

UCLA Civil & Environmental Engineering

UCLA HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE | FALL 2015

By the Numbers

1

U.S. News ranking of UCLA's Master of Science in Engineering online program

3

Affiliated NAE faculty members

37

Percent female Ph.D. students

40

Percent of faculty with ASCE Huber Prize, highest among U.S. CEE departments

0.76

Average annual ratio of Ph.D. graduates to full-time faculty members, 2010-2015

26

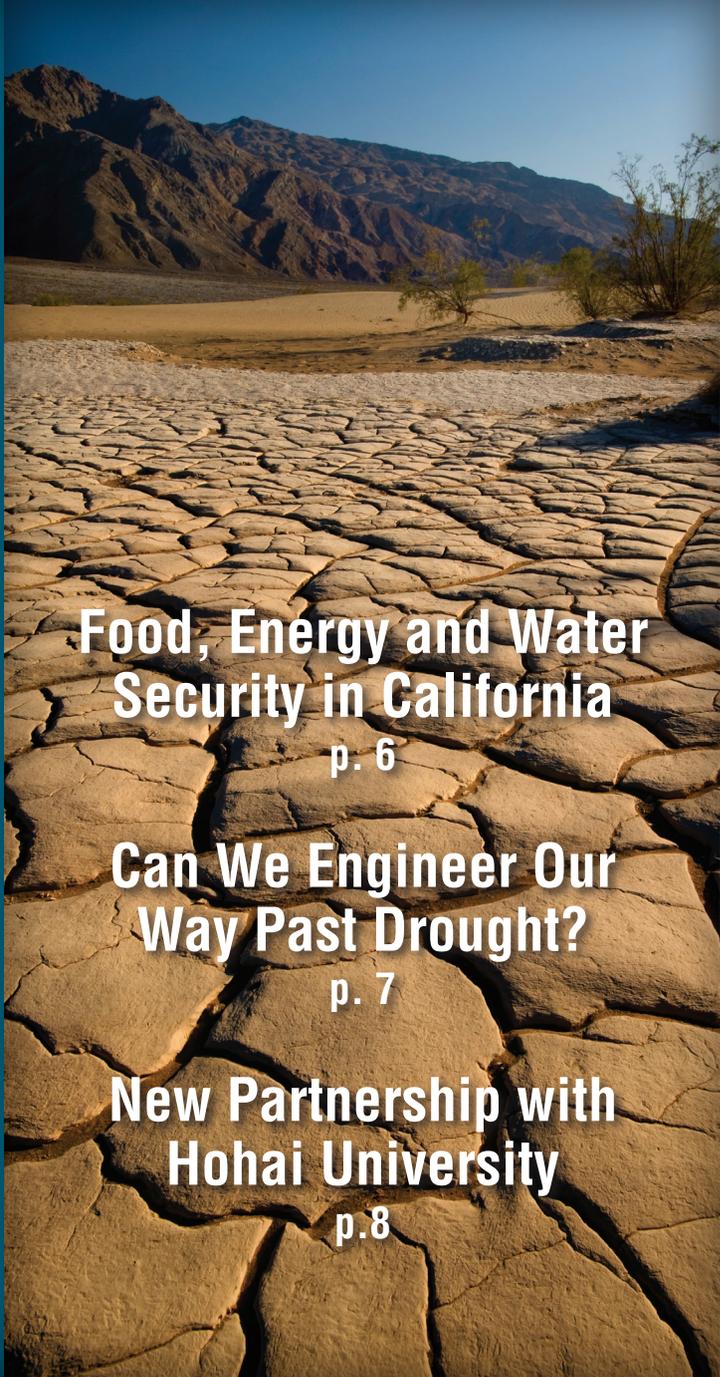
Ph.D. graduates placed in faculty positions, 2010-15

66

Freshman enrollees 2015-16

1,603

Freshman applicants 2015-16



Food, Energy and Water Security in California

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Message from the Chair

— PROFESSOR JONATHAN P. STEWART —



The UCLA Civil & Environmental Engineering (CEE) Department is in a period of rapid growth and diversification that is strengthening our influence within the UCLA community, Los Angeles, California, and the broader nation and world. This newsletter highlights a few of these activities.

Two new senior faculty have joined our department through joint appointments – **J.R. DeShazo**, from the Luskin Center for Innovation, and **Dennis P. Lettenmaier** from the Department of Geography. Professor DeShazo is a leader in electric vehicles, energy and environmental economics, institutional design and regulatory policy. He brings to CEE strong connections with the City of Los Angeles and water and power utilities throughout the region. Professor Lettenmaier is an internationally recognized authority in the areas of hydrologic modeling and prediction, hydrology-climate interactions, and hydrologic change. He is also a member of the National Academy of Engineering, bringing the number of NAE faculty in CEE to three (11%).

