

# UCLA Civil & Environmental Engineering

HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE | UCLA | FALL 2012/WINTER 2013

## C&EE Update Chair's Message

UCLA Civil & Environmental Engineering has become one of the most selective Civil Engineering undergraduate programs in the nation.

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## Youth Outreach Learning by Teaching

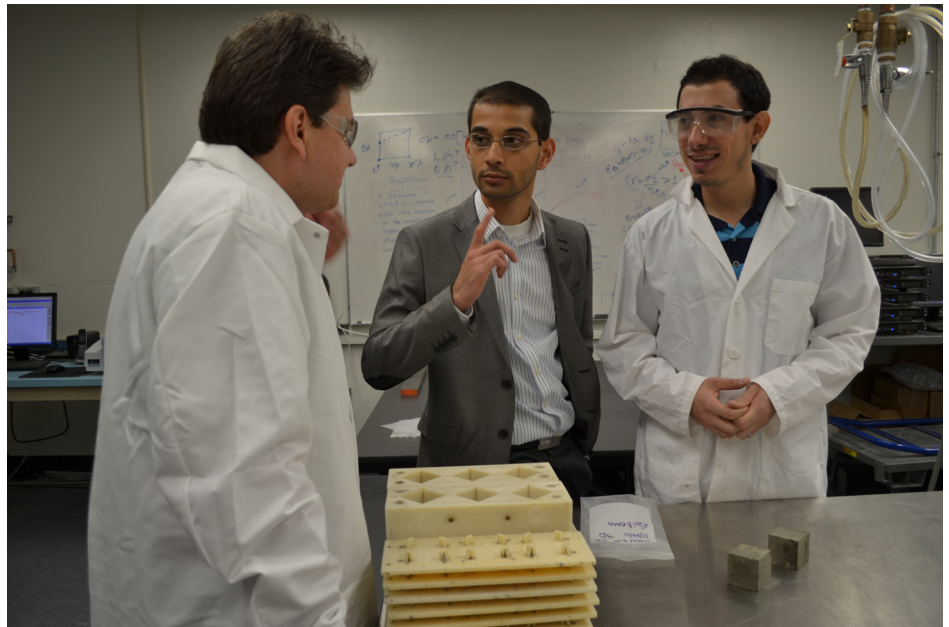
C&EE students reach out to grade K-12 school students in a service learning course, the first of its kind in UCLA's School of Engineering.

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## Student News Career Fair & Awards

UCLA's ASCE student chapter hosts fall and winter career fairs. Members of the EERI student chapter win seismic competition.

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## New Major Field in C&EE UCLA Civil Engineering Materials Group

As environmental pressures increasingly bracket the construction industry, it is becoming increasingly important for civil engineers to develop a better understanding of construction materials in the context of chemistry, structure and properties. Thus, in accordance with the UCLA Civil & Environmental Engineering (C&EE) department's mission statement, "engineering sustainable infrastructure for the future," a new graduate major field has been established in the area of Civil Engineering materials.

Infrastructure in the United States is in a state of substantial disrepair due to factors including in-service loading and environmental attack. In a recently published "report card," the American Society of Civil Engineers rated infrastructure in the United States as a D-minus in five categories including levees, roads and inland waterways. Overall, U.S. infrastructure received a grade of D, as did important structures such as dams and schools. This is a concern, as degraded infrastructure exerts detrimental effects on societal development and our quality of life, and limits the economic growth of our nation.

Continued on Page 3

# Message from the Chair

Prof. Jonathan P. Stewart



Dear friends and colleagues,

In July 2012, I was honored to be appointed as the 8th Chair of the Civil & Environmental Engineering (C&EE) Department at UCLA. I take the reins from Professor J.S. Chen, who led the department through a successful 5-year term in which C&EE experienced substantial growth in its undergraduate and graduate student body, the appointment of two new faculty, and further strengthening of the department's reputation, impact and ranking. Let's take a moment to examine the state of our department.

Our enrollment continues to climb despite increasingly rigorous admissions standards. For the 2012 Freshman class, we received over 1,450 applications for approximately 75 positions. As a school, in recent years we have received more applications for Freshman admission into Engineering than any other public university in the U.S. (2<sup>nd</sup> in California after Stanford). As a result, the student body (among the top in the nation in academic credentials) is a remarkable group of exceptionally bright, ambitious, and hard-working students who are hungry for a top-flight engineering education. Our students find a diverse curriculum that emphasizes both traditional and emerging areas of Civil and Environmental Engineering, while simultaneously developing experimental, communication, and leadership skills.

