

Department of Civil and Environmental Engineering

This has been a very successful year for the Department of Civil and Environmental Engineering (CEE), particularly in terms of faculty research activities, leadership roles, and recognition. Professor Andrew Whittle was appointed the new department head in September 2009. Working with the faculty, he has prepared a strategic plan to strengthen the long-term research agenda in the primary CEE application domains of environment, infrastructure, and transportation/mobility and develop and refine educational programs to meet the grand challenges faced by future civil and environmental engineers.

Two major new research programs have been initiated this year. The Concrete Sustainability Hub (CSH@MIT), a five-year multidisciplinary center, was established with support from concrete and cement industry associations. Research conducted at the center will address the challenge of reducing the environmental impacts associated with the manufacture of concrete (which currently generates 5% of global CO₂ emissions) and lead to more sustainable practices in the use of concrete. Professors Franz-Josef Ulm and associate professor John Ochsendorf (CEE and Architecture) served as the inaugural director and co-director of the CSH, which currently involves 11 faculty members from five departments at MIT. Hamlin Jennings was recruited as an adjunct professor of civil and environmental engineering to serve as executive director for CSH (beginning in July 2010). Professor Jennings was previously a full professor and former head of the Department of Civil and Environmental Engineering at Northwestern University. He is widely recognized as a preeminent researcher and leader in the field of cement chemistry. The CEE faculty are very pleased to welcome Professor Jennings to MIT. His research experience and stature within the industry make him the ideal person to lead this major new initiative.

Professor Amedeo Odoni and professor and associate dean Cynthia Barnhart are the lead principal investigators on a new research program on the future of urban mobility. It is the fourth interdisciplinary research group (IRG) announced under the auspices of the Singapore–MIT Alliance for Research and Technology (SMART) and is funded by the Singapore National Research Foundation. The program involves more than 30 faculty members from five departments, including CEE's professor Moshe Ben-Akiva and former head of CEE, professor Patrick Jaillet. The program aims to develop new models and tools for planning, designing, and operating future transportation systems. It represents the first major program funded through the Transportation@MIT initiative, which is also led by Barnhart.

Seven CEE faculty are engaged in a second SMART-IRG program, the Center for Environmental Sensing and Modeling (inaugurated in September 2008). This program includes professor Elfatih Eltahir, who spent six months in residence in Singapore (spring 2010), and senior research associate Eric Adams, who was based there for three months.

CEE is pleased to welcome two very talented faculty members. Assistant professor Pedro Reis will assume a dual appointment in CEE and the Department of Mechanical

Engineering in July 2010. Reis was recruited in 2009 and has spent the last year completing a three-year appointment as a lecturer in the Department of Mathematics. His principal research interests are in the elasticity of thin plates and shells and the mechanics of interfaces. His EGS (elasticity, geometry, and statistics) laboratory is housed within CEE (Building 1, 3rd floor). Space for his 600-square-foot laboratory was redeveloped during the last academic year and is now fully functional. We also look forward to his involvement in teaching the core CEE sophomore laboratory subject, 1.101 Introduction to Civil and Environmental Engineering Design I, this fall.

Carolina Osorio will join CEE in September 2010 as assistant professor. She was recruited through a School of Engineering faculty search in transportation. Osorio completed her PhD in mathematics at École Polytechnique Fédérale de Lausanne (EPFL) and is currently a postdoctoral research fellow with the EPFL transport and mobility laboratory. Osorio's research interests relate to simulation-based mobility management, with particular focus on tools that can be used to mitigate congestion.

With these new arrivals, CEE will have a complement of eight junior faculty members this fall. Among this group, Ruben Juanes was promoted to associate professor without tenure.