One of the great pleasures of being department chair is working with and learning from our world-class faculty and students, who in their research are tackling some of the most vital issues facing our region. For example, the UCLA Grand Challenges (a campus-wide initiative with major participation and leadership from CEE faculty) has set a goal for 100% sustainable water and energy supply in Los Angeles by 2050. We have included a *Research Highlights* section in this newsletter to emphasize research accomplishments impacting real-world projects and infrastructure-related public policy.

Our undergraduate students continue to inspire and

amaze. Some highlights: ASCE at UCLA received the outstanding student chapter award for Southern California and sent a team to the National Concrete Canoe races, where they placed 10th. ASCE and other groups are working with CEE to enhance industry presence on campus, through info sessions, career fairs, guest lectures, field trips and more. Once again, the 2015 pool of applicants to the department was our largest on record, with 1,603 seeking freshman admission and 66 enrolling for Fall 2015. This extraordinary applicant pool mirrors that of UCLA, which for the for more than a decade has been the most applied-to university in the United States.

Among that applicant pool, 38 percent are from traditionally underrepresented minority populations in engineering – the highest such percentage among the seven departments at UCLA Engineering. Moreover, 33 percent of our undergraduate students and 37 percent of our doctoral students are women. In both cases, the figure is approximately 70% above the national average. We continue to strive to attract students of the highest caliber who reflect the populations they will serve as civil and environmental engineers.

Finally, we welcome W. E. O’Neil Construction and Shimmick Construction as new UCLA-CEE Partners for 2015, and Hohai University in China as an academic partner for undergraduate and graduate student education in Hydrology and Water Resources. We anticipate many years of fruitful collaboration with all of our partners.

I appreciate your interest in, and support of, CEE at UCLA. Please read on, and Go Bruins!

Jonathan P. Stewart, Ph.D., P.E.
Professor and Chair

Major Faculty Awards 2014-15

Many faculty members won awards over the last year. Among the most notable:

Associate Professor **Scott Brandenburg** won the 2015 American Society of Civil Engineers (ASCE) Walter L. Huber Civil Engineering Research Prize in recognition of outstanding research contributions.

A paper by Professor **Eric Hoek** and his group, “Preparation and Characterization of Membranes

Formed by Nonsolvent Induced Phase Separation: A Review (2011),” was recognized as one of the 10 most-cited articles in the last five years by Industrial & Engineering Chemistry Research.

Professor **Ertugrul Taciroglu** was named an American Society of Civil Engineers Engineering Mechanics Institute (EMI) Fellow.

Professor **John W. Wallace** was named an American Society of Civil Engineers Fellow.

Professor **William W-G. Yeh**, the Richard G. Newman AECOM Distinguished Professor of Civil Engineering, was named the winner of the 2014 Water Management & Protection Prize by the Council for the Prince Sultan Bin Abdulaziz International Prize for Water.

Shaily Mahendra was promoted to Associate Professor.

Gaurav Sant, Rice Endowed Chair in Materials Science, was promoted to Associate Professor.

NEW FACULTY

J.R. DeShazo, Professor

Professor of Public Policy and Urban Policy J.R. DeShazo joins the CEE faculty through a joint appointment in 2015-16. DeShazo is the director of the Luskin Center for Innovation and is an expert in economics, public finance, and organizational governance. His recent research has focused on local public finance, regulatory reform, climate change policy, and solar energy policy. He advises the Los Angeles City Council, the Los Angeles Department of Water and Power and the Los Angeles Planning Department, among other agencies. He has previously advised the U.S. Environmental Protection Agency, United Nations, World Bank, European Union, McArthur Foundation, Ford Foundation, Nature Conservancy, Department of Interior, National Oceanic and Atmospheric Administration and United States Geological Survey, among others.

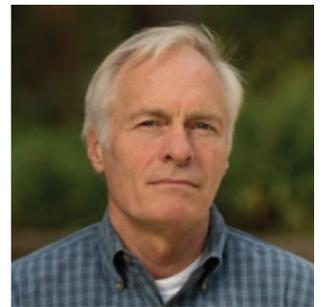
A former Rhodes Scholar, DeShazo earned his Ph.D. in urban planning from Harvard University.