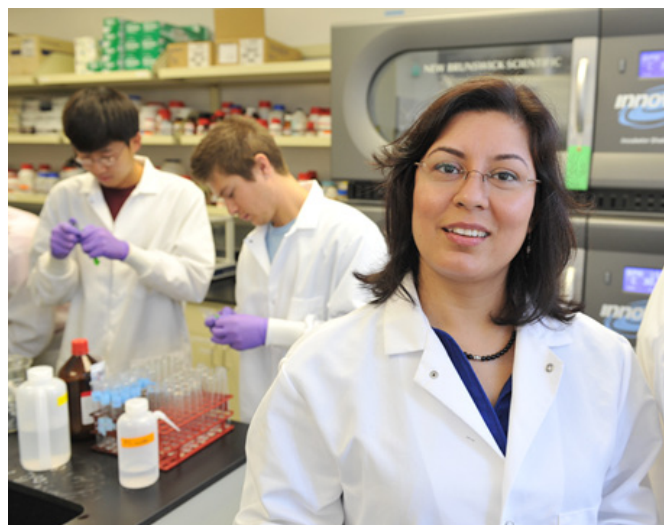
A major strength of our department is a truly outstanding faculty, many in the early stages of their careers, who have become some of the brightest stars in the Civil and Environmental Engineering discipline nationwide. We produce on average 0.75 Ph.D. students per faculty member per year, which is among the highest rates in the world. We are also among the top programs worldwide in research funding, journal paper production, and journal paper citations on a per-faculty basis.

Both of the junior faculty in our department, Shaily Mahendra and Gaurav Sant, have received the highly prestigious CAREER Award from the National Science Foundation in 2012. These awards will fund their research endeavors into scientifically challenging problems of great importance to Civil Engineering infrastructure and the environment. Professor Mahendra is investigating how environmental microbes use specific enzymes to detoxify hazardous chemicals such as 1,4-dioxane, which are currently unregulated but are emerging as contaminants in drinking water supplies. Professor Sant is developing alternatives to traditional portland cement as the binder in concrete, which is of enormous importance to producing a more sustainable infrastructure when it is recognized that cement production accounts for 5 to 8% of anthropogenic global CO<sub>2</sub> emissions. We'll have more to say about this and other exciting research initiatives in future newsletters.

As Chair, I am committed to strengthening C&EE's position as a domestic and international leader in Civil Engineering education, research, and service. Several initiatives in this regard are in the planning stages, and will be described in future issues of the C&EE Department newsletter. As always, the intellectual and financial support of our outstanding students, alumni and industrial partners are essential, and we will work to further improve these relationships in the years to come.

I hope you will take a few moments to peruse this Newsletter for information on new academic programs, faculty research, awards and other recognition received by our students and faculty, and alumni news.

Go Bruins!



*Dr. Shaily Mahendra, Assistant Professor*

(Continued from Page 1)

Infrastructure is most commonly constructed using concrete. Concrete is constituted of portland cement, stone and water. While each of these are inexpensive ingredients, the production of portland cement (the binding phase, or glue in concrete) exerts a considerable  $\text{CO}_2$  footprint. For example, the production of 1 ton of cement results in the emission of 0.83 tons of  $\text{CO}_2$  into the atmosphere. Against the tremendous global scale of cement production, 3.5 billion tons in 2012, it is understandable why cement production accounts for 5-8% of global  $\text{CO}_2$  emissions. This is a concern, as in time cement production (and  $\text{CO}_2$  emissions) are only expected to increase.

UCLA's C&EE department has thus far managed well-established and prominent programs in the general areas of structural mechanics and earthquake engineering, environmental engineering, geotechnical engineering and water resources engineering. The department now applies its expertise to infrastructure.