Two of our senior faculty members, professors Chiang Mei and David Marks, are retiring this summer. Both have worked at MIT for more than 40 years and have played key roles in shaping the evolution of the department (including service as former department heads). We are also in the unusual position of having three of our senior faculty leaving MIT to assume high-level administrative appointments at other universities. Professor Steven Lerman has been appointed provost and executive vice president for academic affairs at the George Washington University, professor Rafael Bras as provost at the Georgia Institute of Technology, and professor Fred Moavenzadeh as president of the Masdar Institute of Science and Technology in Abu Dhabi.

In addition to these staffing changes, other CEE faculty members continue to play leadership roles at MIT. Professor Barnhart serves as associate dean for academic affairs with the School of Engineering and director of the Transportation@MIT Initiative. Professor Dara Entekhabi serves as chair of the Environmental Research Council, a committee charged with developing a research agenda for a broad, Institute-wide MIT Environmental Initiative to be launched in AY2011.

Educational Activities

Undergraduate Programs

Twenty-one freshmen selected CEE as their home department for 2011, bringing the class size back down to the level of the mid-2000s. In both 2009 and 2010, CEE had 40 students in the sophomore classes. During the 2009–2010 academic year, CEE had an enrollment of 115 undergraduates: 21 CEE general (Course 1A), 53 civil engineering (Course 1C), 40 environmental engineering science (Course 1E), and one Cambridge-MIT Exchange student. In spring 2010, CEE awarded 30 SB degrees. Nine of them were in 1E, 14 were in 1C, and seven were in 1A.

We have now had three classes complete the integrated CEE undergraduate curriculum. As sophomores, the 1A, 1E, and 1C majors take the common core classes together, including the sophomore engineering design lab. Junior year they split into their respective majors, and senior year they come together again for the capstone course in civil and environmental engineering design.

Undergraduate Research and Practical Applications

Coursework

The spring semester of the engineering design class 1.102 Introduction to Civil and Environmental Engineering Design II again followed a distributed energy-harvesting theme this year. The sophomores built their own generators as well as energy machines of their own design that converted kinetic energy to electrical energy and powered low-output devices.

CEE seniors once again capped their undergraduate engineering education by designing portable bridges in subject 1.013 Senior Civil and Environmental Engineering Design, led by professor Herbert Einstein. They assembled and load-tested the bridges in a lunchtime exhibition on the Student Center plaza.

Steel Bridge Team

The regionally top-ranked MIT steel bridge team placed sixth at the national competition of the American Society of Civil Engineers Steel Bridge Competition, held at Purdue University May 29. This is an extraordinary feat for a young team of undergraduates in its fourth year competing against much larger and more experienced teams from state schools, which often have significant involvement of graduate students and faculty members. MIT ranked first among private universities.

The team chose a unique design concept, a truss structure that had far fewer pieces and less depth (the measurement of the height of the horizontal “beam” of the bridge) than the truss structure traditionally seen at the competition. This design emphasized tight connections to optimize stiffness and less material to optimize efficiency. This year’s success at the national competition was due to very high scores in those two categories.

At the regional competition at Tufts University in April, the team placed first in five categories: overall, efficiency, stiffness, aesthetics, and paper competition. Freshman Scott Landers, who will be majoring in environmental engineering science, represented the team in the paper competition.

Team members earn four credit units for their work by enrolling in a steel bridge design competition (1.055 for undergraduates and 1.58 for graduate students) during the fall, Independent Activities Period, and spring terms. Professor Jerome Connor teaches the course.

Junior Emily Moberg blogged for the team: <http://cee.mit.edu/blogs/steelbridge2010/>.

Terrascope

In spring 2010, associate professor Charles Harvey, associate director for the Terrascope freshman program, and lecturer Ari Epstein made significant changes to the CEE Terrascope subject 1.016 Communicating Complex Environmental Issues: Building Solutions and Communicating Ideas. The aim was to offer freshmen the opportunity to participate directly in faculty-guided research while working more rigorously on solutions to the problems they had studied in the fall Terrascope class, 12.000 Solving Complex Problems. In 12.000, students study in depth a complex problem related to the environment, develop possible solutions, and build a website describing the work. Subject 1.016 formerly focused on communicating an aspect of the problem through student team-designed and team-built museum exhibits targeted for an audience with a high school level of science knowledge. In the new class format, students work in teams with faculty members on research projects related to an aspect of the problem studied in 12.000; display their research using posters, demonstrations, and prototypes or other appropriate means at a bazaar of ideas held in Lobby 13; and receive feedback from a panel of experts. This new format gives students a true engineering design/build experience while working on research projects overseen by faculty and continues to provide the important element of learning to communicate technical information clearly to an MIT audience.