Dennis P. Lettenmaier, Distinguished Professor

Distinguished Professor of Geography Dennis P. Lettenmaier joins the CEE faculty through a joint appointment in 2015-16. He came to UCLA in 2014 from the University of Washington, where he served on the faculty for 40 years. In 2010 he was elected to the National Academy of Engineering, the highest honor for an engineer in the U.S., for “contributions to hydrologic modeling for stream water quality and hydro-climate trends and models for improved water management.” Lettenmaier’s research focus is on modeling and predicting the role of land hydrology in the climate system, and understanding the nature of hydrologic variability and change as they relate to changing climate, land cover and land use.

A winner of the Walter L. Huber Research Prize, Lettenmaier earned his Ph.D. in civil engineering from the University of Washington.



Englekirk Create Chair in Structural Engineering

Alumnus Robert Englekirk MS ’65, PhD ’70 and Natalie Englekirk have committed to a \$500,000 gift, matched by the University of California Office of the President, to create the Englekirk Presidential Endowed Chair in Structural Engineering at UCLA Engineering. The total donation to the

school is \$1 million.

The Englekirk Presidential Chair will support in perpetuity a five-year term chair for a faculty member who specializes in structural and earthquake engineering.

Robert Englekirk is recognized internationally for his innovative and constructible design of reinforced concrete. He is founder and chairman emeritus of the Los Angeles-based firm Englekirk Institutional, which has designed more than \$100 billion worth of construction projects.

Englekirk designs include the Getty Center, the Hollywood and Highland center, the U.S. District Courthouse in San Diego, and the 40-story Paramount residential building in San Francisco – the tallest precast concrete building in California. He has received numerous

awards from the American Concrete Institute and the American Society of Civil Engineers, and in 2013 received the UCLA Civil and Environmental Engineering Department Distinguished Alumnus Award.

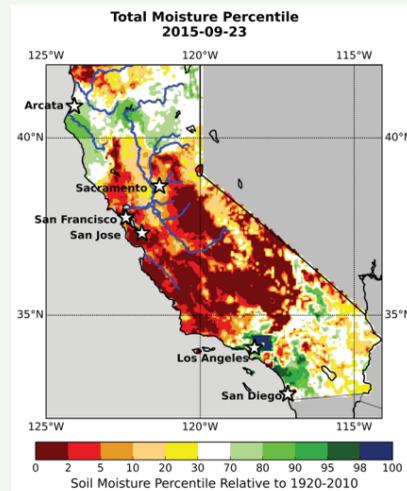
“UCLA gave me the foundation for a long and rewarding engineering career,” he said. “By establishing this chair, Natalie and I want to help ensure that UCLA remains a leader in seismic and structural engineering – fields that are vital to the health, safety and economic prosperity of communities all over the world.”

The gift is being matched dollar-for-dollar by UCOP through the Presidential Endowed Chair program, which is designed to attract and retain distinguished faculty across disciplines at all 10 University of California campuses.



RESEARCH HIGHLIGHTS

Please refer to faculty profiles at <http://www.cee.ucla.edu/> for further information on these and other exciting research projects by CEE@UCLA students and faculty



Tracking California's Drought. The historic drought afflicting California and neighboring states is challenging traditional water management practices. Distinguished Professor **Dennis Lettenmaier's** UCLA Land Surface Hydrology Research Group monitors in real time soil moisture and other conditions that track the evolution of the drought, providing essential information for water resource managers to mitigate the drought's effects on industry and population. The research team's real-time drought maps are accessible at <http://www.hydro.ucla.edu/SurfaceWater-Group/monitors.php>.

Durable Glass. Assistant Professor **Mathieu Bauchy** and collaborators at Université Pierre et Marie Curie in Paris have developed a method to manufacture more durable glass, with applications ranging from smartphones to building windows. Their technique mitigates effects of aging that increase the brittleness of ordinary glass. Results are published in the journal *Nature Communications*.

Seismic Effects on Retaining Walls. Procedures for predicting the effects of earthquakes on retaining walls (e.g., for the basements of buildings) established in the 1920s continue to be used today, despite widespread evidence from case histories, physical modeling studies, and numerical simulations that such procedures are in error. Predictions from these historical procedures have been

found to be conservative (predicting pressures that are too high) and unconservative. Associate Professor **Scott Brandenburg**, Adjunct Professor **George Mylonakis**, and Professor **Jonathan Stewart** have developed a transformative solution for this decades old problem, using principles of soil-structure interaction. Results are published in the *Journal of Geotechnical and Geoenvironmental Engineering*.