The new major field in civil engineering materials places special focus on cement and concrete, bridges thematic areas within Civil Engineering, and places special emphasis on training civil engineers who can establish and correlate critical links between the constitution, synthesis and properties of cement-based materials. Students enrolled in this major field undertake coursework in an interdisciplinary cluster encompassing the Departments of Civil & Environmental Engineering, Chemical & Biomolecular Engineering, Materials Science Engineering, Mechanical and Aerospace Engineering, the UCLA-Getty Conservation Program and the Department of Chemistry & Biochemistry. The cluster approach was chosen to expose C&EE students to thought models in other fields wherein aspects of materials design and chemistry are approached with an emphasis on efficiency and performance metrics, rather than cost, as is common in Civil Engineering. This approach allows for an unconstrained view towards materials design, and permits students to engage in non-traditional inquiry towards the development of efficient construction materials - a critical need of the hour in Civil Engineering.

*Dr. Gaurav Sant,  
Assistant Professor and  
Rice Endowed Chair  
in Materials Science*

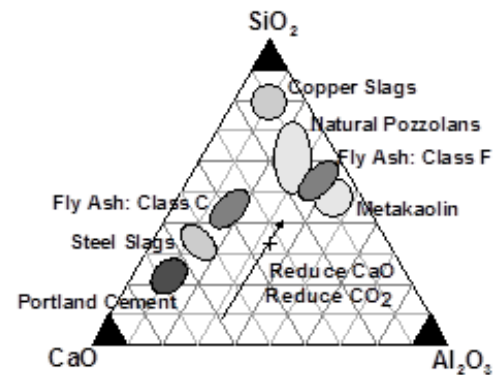
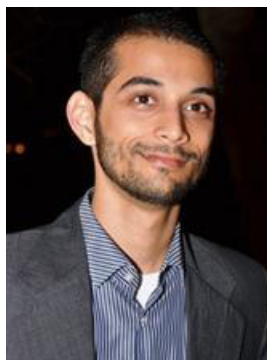


Figure 1: A phase diagram showing various materials used to constitute cementitious (cement-based) construction binders. The further away from the “CaO corner,” the lower the carbon footprint associated with a given material.

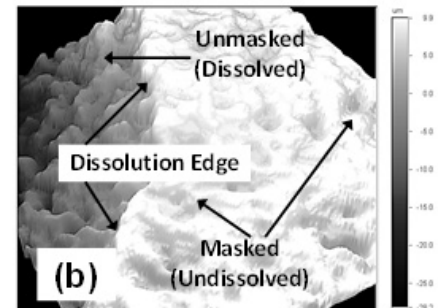


Figure 2: Light microscopy methods are being used to precisely understand how cement dissolves; a key task to produce newer, more efficient cement formulations.

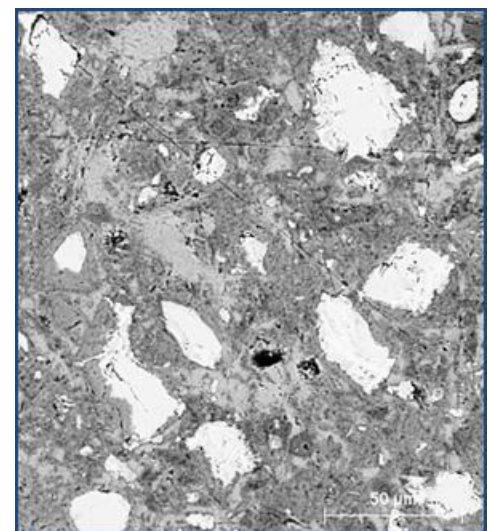


Figure 3: A cement-based microstructure, as seen when viewed under a scanning electron microscope (SEM). The white particles show under-utilized cement grains.



# Collaborative Research for UCLA & K-12 Students

## Climate Change, Water Quality and Ecosystem Functioning: A Service-Learning Course



*Elementary school students cook s'mores in hand-made solar ovens.*

Last winter Prof. Jennifer Jay taught for the first time an innovative service learning course titled “Climate Change, Water Quality and Ecosystem Functioning: A Service-Learning Course.” This five-unit course involved academically rigorous learning at UCLA on environmental science related to climate change and its impacts, as well as a substantial commitment of time devoted to working with K-12 students, including two field trips and four classroom visits. This course also offered general education (GE) credit, and was the first service-learning course taught in UCLA’s School of Engineering.