The focus of Terrascope in 2009–2010 was carbon sequestration. Harvey and Epstein jointly taught the pilot class, which had 18 students who were presented with 10 research projects and asked to submit their top three choices. The students were then placed on teams, each with an undergraduate teaching fellow, and assigned to one of the five most popular projects, as follows:

- A working scale model of a system that would inject CO₂ into underground aquifers, sequestering it there rather than in the atmosphere, with Professor Harvey and assistant professor Alison Malcolm of Earth, Atmospheric and Planetary Sciences.
- Alternatives to traditional concrete building materials, created in a way that would reduce the amount of CO₂ normally released into the atmosphere during construction, with Professor Ochsendorf.
- A prototype of an electromechanical energy-storage system to be located near offshore wind farms, making it possible to have clean energy onshore when it is needed, and not just when the wind is blowing, with professor Alexander Slocum of Mechanical Engineering.
- A multiplayer game in which each country tries to maximize its own economic growth but must work together with all the other countries to prevent the catastrophes that could be brought on by high carbon emissions, with lecturer Philip Tan of the Singapore–MIT Gambit Game Lab.
- A prototype of an interactive, participatory museum exhibit, designed to inform the general public about climate change and ways to prevent it, with Ari Epstein.

The course met twice weekly, with a Friday recitation. By all accounts, the new format was very successful. Student evaluations of the class were high and the expert judges were impressed with the sophistication of the final projects. One judge commented that the students had essentially performed graduate-level work as freshmen.

Summer Internships

The CEE summer internship program continues to strengthen ties with dozens of prominent engineering firms, consulting firms, and public agencies around the world, many of which were founded by department alumni. The internship program helps our sophomores and juniors find professional summer employment working with civil and environmental engineers in the field, lab, or office. The program also produces employment offers for our students after graduation. This year senior lecturers Peter Shanahan and Eric Adams helped approximately 20 CEE students in their job quests.

Graduate Programs

In the course of AY2010, the department awarded 104 graduate degrees: 18 doctorates (including one student in the joint program with the Woods Hole Oceanographic Institute), 28 master of science in transportation (MST) degrees, 23 master of science degrees, 33 master of engineering (MEng) degrees, and two engineer degrees.

While many of our graduate students go on to doctoral studies and careers in academia, most students in two of our programs—MEng and MST—typically accept jobs in industry or government, where they often hold leadership positions by the time they reach the midpoint of their careers.

Our doctoral students are critical to the department's mission to educate intellectual leaders for academia and national research laboratories. Although research is often interdisciplinary, the program curricula are organized around the following areas of study: aquatic sciences, hydrology, environmental fluid mechanics and coastal engineering, information technology, transportation, civil and environmental systems, geotechnical and geoenvironmental engineering, and structures and materials. During AY2010, CEE had 78 PhD/ScD graduate students in the total population of 213 graduate students. Of those students, 18 received a PhD or ScD degree; 15 of them accepted faculty or postdoctoral positions at academic institutions.

As always, the level of funding for doctoral students continues to be a priority, because this support helps the department recruit the most highly qualified applicants. In addition to the students who receive internal fellowships and teaching and research assistantships awarded by the department, 30 of our graduate students were awarded named fellowships from MIT and other organizations, including three Presidential fellowships, two Fulbrights, one Xerox fellowship, one National Science Foundation fellowship, one Environmental Protection Agency fellowship, three fellowships from the Office of the Dean for Graduate Education, and two from the MIT Energy Initiative.

