis received the 2010 Presidential Early Career Award for Scientists and Engineers.

Sangeeta Bhatia, Patrick Jaillet, Leslie Kaelbling, and Silvio Micali were named new Institute chairs. Bhatia is the new holder of the John and Dorothy Wilson professorship. Jaillet is the new coholder of the Dugald C. Jackson chair. Kaelbling is the new holder of the Panasonic chair, which was established by the Matsushita Electric Industrial Company to support a leader in the fields of robotics or artificial intelligence. Micali has been named a new Ford professor of engineering. The Ford chairs are awarded by the School of Engineering and are intended to honor faculty members in the school who are recognized as leaders and innovators in their disciplines.

Isaac Chuang was among five MIT faculty members to be elected as a fellow of the American Physical Society, an organization dedicated to the advancement of physics. He was selected for “his breadth and leadership in the field of quantum information science, including important theoretical discoveries and the exploration of experimental implementations.”

Luca Daniel, the Emanuel E. Landsman associate professor of electrical engineering, was awarded the 2010 IEEE CEDA (Council on Electronic Design Automation) Early Career Award in recognition of his contribution to electromagnetic field analysis, parasitic

variation-aware extraction, and automated parameterized linear and nonlinear stable model reduction.

James G. Fujimoto, professor of electrical engineering and principal investigator in RLE, was the recipient of the Carl Zeiss Research Award from the Ernst Abbe Fund. Fujimoto was awarded the prize for his advances in the use of optical coherence tomography, a new medical and diagnostic technology.

Shafi Goldwasser, the RSA professor of electrical engineering and computer science at MIT and a principal investigator at CSAIL, was named the 2011 winner of the IEEE Emanuel R. Piore Award. She was cited by IEEE for “pioneering work in laying the foundations of modern cryptography and its relation to complexity theory.”

Frans Kaashoek, EECS professor and associate director of CSAIL, won the 2010 ACM-Infosys Foundation Award in the Computing Sciences. The award honors a young scientist who has contributed to an innovation “that exemplifies the greatest recent achievements in the computing field.”

Leslie Kolodziejski, EECS professor of electrical engineering and principal investigator in RLE, was elected as a fellow of the Optical Society of America. Kolodziejski was cited for “seminal contributions to the growth of photonic materials by molecular beam epitaxy and the fabrication of novel photonic devices.”

A newly endowed chair, the EECS advanced television and signal processing professorship, was created by EECS professor Jae Lim in honor of his research group. Harry Lee became the inaugural holder of the chair.

Tim Lu was recognized by *Technology Review* magazine in 2010 as one of the world’s top innovators under the age of 35. Lu was one of three representatives of MIT selected from more than 300 nominees by a panel of expert judges and the *Technology Review* editorial staff. In addition, Lu was the second place (bronze) winner at the 27th Army Science Conference in 2010 for his paper (coauthored by James J. Collins from the Howard Hughes Medical Institute at Boston University), “Next-generation Antimicrobial Agents for Combating Antibiotic-resistant Bacteria.” The paper was also awarded Best Paper in the Biomedical Technologies at the conference.

Robert Miller and Jacob White were winners of the 2011 Jamieson Prize for Excellence in Teaching.

Robert Morris was presented the 2010 ACM Mark Weiser Award at the annual Special Interest Group on Operating Systems (SIGOPS) meeting in Vancouver.

Rahul Sarpeshkar was one of three MIT faculty members selected to attend the National Academy of Engineering’s 17th US Frontiers of Engineering symposium, which will be held in September at Google headquarters in Mountain View, CA. Also selected were associate professors Roman Stocker of the Department of Civil and Environmental Engineering (CEE) and John Ochsendorf of CEE and the Department of Architecture. Charles M. Vest, president emeritus at MIT and current president of the National Academy of Engineering, announced the selection of the three MIT faculty members.

Devavrat Shah was the 2010 recipient of the Applied Probability Society's Erlang Prize, presented at the Institute for Operations Research and the Management Sciences (INFORMS) meeting held in November. The Applied Probability Society of INFORMS bestows this honor every other year on a research scholar within nine years of receiving his or her PhD who has contributed significantly to applied probability.

David Staelin is the recipient of the 2011 John Howard Dellinger Medal from the International Union of Radio Science (URSI). The award will be presented to Professor Staelin in August 2011 at the URSI General Assembly and Scientific Symposium in Istanbul, Turkey. Staelin was cited for "seminal contributions to the passive microwave remote sensing of planetary atmospheres and the development of remote sensing of the atmosphere and environment of the Earth from space."

George Verghese and Patrick Winston were selected as 2011 MacVicar Faculty Fellows.

Fatih Yanik was one of three MIT faculty members to receive a 2010 National Institutes of Health Transformative R01 Award in support of work that is fundamentally risky yet potentially capable of creating or reshaping fundamental areas of biomedical research. Yanik's awarded research, "High-throughput in Vivo Subcellular-resolution Vertebrate Screening Platform," was undertaken to develop technologies that can perform large-scale screens to test drugs for neural regeneration, Alzheimer's, Parkinson's, cancer, and other diseases in living vertebrates.

Several faculty and staff received awards at the annual EECS spring awards ceremony held on May 15.

Konstantinos Daskalakis received the Ruth and Joel Spira Award for Distinguished Teaching.

Polina Golland and Greg Wornell received the Smullen Award for their work in the development of 6.437 Inference and Information and 6.438 Algorithms for Inference.

Leslie Kaelbling was presented the Best Advisor Award by IEEE.

Martin Schmidt received the Freshman Advisor Award.