During classroom visits, UCLA students used hands-on conceptual models to demonstrate scientific concepts. For example, K-12 students made solar ovens out of pizza boxes, aluminum foil, plastic wrap and colored paper, and then cooked s’mores in the ovens. Students could see the trapping of heat by the plastic wrap and compared it to what is happening on Earth as the concentration of greenhouse gases increases in the atmosphere. The university students emphasized how the experiment demonstrated the principals of reflectivity (the tinfoil used to direct the sun) and increased absorption by darker colors (as in the colored paper lining the ovens), both of which are important in the science of climate change. Specifically, the students learned that sea ice (lighter in color than the surrounding ocean water) plays an important role in reflecting some of the sun’s rays.

The highlight of the interaction was the collaborative research projects between UCLA and K-12 students on grade-appropriate topics related to the impacts of climate change on water resources and ecosystem functioning. Each small group of second graders chose a favorite animal and researched the impacts of climate change on the habitat of the animal. Middle school students used weather data available online to research climate trends in a city of choice. High school students analyzed California snow pack data, provided by Professor Steve Margulis, to observe trends that could impact the freshwater supply in the state.

The class culminated in “UCLA Day,” wherein all three grade levels, 86 students in all, were invited to UCLA. The day was divided into three parts: 1) Panel on college life, at which middle and high school students were free to ask questions about pathways to college; 2) Campus tours, tailored to the students’ interests; and 3) Poster session, at which all K-12 students were able to present their findings to UCLA faculty and students. Professor Jay will be offering the class again this year, and is currently writing a collaborative proposal with Professor Steven Margulis and Professor Tom Harmon of UC Merced to scale up this endeavor.

## MADE IN 1983

### C&EE Department Celebrates 30th Anniversary of its Formation

When UCLA’s C&EE department was formed, Michael Jackson’s “Billie Jean” was at the top of the charts, *Star Wars: Return of the Jedi* was the top-grossing film, and Steve Jobs predicted that people would eventually use “portable computers with radio links” that would enable us to walk around and retrieve messages. You may use such a device to contact Brad Vartan at [bvartan@support.ucla.edu](mailto:bvartan@support.ucla.edu) regarding the C&EE 30th Anniversary Banquet scheduled for September 14, 2013 at the UCLA Faculty Center.

## Future Engineers Learn About Earthquake Engineering in nees@UCLA Summer Internship Program

The George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) Summer Intern Program hosted six students in Summer 2012. Three of the students came from the NEES Research Experience for Undergraduates (REU) Program, and three were high school summer interns from the UCLA Henry Samueli School of Engineering and Applied Science High School Summer Research Program (HSSRP). Both the HSSRP and NEES REU Program aim to increase student awareness and interest in the many fields of Engineering.

The students collaborated in teams on leading-edge NEES earthquake engineering experiments. Guided by nees@UCLA mentors Professor John Wallace, Research Engineer Bob Nigbor and Research Associate Alberto Salamanca and their graduate students, the interns gained practical, hands-on experience with instrumentation, specimen construction, testing, data analysis and visualization.

After 10 weeks of hands-on research experience, our students emerged from the program with an understanding of how to conduct independent research and how to participate effectively as a member of a research team, while building connections with mentors and a national network of interns.

Exposure to the latest methodologies in earthquake studies and the chance to work with established researchers gave them an awareness of the diversity in earthquake engineering research, and they gained the information to decide whether a career in research is right for them.



*nees@UCLA summer interns inspect a concrete specimen.*

## Peers Honor Professor Michael K. Stenstrom

Professor Michael K. Stenstrom, Ph.D., P.E., BCEE has been awarded the 2012 Frederick George Pohland Medal from the Association of Environmental Engineering and Science (AEESP) and the American Academy of Environmental Engineers (AAEE). The two groups established the Pohland award to recognize “outstanding, sustained efforts to bridge environmental engineering research, education, and practice.” The 2012 award was presented at the 85th annual Water Environment Federation Technical Exhibition and Conference in New Orleans.

This year Professor Stenstrom was also elected Fellow of the Water Environment Federation, a network of engineers and water quality professionals from 76 Member Associations in 30 countries. The WEF Fellows Program recognizes the professional achievement, stature and contributions of WEF members to the preservation and enhancement of the global water environment in the practice areas served by WEF, which include Design, Education, Operations, Regulation, Research and Utility Management.