The past few years have seen large increases in the number of postdoctoral associates and fellows in the department. We had 33 last year and are expecting 42 for the academic year ahead. Postdocs enrich the research, educational, and social aspects of the CEE

community through their participation, and at times oversight, of undergraduate and graduate student research and their involvement with graduate student sports teams and other social activities.

Our postdocs and graduate students continue to be engaged in cutting-edge research in a variety of disciplines. Those in the environmental science and engineering fields often perform fieldwork as part of their research. One example is Anthony Carrasquillo, who works with assistant professor Jesse Kroll and postdoctoral associate Eben Cross on problems in atmospheric chemistry. The three participated in June in the CalNex 2010 campaign in Los Angeles, the goal of which is to utilize the specialized techniques of more than 40 atmospheric science groups around the world to compile a comprehensive data set to help understand atmospheric chemical processes that affect human health and climate change. Carrasquillo deployed a novel instrument, the total gas phase organic, to measure the composition of organic compounds in the gas phase, including those not measured by traditional methods. The hope is that these data will provide information about how gas-phase organic compounds evolve into atmospheric aerosols over time.

Student teams in the MEng water quality and engineering track continued the practice of spending January participating in on-site research and fieldwork. Projects included working with the Capes Province Department of Health in the Philippines to complete the first comprehensive drinking water quality testing program in the region; studying the water quality of the Kranji Reservoir and Catchment in Singapore; and helping with development plans for a water filter factory in Ghana. Three of the MEng students blogged about their fieldwork. Their blogs can be found at <http://cee.mit.edu/news/blogs/>.

The MEng program celebrated its 15th year with an alumni reunion in San Francisco in January. The reunion was held in connection with a study tour for structural engineers led by Professor Connor.

Graduate students in our transportation students group participated in several networking and research events the past year. About 80 alumni, faculty, and students attended the Transportation@MIT networking event in November at 33 Restaurant & Lounge in Boston. And in January, dozens of transportation students and faculty members attended the Transportation Research Board's annual meeting in Washington, DC, where many of them presented papers and posters. Doctoral student Travis Dunn blogged about the event: <http://cee.mit.edu/news/blogs/travisdunn/>. Dunn was selected as the 2009 outstanding student of the New England region University Transportation Centers.

The transportation students group also participated in the second COMTO-MIT Speaker Series in collaboration with the New York Council of Minority Transportation Officials. Graduate students Sam Hickey and Caroline Rose Ducas organized the April 19 event, which is an offshoot of the MIT Distinguished Speaker Series in Transportation. The COMTO-MIT Speaker Series began last year when, instead of having New York transportation officials travel to Cambridge, students traveled to New York to interact with transportation leaders and tour some of the major New York transportation centers.

Speakers included the chairman and chief executive officer of the Metropolitan Transit Authority and the executive director of the Port Authority of New York and New Jersey. Tour sites included the New York City Department of Transportation Traffic Management Center, the MTA Rail Control Center and Power Control Center, and the Brooklyn-Battery Tunnel.

Lectures

The department cohosted the annual John R. Freeman Lecture with the Boston Society of Civil Engineers at MIT on April 26 in Wong Auditorium. Steven C. Chapra, professor and holder of the Berger chair in civil and environmental engineering at Tufts University, spoke on “Rubbish, Stink and Death: The Historical Evolution, Present State and Future Direction of Water-Quality Management and Modeling.” The lecture series is named for the MIT alumnus who designed the original Charles River Dam.

Provost Rafael Reif gave the annual Charles L. Miller Lecture on April 29 in the Grier Room B (34-401B). Reif spoke on “Challenges and Opportunities Facing MIT: A View from the Provost’s Office.” The lecture series is named for Miller, who was CEE department head from 1962 to 1969. The lecture is cohosted by CEE and the Engineering Systems Division.