Vladimir Stojanovic was awarded the Jerome Saltzer Award for outstanding recitation teaching in 6.02 Introduction to EECS II.

Vladimir Stojanovic received the Graduate Student Association Graduate Counselor Award.

Patrick Winston was presented the Best Instructor Award by Eta Kappa Nu.

Dennis Freeman, Jacob White, and James Fujimoto were inducted into the Quarter Century Club. The 50-year class welcomed Robert Fano, Lawrence Frishkopf, Leonard Gould, Paul Gray, Frederick Hennie III, William Peake, Paul Penfield Jr., George Pratt, Campbell Searle, David Staelin, Richard Thornton, Gerald Wilson, David Epstein, Stephanie Seneff, Mildred Dresselhaus, Jack Dennis, and Fernando Corbato.

Student Awards

EECS student Thomas Baran won the 2011 School of Engineering Graduate Student Award for Extraordinary Teaching and Mentoring. Taylor Barton won the 2011 Goodwin Medal.

The following awards were presented to EECS students at the annual spring awards ceremony held on May 15.

Carlton E. Tucker Teaching Award: Syed Raza for 6.005

Harold L. Hazen Teaching Award: John Dong and Reid Kleckner for 6.172

Frederick C. Hennie III Teaching Award: Hongkai Dai and Keun Sup Shim, both for 6.823

Robert A. Fano UROP (Undergraduate Research Opportunities Program) Award: Jacob N. Steinhardt

Morias (1986) and Rosenblum (1986) UROP Award: Paul W. Quimby

Licklider UROP Prize for Research in Human-Computer Interaction: Steven Dickerson

Anna Pogosyants UROP Prize: Paul Christiano

George M. Sprowls CS Thesis Awards:

Benjamin E. Rossman for "Average-Case Complexity of Detecting Cliques"

Benjamin Snyder for "Unsupervised Multilingual Learning"

Jinwoo Shin for "Efficient Distributed Medium Access Algorithm"

David Sontag for "Inference in Graphical Models Using LP Relaxations"

George M. Sprowls CS Thesis Awards Honorable Mentions:

Alexandr Andoni for "Nearest Neighbor Search: the Old, the New, and the Impossible"

Chris Lesniewski-Laas for "Design and Applications of a Secure and Decentralized Distributed Hash Table"

Alexey A. Radul for "Propagation Networks: A Flexible and Expressive Substrate for Computation"

Northern Telecom/BNR Project Award for Best 6.111 Laboratory Project (fall 2010, first prize): team of Jennifer Chan and Michael Stunes for the project "High Striker"

George C. Newton Undergraduate Laboratory Prize: team of Shijie Zheng, Jorge Simosa, and Krishna Settaluri for the project "Vehicle Control Using Video Surveillance"

J. Francis Reintjes Excellence in 6-A Industrial Practice Award:

Anh Nguyen for work done at Microsoft Research Asia, Beijing, China

Xiawa Wang for work done at Bosch, Palo Alto, CA

David A. Chanen Writing Award which is awarded to the student with the best written paper in subject 6.033: Maksim Stepanenko

Morris Joseph Levin Award for Best Master Works Oral Thesis Presentation:

Angela Yen for "Epigenomic and Transcriptome Studies in Human and Model Organisms"

Sungjae Ha for "Malaria-Diagnostic System Based on Electric Impedance Spectroscopy"
Gabriel Tobon for "Spatial Correspondences of Functional Regions in fMRI Group Analysis"
Alexander Soane for "An Apparatus for Frequency Resolved Optical Gating of Attosecond Pulses"

Charles & Jennifer Johnson CS Meng Thesis Prize:
Angela Yen for "Leveraging High-Throughput Datasets for Studies of Gene Regulation"
Adam Belay for "Message Passing in a Factored OS"

David Adler Memorial EE Meng Thesis Prize: Katherine Lin for "Green Optical Network Design: Power Optimization of Wide Area and Metropolitan Area Networks"

William A. Martin Memorial CS SM Thesis Prize:
Nathan Beckmann for "Distributed Naming in a Factored Operating System"
Stephen Shum for "Unsupervised Methods for Speaker Diarization"

Ernst A. Guillemin EE SM Thesis Award:
One first-place and two second-place recipients were selected this year:
First place: Kuang Xu for "On the Power of Centralization in Distributed Processing"
Second place: Kimon Drakopoulos for "Observational Learning with Finite Memory"
Second place: Soheil Feizi for "Network Functional Compression"

Jin-Au Kong Outstanding Doctoral Thesis Prize:
Vivienne Sze for "Parallel Algorithms and Architectures for Low Power Video Decoding"
Vincent Tan for "Large-Deviations Analysis and Applications of Learning Tree-Structured Graphical Models"
Tarek A. El Moselhy for "Field Solver Technologies for Variation-Aware Interconnect Parasitic Extraction"
Hsu-Yi Lee for "Ultrastructure and Nanomechanical Properties of Aggrecan from Native Cartilage and Engineered Tissue"

Jin-Au Kong Outstanding Doctoral Thesis Prize Honorable Mentions:
Lav R. Varshney for "Unreliable and Resource-Constrained Decoding"
Byungsub Kim for "Equalized On-Chip Interconnect: Modeling, Analysis and Design"
Pouya Hashemi for "Gate-All-Around Silicon Nanowire MOSFETs: Top-Down Fabrication and Transport Enhancement Techniques"
Michael D. Vahey for "A Microfluidic Platform for the Genome-Wide Analysis of Electrical Phenotype Physical Theories and Biological Applications"

Srini Devadas
Interim Department Head