Stenstrom’s research interests center around process development for water and wastewater treatment systems, including mathematical modeling and optimization. He currently serves as Editor in Chief of *Water Environment Research*, a peer-reviewed journal that publishes research papers and critical reviews on original, fundamental and applied research in all scientific and technical areas related to water quality, pollution control and water management.

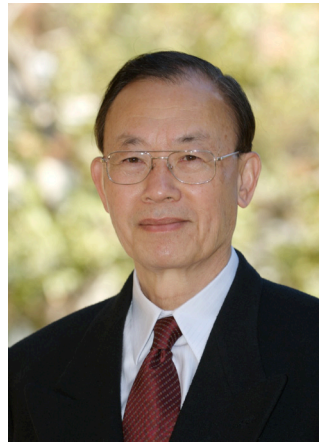


## Lifetime Achievement

### Professor Yeh Recognized by EWRI

Professor William W-G. Yeh, Ph.D., NAE, Hon.M.ASCE has been awarded the Environmental & Water Resources Institute Lifetime Achievement Award. The EWRI is a civil engineering specialty institute of the American Society of Civil Engineers (ASCE). EWRI services are designed to complement ASCE's traditional civil engineering base and to attract new categories of members who seek to enhance their professional and technical development.

Established in 2001, the EWRI Lifetime Achievement award is presented to ASCE members who are judged to have "advanced the profession, exhibited technical competence, and significantly contributed to public service, research, or practice in the environmental and water resources profession."



*Prof. William W-G Yeh*



*Prof. J.S. Chen*

### New EMI Governor & IACM Award Winner

## Professor J.S. Chen

The ASCE Engineering Mechanics Institute recently announced that Chancellor's Professor Jiun-Shyan (J.S.) Chen of UCLA's Civil & Environmental Engineering Department was elected to the position of EMI Governor for a three-year term starting on October 1, 2012. The EMI promotes research and application of scientific and mathematical principles to address a broad spectrum of existing and emerging engineering problems. The Board of Governors is responsible for defining the strategic directions of the Institute, overseeing its operation, and promoting its growth and development in order to meet the needs of the engineering mechanics community.

Professor Chen is also one of two recipients of the Computational Mechanics Award given biannually by the International Association for Computational Mechanics. The IACM was founded to promote advances in computational mechanics by an international group of scholars and practitioners of this modern discipline. It has 27 affiliated organizations representing 35 countries. Professor Chen was recognized for his seminal contribution in nonlinear finite element and meshfree methods, Arbitrary Lagrangian Eulerian finite element method for large deformation and contact mechanics, multiscale materials modeling, and the stabilized Galerkin and collocation meshfree methods. The award was given during the World Congress on Computational Mechanics held in Sao Paulo, Brazil, July 8-13, 2012.

## University-wide Honor

### Stewart Receives Distinguished Teaching Award

Every year the UCLA Academic Senate honors six of its members with the Distinguished Teaching Award. The six selected faculty members are extraordinarily dedicated. They serve on multiple committees and national organizations, receive an average score of eight or higher (out of nine) on student evaluations, and develop cutting-edge curricula. Honorees must also demonstrate a scholarly approach to teaching, e.g., the use of innovative teaching methods in the classroom.

According to the Academic Senate, "By recognizing teachers for their achievements, the award gives UCLA an opportunity to demonstrate to the community, alumni, students, parents, donors and others what makes UCLA a beacon of excellence in higher education." Professor Jonathan Stewart of the Civil & Environmental Engineering Department received the 2012 award for Distinction in Teaching at the Graduate Level. After receiving the award on November 1st at the Andrea L. Rich Night to Honor Teaching, Professor Stewart remarked that he felt privileged to work with the high-caliber students that UCLA attracts.

## Visiting Delegation

On September 18th a group from Darmstadt, Germany came to Boelter Hall to discuss sustainable cities. They met with Professors Eric Hoek and Shaily Mahendra of the C&EE Department, Professors Mark Gold and Stephane Pincetl of the Institute of the Environment and Sustainability (IOE), and Dr. Harrison Higgins, Associate Director of CityLAB.