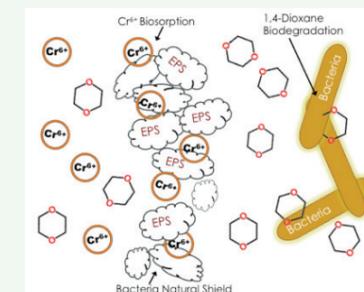
Housing in a Post-Disaster Environment. Following a major earthquake, flood or other disaster, the recovery of affected communities is vitally dependent upon recovery of housing. Absent housing recovery, residents may flee, exacerbating the human and economic toll of the event. To address this problem, Assistant Professor **Henry Burton** is developing a post-disaster housing recovery simulation model and tool that will enable policy makers to examine the benefits and tradeoffs of possible pre- and post-disaster housing interventions. The work is funded by a recent grant from the National Science Foundation.

Water Management to Improve Livelihood and Economy in Sub-Saharan Africa. In Sub-Saharan Africa, an acute energy shortage limits industrial development and provides just one person in five access to electricity. Most energy comes from hydropower, but existing hydropower dams are performing far below their optimal potential. Associate Professor **Mekonnen Gebremichael** and Distinguished Professor **William W-G. Yeh** are partnering with regional power companies and meteorological centers to develop and implement decision support systems that will improve reservoir planning and operation with the goal of doubling the efficiency of hydropower production. These systems will utilize improved seasonal climate forecasts, real-time monitoring of water resources via satellites, and state-of-the-art modelling and optimization tools. The work is supported by a grant from the National Aeronautics and Space Administration.

Resilient Membranes for Water Treatment. Membrane-based filtration is widely used for water purification for a variety of applications. Membranes tend to foul over time

as inorganic particulates, organic matter and/or micro-organisms adhere to the membrane surface. Chemical treatment with chlorine is often applied to restore membrane performance, but may also damage membrane properties such as the mechanical strength. Professor **Eric Hoek**, along with colleagues in the departments of Chemistry and Biochemistry and Materials Science and Engineering, have developed low-fouling, chlorine-resistant membranes to address this pressing need. The results are published in the *Journal of Material Chemistry*.

Migration of Antibiotic-Resistant Bacteria. Bacteria that do not respond to antibiotic interventions are a major public health concern. While the source of such bacteria are well understood (animal feed lots, confined poultry facilities), their migration through air, water, and soil has only recently been investigated. In research conducted by Professor **Jennifer Jay** and Associate Professor **Shaily Mahendra** along with colleagues at the UCLA Institute of the Environment and Sustainability, city-to-city differences were observed in levels of antibiotic-resistance genes observed in drinking water and soils at 27 parks across California. Early findings on factors affecting such migration have been presented in general meetings for the American Society for Microbiology.



Bacteria Detoxify Carcinogen Mixtures. Groundwater aquifers near military and industrial facilities can contain cancer-causing contaminants including hexavalent chromium, chlorinated

solvents, and 1,4-dioxane. Extraction of these chemicals through traditional pump-and-treat operations has proven impractical in many cases. Associate Professor **Shaily Mahendra** and her students have developed a low-cost, green, and efficient water treatment process using a strain of non-pathogenic bacteria to simultaneously remove multiple carcinogens, often by non-competing mechanisms. This research is funded by the Department of Defense's Strategic Environmental Research and Development Program and the National Science Foundation.

Degradation of Concrete in Nuclear Reactors. Nuclear reactor cavity concrete, the primary support structure for nuclear reactor pressure vessels, is exposed to radiation

during normal operation in nuclear power plants. Associate Professor **Gaurav Sant** and Assistant Professor **Mathieu Bauchy** and their research team have proven that neutron radiation degrades the strength and stiffness of concrete, contrary to long-held expectations prior to this research. With funding from the Department of Energy, continuing research seeks to understand and quantify the impact of this degradation on the service life and safe operations of nuclear power plants.

What Actually Happens to a Bridge During an Earthquake? The vital functionality provided by long-span bridges in California is threatened by earthquake risk. Recognizing that reliance on computer models provides an inadequate means by which to assess seismic risk, the California Department of Transportation (Caltrans) and California Geological Survey (CGS) have instrumented bridges to record earthquake shaking for more than 25 years. Professor **Ertugrul Taciroglu** and student **Farid Ghahari** have developed advanced system identification techniques to evaluate the performance of bridge superstructures as well as complex pile-supported foundation systems when these bridges experience earthquake shaking. Their results are featured in a Caltrans Report.



Three-dimensional model of the Eureka-Samoa Bridge.

Can a Modern, Code-Designed Building Collapse in an Earthquake? Experience shows that while rare, the answer unfortunately is yes, as illustrated by a 15-story residential building in Concepcion, Chile, during the 2010 Maule earthquake. Professor **John W. Wallace** and student **Zeynep Tuna Deger** studied the remains of the collapsed structure in the field, examined original structural drawings, and performed analysis to identify the cause for the tragic collapse of this structure, which was designed according to codes similar to those used in the U.S. Results of their investigation are presented in *Earthquake Spectra*.