Many CEE faculty participated in the Institute-wide workshop, “Rethinking Water: A Critical Resource.” Professor Harvey presented an overview of the department’s water research in remote sensing, hydrology, modeling, fate and transport, aquatic biology and chemistry, and health and exposure.

Research

The department’s research is both broad and deep and covers a wide variety of focal areas in civil and environmental engineering, with about one book published and many papers appearing in peer-reviewed journals and presented at scientific conferences each year. The department’s monthly research newsletter, *On Balance*, focuses on one paper or book each month to provide a sampling of CEE research. (To read *On Balance*, visit <http://cee.mit.edu/onbalance/>.) The titles of the 10 issues from AY2010 and the researchers’ names follow.

- “Methane Gas Likely Spewing into the Oceans at a Rate Much Faster Than Previously Believed,” Ruben Juanes and recent graduate Antone Jain, September 2009.
- “Small-Scale Thin Film Experiments Can Provide Models for Large-Scale Engineering Applications,” Pedro Reis, October 2009.
- “Carbon in Constructed Ponds Fuels Processes That Mobilize Arsenic in Bangladesh Water,” Charles Harvey and recent graduates Rebecca Neumann and Khandaker Ashfaque, November 2009. Neumann is now a postdoctoral associate at Harvard University.
- “Modeling Wave Power Extraction Devices Will Help Engineers Identify Best Design,” Chiang Mei, December 2009.

- “Fracture Behavior at Microscale Leads to Understanding of Large-Scale Rock Masses,” Herbert Einstein and recent graduate L.N.Y. Wong, who is now on the faculty at Nanyang Technical University, Singapore, January 2010.
- “Revealing Feedbacks Among Vegetation, Flow and Sediment Transport in Channel Morphology,” professor Heidi Nepf, graduate students Jeff Rominger and Lijun Zong, and alumna Anne Lightbody, a researcher at the Saint Anthony Falls Laboratory in Minneapolis, February 2010.
- “New Programming Strategies Allow Numerical Models to Run Faster on a Multi-core Machine,” professor John Williams, postdoctoral associate David Holmes, and Peter Tilke, March 2010.
- “Statistical Physics Techniques Provide Insight into Spreading Patterns of Cellphone Viruses,” assistant professor Marta González with professor Albert-László Barabási, and Pu Wang and César Hidalgo of Northeastern University, April 2010.
- “Geotech Testing Textbook Lays Solid Foundation,” senior lecturer and senior research associate John Germaine and Amy Varney Germaine, May 2010.
- “Collaborating Teams Apply Findings Developed at Macroscale to Materials at Atomistic Scale,” Pedro Reis, associate professor Markus Buehler, and doctoral student Dipanjan Sen with Kostya Novoselov, a fellow at the University of Manchester, Summer 2010.

Faculty and Staff Notes

Professors Barnhart and Whittle were elected to the National Academy of Engineering in February 2010. Barnhart was honored for her professional leadership and for her contributions to optimization and transportation models, algorithms, and applications. Whittle was acknowledged for his development of soil models and numerical analyses that have advanced the design of braced excavations and offshore structures (<http://cee.mit.edu/news/releases/2009/whittle/>).

Professor Ben-Akiva received an honorary doctorate degree from the University of Antwerp, Belgium.

Assistant professor Markus Buehler received a Presidential Early Career Award for Scientists and Engineers, the highest award bestowed by the US government on scientists and engineers in the early stages of their independent research careers. He was nominated by the Department of Defense. Buehler also received the MIT Harold E. Edgerton Faculty Achievement Award, the highest award given by MIT to nontenured faculty members, in recognition of exceptional teaching and research.

Professor Sallie (Penny) Chisholm is recipient of the National Academy of Science’s Alexander Agassiz Medal for her “pioneering studies of the dominant photosynthetic organisms in the sea and for integrating her results into a new understanding of the global ocean” (<http://cee.mit.edu/news/releases/2010/chisholm-agassiz-medal/>).