The IOE is an interdisciplinary group seeking solutions for problems including climate change, air and water quality, biodiversity and conservation, energy, coastal and water resources, urban sustainability, corporate sustainability and environmental economics. CityLAB is UCLA's urban design center charged with expanding the possibilities for our cities to grow more livable, sustainable, and beautiful.

## UCLA ASCE Student Chapter Floats Concrete Canoe

### Bruins Place 3rd in Annual Intercollegiate Competition

From April 4th - 6th, 71 members of the UCLAASCE chapter participated in the Pacific Southwest Regional Student Conference, hosted this year by the University of Southern California, Loyola Marymount University and Cal Baptist University. On April 4th, events were held on the USC campus and included Concrete Canoe Aesthetics, the Environmental Competition, Recycled Mini Golf, the Quiz Bowl, and a basketball tournament. On April 5th, the competitors headed to Santa Fe Dam for Concrete Canoe races, the Surveying Competition, Impromptu Event, Kan Jam contest and a volleyball tournament. On August 6th at USC, the conference ended with the

Steel Bridge Competition, Concrete Bowling, Concrete Horseshoes, the Geotechnical Competition, and a soccer tournament.

UCLA placed 3rd in the Technical Paper competition, 1st in Quiz Bowl, 3rd in Concrete Canoe and 3rd Overall. The hard work of all the project managers, directors and engineers having paid off, UCLA ASCE looks forward to beginning work for next year's conference!





## ASCE's Student Chapter Hosts Annual Career Fairs

The UCLA student chapter of the American Society of Civil Engineers (ASCE) sponsors a variety of events and activities, including career fairs. This year the group hosted career fairs on November 13th, 2012 and February 5th, 2013. Companies sponsoring the career fairs had the opportunity to recruit young and competitive engineers, host on-campus information sessions, sponsor a student project such as Concrete Canoe or Steel Bridge, and much more.

UCLA ASCE's financial resources are almost entirely derived from independent organizations like engineering companies. Their sponsorship funds the student group's professional, academic and social programming as well as its six major competitive projects. All donations to UCLA ASCE are tax deductible. Visit the UCLA C&EE Department website and click on the Student Groups link to read more about UCLA student chapters and the ASCE Career Fair. Career Fair related inquiries should be directed to the Career Fair Coordinator Ryan Vanderlip at [valderlip.ryan@gmail.com](mailto:valderlip.ryan@gmail.com).

## Undergrads Shake it Up UCLA Students Win Seismic Design Competition

For the second year in a row, the Bruins have won the Earthquake Engineering Research Institute (EERI) Seismic Design Competition. UCLA C&EE students Seema Barua, Yun Tae Cha, Andy Luu and Emily Yagi returned triumphant from the event, held February 12-15, 2013 in Seattle, WA. Each of the 35 competing EERI student chapters was required to submit a cost-effective design for a multi-story commercial office building to be located in Seattle. The structure had to be designed for seismic loading, yet provide as much natural lighting as possible.

The students built a scaled balsa wood model, which was subjected to three ground motions representing earthquakes with different return periods. The response of the model in terms of roof drift and roof acceleration was measured during the shaking, and the results were used to estimate monetary loss. Annual seismic cost was then obtained as the sum of economic loss for each earthquake, divided by its return period. The winning team's building survived the shaking with the highest cost-benefit balance. Points were also awarded for quality architecture and presentation.

## Industrial Affiliates Program

### Forging Partnerships with Industry to Benefit Our Students and Professional Colleagues

UCLA's C&EE Department has made recent improvements to its Industrial Affiliates Program (IAP), which is dedicated to initiating and forging partnerships with industry. The program seeks synergy between the department's educational and research goals and its corporate partners' objectives of student recruitment, increased visibility on the UCLA campus, and transfer of research results to practice.

Members of the program have access to student resumes and are able to disseminate career opportunities to undergraduate and graduate students through on-site interviews, seminars and industry-student dinners. Full membership in the IAP includes complementary registration for Career Fairs hosted by the student chapter of ASCE. The program also offers the opportunity to sponsor research programs, summer internships, or undergraduate and graduate course projects.

IAP welcomes participation in the following membership levels: Bronze for smaller firms (< 20 employees), Silver, Gold and Platinum. Recent events for IAP members have included faculty lectures and service as panelists at corporate conferences for Geosyntec Consultants and KPFF Consulting Engineers. Moreover, many talented students continue to be placed with these valued sponsors.

Information about the program and IAP membership levels is available on the C&EE department website <http://www.cee.ucla.edu/resources/industry/industrial-affiliates-program>. Interested parties may also contact C&EE's IAP faculty liaison Dr. Eric M.V. Hoek at [emvhoek@ucla.edu](mailto:emvhoek@ucla.edu) or UCLA Engineering's Director of Development Brad Vartan at (310) 206-5303 / [bvartan@support.ucla.edu](mailto:bvartan@support.ucla.edu).



## Graduate Student Awards

### Combating Recalcitrant Compounds and Carcinogens

**Peerapong Pornwongthong**, the recipient of a Royal Thai Government Scholarship and a PhD candidate in UCLA's C&EE Department, has won a student paper competition at Battelle's Eighth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Recalcitrant compounds are those resistant to being broken down by chemical processes. They appear as contaminants in water and soils and are typically treated using microbes to help with the process of degrading them into smaller, more manageable compounds. Pornwongthong's paper "Stable Carbon Isotope Fractionation during Biodegradation of 1,4-Dioxane by *Pseudonocardia dioxanivorans* CB1190" describes a novel method of Compound Specific Isotope Analysis (CSIA) for monitoring natural attenuation and bioremediation of 1,4-dioxane, a probable carcinogen and an important emerging contaminant in water supplies. The plaque and \$2,100 award were presented during a ceremony at the Battelle Conference held in Monterey, CA from May 21-24, 2012. Pornwongthong is pictured at right with his faculty advisor Dr. Shaily Mahendra.



**Nancy Tseng** (left), a graduate student in C&EE under the supervision of Dr. Mahendra, was awarded the 2011 Environmental Protection Agency Science to Achieve Results (EPA STAR) Fellowship. Tseng's research project addresses the fate and transformations of perfluoroalkyl compounds (PFCs) in the environment. These compounds are used in fire-fighting foams, non-stick coatings, stain-resistant textiles, insulation and surfactants. They can cause cancer and reproductive and immune system problems in humans, and they bioaccumulate through the food chain. Current methods to remove PFCs are expensive, inefficient, or unsuitable for cleaning up large volumes of polluted water and soil. Tseng's research will explore how naturally occurring bacteria and fungi can break down these compounds to non-toxic forms. Therefore, her project holds the promise of a positive impact on both human and environmental health. The EPA STAR Fellowship will help support Tseng's work for three years. She also recently earned an Honorable Mention from the National Science Foundation Graduate Research Fellowship Program.



# UCLA ENGINEERING

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## Online Masters

The primary purpose of this program is to enable employed engineers and computer scientists to enhance their technical education beyond the Bachelor of Science level, and to enhance their value to the technical organizations in which they are employed.

### DISTINCTIVE FEATURES OF THE PROGRAM

- Each course is fully equivalent to the corresponding on-campus course and taught by the faculty members who teach the on-campus course.
- The online lectures are carefully prepared for the online student.

### AREAS

(CS)  
Computer Science  
Computer Networking

(EE)  
Electrical Engineering  
Integrated Circuits  
Signal Processing &  
Communications

(MSE)  
Materials Science

Advanced Structural  
Materials  
Electronic Materials

(MAE)  
Mechanical Engineering  
Aerospace Engineering  
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(EN)  
Systems Engineering

**Additional information and online applications  
available at: [msol.ucla.edu](http://msol.ucla.edu)**

**UCLA ENGINEERING**  
Henry Samueli School of  
Engineering and Applied Science  
*Birthplace of the Internet*





## Alumni Academic Appointments & Ph.D. 2012-2013 Graduates/Candidates

### Sheng-Wei Chi, Ph.D. '09

Assistant Professor  
University of Illinois at Chicago  
Advisor: Jiun-Shyan (JS) Chen

### Joseph T. Coe, Jr., Ph.D. '10

Assistant Professor  
Temple University, Philadelphia, PA  
Advisor: Scott Brandenburg

### Anne Lemnitzer, Ph.D. '09

Assistant Professor  
University of California, Irvine  
Advisors: Jonathan Stewart and John Wallace

### Lisa Star, Ph.D. '11

Assistant Professor  
California State University, Long Beach  
Advisor: Jonathan Stewart