Professor Connor received an honorary doctorate from the Department of Civil Engineering at the Aristotle University of Thessaloniki, Greece, for his “pioneering mind, scientific contribution, and integrity and honesty [that have made] him a model and an example for the younger generation” (<http://cee.mit.edu/news/releases/2009/connor/>).

ASTM International (formerly the American Society for Testing and Materials) selected John Germaine as professor of the year, in recognition of his contributions to the standards development process and for fostering students’ understanding of those standards. Germaine also was an invited speaker at the 13th George F. Sowers Symposium held at Georgia Institute of Technology, May 11. Germaine spoke on “A Perspective on Geotechnical Laboratory Testing: The Details Matter.” The symposium honors Sowers, a civil engineer and geologist who was on the faculty of the Georgia Institute of Technology for 50 years.

Graduate admissions coordinator Patricia Glidden received an Infinite Mile Award from the School of Engineering for her excellent management of the admissions process. In the nominator’s words, “Patty not only maintains a superior work ethic and attitude, but promotes an equal level of excellence in her colleagues.”

Marta C. González was a member of the organizing committee of the NetSci 2010 International School and Conference on Network Science, held this spring at Northeastern University and MIT. González was also on the scientific committee for NetMob, a related workshop on the analysis of mobile phone networks held at the MIT Media Lab in conjunction with NetSci 2010.

Postdoctoral fellow Kurt House was named to *Technology Review’s* TR 35 2009, a list of 35 young innovators under age 35. House was selected for his work with Professor Harvey on ways to capture and safely store CO₂ emissions. House also testified April 20 before the US Senate Committee on Energy and Natural Resources on proposed carbon capture and sequestration legislation.

Ruben Juanes received a Department of Energy Early Career Research Program grant, a new program that supports exceptional researchers. Juanes’s work on the project, “Nonequilibrium Physics and Phase-Field Modeling of Multiphase Flow in Porous Media,” will be funded by the Office of Basic Energy Sciences.

Jesse Kroll, Eben Cross, and Anthony Carrasquillo participated in the CalNex 2010 campaign in Los Angeles. The campaign has engaged more than 40 atmospheric science groups to compile a comprehensive data set that will improve understanding of the atmospheric chemical processes that affect human health and global climate change.

Professor Lerman received MIT’s Gordon Y Billard Award this year. Lerman was also named provost and executive vice president for academic affairs at George Washington University, effective July 2010.

A special symposium honoring professor Chiang C. Mei was held last June during the International Conference on Ocean, Offshore and Arctic Engineering in Honolulu, HI.

The C.C. Mei Symposium on Wave Mechanics and Hydrodynamics included 10 sessions and more than 50 papers celebrating Mei's extraordinary accomplishments over the last 45 years. A second symposium, the 24th International Workshop on Water Waves and Floating Bodies, held in St. Petersburg, Russia, was also dedicated to Mei. Conference organizers said he is "one of the most outstanding researchers and educators in fluid mechanics, with applications to civil, environmental and coastal engineering" (<http://cee.mit.edu/news/releases/2009/mei/>).

Three project teams in senior lecturer Susan Murcott's D-Lab class (jointly taught with professor Alice Amsden), "Disseminating Innovations for the Common Good," won prizes at the MIT IDEAS Competition May 3: the Grease Project; My City, My Future; and PieceMeal Vendors.

Senior lecturer Frederick Salvucci received the Boston Preservation Alliance's first Living Icons Award. He and former governor Michael Dukakis were honored for "their vision in conceiving Boston's Central Artery Project and fortitude in making it a reality."

Professor David Simchi-Levi and co-author won the Institute for Operations Research and the Management Sciences (INFORMS) 2009 Revenue Management and Pricing Section Prize for three papers about coordinating inventory and pricing strategies in the supply chain.

Assistant professor Roman Stocker is recipient of the 2010 Lindeman Award from the American Society of Limnology and Oceanography for his work on bacteria-phytoplankton interactions at small scales. The award—named in honor of Raymond L. Lindeman whose work laid the foundation for research on the flow of energy in plant and animal communities—recognizes an outstanding paper written by an aquatic scientist age 35 or under. Stocker and co-authors wrote, "Rapid Chemotactic Response Enables Marine Bacteria to Exploit Microscale Nutrient Patches."

Professor Joseph M. Sussman gave the 2009 Thomas D. Larson Transportation Lecture at Penn State on the urgent need to address the nation's essential transportation systems. He also was reappointed chair of the US Department of Transportation's Intelligent Transportation System's Program Advisory Committee, a congressionally mandated advisory body.

The MIT Sea Grant College Program selected assistant professor Janelle Thompson as recipient of the 2010 Doherty professorship in ocean utilization.

Professor emeritus Robert V. Whitman won the Earthquake Engineering Research Institute's (EERI) 2010 George W. Housner Medal, the highest honor awarded by EERI, for his 30-plus years of teaching and leadership in the earthquake engineering field, including his contributions to "improved seismic building codes, better understanding of complex soil behavior during earthquakes, and analytical and design methods used worldwide. His technical and policy contributions lie at the foundation of much that is now the state of knowledge and state of practice in risk assessment and mitigation."

In March, John Williams gave a series of talks in India on the need for smart electrical grids, as part of MIT's professional education program collaboration with Accenture. Williams gave presentations at Accenture Bangalore, Accenture Mumbai, and the K.J. Somaiya University Mumbai.

Professor Nigel Wilson and Frederick Salvucci are collaborators in the \$3.5 million, five-year grant from the Volvo Research and Education Foundation to establish a Center of Excellence on Bus Rapid Transit. The project is funded by a consortium involving MIT Portugal Program Transportation Systems and the Instituto Superior Técnico, Lisbon.

Student Awards and Notes

Graduate student Rory Clune received the Marvin Goody Award for his thesis proposal, "The Immersed Environment Approach to User-Controlled and Algorithmically Driven Explorative Structural Design."

Senior Naomi Stein was one of two MIT students to receive the 2010 AMITA (Association of MIT Alumnae) Senior Academic Award.

Senior Polina Bakhtiarov received an Albert G. Hill Prize.

One of three Laya and Jerome B. Wiesner Awards went to senior Srinivasan Balaji Mani for his musical talent.

Junior Aissata Nutzel was awarded the Ronald E. McNair Scholarship Award.

Senior Danny Perez received the Louis Sudler Prize in the Arts for his work in theater arts.

Three CEE seniors were among 80 MIT students elected to the Phi Beta Kappa Society: Kelcie Abraham, Nicholas Murlo, and Naomi Stein.

Thirteen students were welcomed into the civil and environmental engineering honor society, Chi Epsilon: seniors Sam Fox, Brooke Jarrett, Shammi Quddus, Julia Roberts, and Adam Talsma, and juniors Carolyn Crull, Edna Ezzell, Fatima Hussain, Alex Jordan, Emily Moberg, Khalea Robinson, R.N. Tharu, and Kate Turner.

CEE doctoral student Rouzbeh Shasavari and Sloan School of Management MBA candidate Natanel Barookhian won the MIT \$100K Business Plan competition with their startup plan for C-Crete Technologies.

After walking away from the regional competition with first place in five categories, the regionally top-ranked MIT steel bridge team placed sixth at the national competition at Purdue University May 29. MIT ranked first among private universities.

Juniors Connie Lu and Khalea Robinson were MIT Burchard scholars.

Three CEE graduate students—Zenzile Brooks, Kari Hernandez, and Jessica Molly Patrick—were named Graduate Women of Excellence by the Office of the Dean for Graduate Education.

Sophomore Tiffany Cheng won the Writing and Humanistic Studies Prize for Engineering Writing.