### Dongdong Wang, Ph.D. '03

Professor and Chair  
Xia Ming University, China  
Advisor: Jiun-Shyan (JS) Chen

### Judy Ping Yang, Ph.D. '12

Assistant Professor  
National Chiao Tung University, Taiwan  
Advisor: Jiun-Shyan (JS) Chen

### Eric Yee, Ph.D. '11

Assistant Professor  
KEPCO International Nuclear Graduate School  
Ulsan, South Korea  
Advisor: Jonathan Stewart

### Keith Musselman, Ph.D., Summer '12

Advisor: Steven Margulis  
*Estimating the Spatial and Temporal Distribution of Snow in Mountainous Terrain*

### Kathryn Beth Mika, Ph.D., Fall '12

Advisor: Jennifer Jay  
*Traditional- and Host-Associated Fecal Indicator Bacterial Patterns in Southern California Watersheds: Field Source Identification Studies and Laboratory Microcosms Investigating Presence and Persistence in Water and Sediments*

### Thien Anh Tran, Ph.D., Fall '12

Advisor: John Wallace  
*Experimental and Analytical Studies of Moderate Aspect Ratio Reinforced Concrete Structural Walls*

### Zeynep Tuna, Ph.D., Fall '12

Advisor: John Wallace  
*Seismic Performance, Modeling and Failure Assessment of Reinforced Concrete Shear Wall Buildings*

### Michael James Givens, Spring '13

Advisor: Jonathan Stewart  
*Dynamic Soil Structure Interaction of Instrumented Buildings and Test Structures*

### Eon Song Lee, Spring '13

Advisor: Michael Stenstrom  
*Passenger Exposures to On-Road Ultrafine Particles and In-Cabin Air Quality Control*

### Emel Seyhan, Spring '13

Advisor: Jonathan Stewart  
*Semi-Empirical Characterization of Ground Motions Including Source, Path and Nonlinear Site Effects*

### Tadeh Zirakian, Spring '13

Advisor: Jian Zhang  
*Seismic Performance and Design of Steel Plate Shear Walls with Low Yield Point Steel Infill Plates*

## Masters Degree Graduates and Candidates

### Summer '12

Gayathri Gopinathan Nair  
Tony Douglas Hancock  
Ben Li  
David Michael Meier  
Melissa Rae Spitzmiller

### Fall '12

Kenny Chau  
Jianquiao Cui  
Peter Ding  
Maham Haghighat  
Brandon Charles Hale  
Audrey Michelle Lee  
Edward Liao  
Tyler Brett Moser  
Julia A. Shiplacoff  
Nancy Shiao-Lynn Tseng

### Spring '13

Carl Ibrahim Abinader  
Raul Alejandro Alvarado  
Elisabeth Baldo  
Ka Yeung Cheung  
Brandon L. Ching  
Seung-Yeung Choi  
Alexander Youngjin Chon  
Calvin Chun-On Chong  
Kenneth Chow  
Paul Stavros Chrysovergis  
Mehmet G. Comoglu  
Gregory James Cubbon  
Sean Stuart Cullenward  
Teodoro Rodriguez Diaz  
Jackson English  
Raul Mihai Gaina  
Edward Gorbis  
Nathan James Griffin

Robert Tyler Hadacek  
Jesse A. Hallums-Diaz  
Raymond Han  
Zachary Dean Helsley  
Jia Jia Huang  
Amir Katoozian  
Leonard Young Kim  
Seung Ko  
Ryan Dean Kristensen  
Brandon Joseph Lanthier  
Charles Le  
Xuesong Leng  
Shiliang Li  
Chen Liu  
Justin David Maas  
Sydney Mirai Mamaradlo  
Artin Megerdichian  
Corey Ryan Negrete  
Mehdi Nejmeddine

Dennis Hoang Nguyen  
Eungjin Park  
Andrew Pollard  
Melvin Principe  
Kavian Refahi  
Anas Rkha Chaham  
Diego Rubalcava-Alvarez  
Steven Eric Sand  
Linling Shen  
Thomas D. Siciliano III  
Michael Sims  
Houjun Tang  
Helen To  
Fang Wen  
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Tan Zou

# UCLA Engineering

## Civil and Environmental Engineering

*Engineering Sustainable Infrastructure for the Future*



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