Travis Dunn, who completed his PhD in transportation this past spring, was selected as the 2009 outstanding student of the New England region UTC. Dunn also received a Fulbright scholarship to live in Mexico next year to study advanced transportation technologies for mobility, the environment, and economic development.

Sevara Melibaeva, an MST student from Uzbekistan, was awarded a position in the World Bank's prestigious Young Professionals Program.

Graduate students Mike Szulczewski and Birendra Jha received Outstanding Student Paper Awards for the work they presented at the fall meeting of the American Geophysical Union.

A team including two CEE seniors—Sara Barnowski and Samantha Fox—won a prize in the MIT IDEAS Competition for a project to improve the livelihood of collectors of waste vegetable oil in Brazil.

CEE junior Aaron Thom, co-president of Sustainability@MIT, represented MIT at a workshop convened as a side event for the 2009 United Nations Climate Change Conference in Copenhagen.

CEE students received grants and fellowships from various funders to carry out projects around the world. During summer 2009, sophomore Rebecca Heywood went to Uganda to work on an Engineers Without Borders project. Samantha Fox was in La Vaquita, Mexico, during January working as a member of a Poverty Action Project team. Adam Talsma and Brooke Jarrett went to Peru in summer 2009 to host a workshop and make a documentary video about communication between post-earthquake communities and the nongovernmental organizations working on reconstruction. The two will go back to Peru in summer 2010 to continue that work and spend a month in Ecuador designing ecotourism possibilities. Talsma also has a grant to spend at least one year working on poverty alleviation in the urban slums of India.

Graduate student Samantha O'Keefe worked with senior research engineer Howard Herzog of the MIT Energy Initiative to conduct a survey to learn about the public's attitudes toward climate change, energy, and the environment.

Doctoral student Rebecca Gianotti won the paper competition of the New York Local Association of the London-based Institution for Civil Engineers for her paper on the environmental management techniques for control of malaria in Niger. Gianotti was "commended for her ability to engage the audience, communicate the technical content of her paper ... and supplement this during the debate."

Departmental Awards

This year the department held its annual awards dinner on May 14 at the MIT Faculty Club. Department head Andrew Whittle and associate department head Ole Madsen presented graduating seniors with frames for their diplomas (<http://cee.mit.edu/news/releases/2010/awards/>).

Two faculty members were awarded the department's Maseeh Award for excellence in teaching this year: professor Harry Hemond for the graduate subject 1.75 Limnology and Wetland Ecology, and professor Daniele Veneziano for the graduate subject 1.151 Probability and Statistics in Engineering.

The Maseeh Award for excellence as a teaching assistant went to Chelsea Humbyrd for her work as teaching assistant in the undergraduate subject 1.060 Engineering Mechanics II.

Graduate students Pierre Ghisbain and Gajan Sivandran won the Trond Kaalstad (Class of 1957) Graduate Award for leadership and significant contribution to the well-being of the CEE community. Ghisbain, a civil engineering PhD student (earthquake engineering and structural optimization), was a mentor to the steel bridge team. His design work was key to the team's success. Sivandran, an environmental engineering science PhD student (hydrology), has been very active in reenergizing the MIT chapter of Engineers Without Borders and has revitalized the extracurricular activities in CEE, including volunteering for community activities and leading the development of new extramural sports teams and events.

Senior civil engineering major Julia Roberts won the Steinberg Prize for outstanding academic achievement and demonstrable interest in construction management.

Edna Ezzell, a junior majoring in civil engineering, won the Leo (Class of 1924) and Mary Grossman Award for her outstanding academic achievement and strong interest in transportation.

The Tucker-Voss Award went to MEng student Mohamed Abdellaoui Maane for his promise in the field of building construction. Maane's thesis is titled, "Study of a Modified Friction Device for the Control of Civil Structures."

Andrew J. Whittle
Department Head
Edmund K. Turner Professor

More information about the Department of Civil and Environmental Engineering can be found at <http://cee.mit.edu/>.