Burton Wins Grant to Support Exchange with Morgan State



Connecting to his alma mater, Assistant Professor **Henry Burton** has won a University of California Office of the President grant to support undergraduate students from Morgan State University as summer researchers. The grant is part of the UC-HBCU initiative, which seeks to establish sustained research partnerships between UC campuses and Historically Black Colleges and Universities.

The grant calls for two Morgan State Department of Civil Engineering students to perform research as part of Burton's group each summer from 2016 to 2018. During the academic year, they will continue to engage in research with Morgan State Associate Professor Monique Head.

Burton has often visited Morgan State, in Baltimore, Md., since his graduation in 2002 to connect with faculty and talk with students about his professional and academic experiences. As a result Burton, who earned his Ph.D. from Stanford University in 2014, knew he could create a mutually compatible research program for the Morgan State students.

The focus of the research is to enhance seismic resilience in residential communities and gain understanding of the risks and vulnerabilities of wood frame structures, which form 90 percent of residential buildings in Los Angeles.

Burton said his goal is to forge a lasting connection with the Department of Civil Engineering at Morgan State, encouraging more Morgan State students to attend graduate school at UCLA and elsewhere.

Cementing the Future: Grand Challenges in Construction Materials

Civil infrastructure is aging and deteriorating, and remediation will involve huge maintenance and replacement costs. At the same time, population growth and transportation needs are driving the demand for new infrastructure. These pressures must be balanced with the effort to achieve sustainability and reduction of CO₂ emissions associated with construction.

Civil and Environmental Engineering Department faculty members **Mathieu Bauchy**, **Gaurav Sant** and **J.R. DeShazo** are organizing the 1st International Conference on Grand Challenges in Construction Materials, to be held at UCLA on March 17 and 18, 2016.

The conference aims to elucidate current and emerging issues and opportunities with construction materials; explore the role of multi-scale experiments, modeling, and simulations in improving cement and concrete; highlight the problems and solutions construction materials share with glass and soft materials; and examine how a multi-disciplinary approach can revolutionize the production of concrete.

In potential submissions, authors and speakers are expected to identify a "grand challenge" and discuss how the outcomes of their research present a potential solution. For more information, visit www.igcmt.com.



Towards Food, Energy and Water Security in California

December 2-4, 2015, UCLA

Civil and Environmental Engineering Professor **Mekonnen Gebremichael** is organizing a workshop entitled "Towards Food, Energy and Water Security" in California, Dec. 2 through Dec. 4 on the UCLA campus.

Threats to California's food, energy and water systems are critical, intertwined issues. The free event, sponsored by UCLA and the National

Science Foundation, will gather top researchers and policymakers in fields including agriculture, energy, water, climate change, economics and public policy to address the major challenges and potential solutions facing the state.

The workshop will facilitate interdisciplinary partnerships to develop approaches to understanding the Food, Energy, Water (FEW) system,

drawing a holistic picture that takes into consideration the state's unique natural, social and built environments. Organizers seek to highlight the severity of resource scarcity in the region and the need for integrated and coordinated management.

For more information, visit www.few.seas.ucla.edu.

CAN WE ENGINEER OUR WAY OUT OF THE DROUGHT?

Californians are looking for new ways to deal with drought conditions. From at-home metering devices to grand visions for pipelines to suck water from other sources, innovators, entrepreneurs, scientists and politicians have come up with wide-ranging ideas to ensure California doesn't dry up.

What works? What doesn't? What can Californians do to help? Those are some of the questions that CEE Professor **Eric Hoek** discussed with three other panelists at a "Thinking L.A." event in August, co-presented at L.A.'s Grand Central Market by UCLA and Zócalo.

In terms of technology, our ability to recycle water is extremely advanced, said Hoek, who is also the CEO of Water Planet, a manufacturer of water purification and separation products. The problem isn't coming up with technology, he said. It is implementing change and bearing the costs.

"I can take any quality of water and turn it into any other quality of water," he said. "The technology is there. It has been there for 20 years. The question is how much you're willing to pay."

He also said concerns about reusing wastewater are not justified.

"Reusing water should be completely uncontroversial," Hoek said. He noted that the city of Santa Monica is building an underground storage reservoir that will capture rainfall runoff and pass the water through a treatment facility so that it comes out at an extremely high quality. "The reality is it's much safer to intelligently implement technology [that safely recycles water] than to put water back out in the environment and pray that nature magically cleans it up."

—Paul Bisceglia, Zócalo

Wallace Leads NSF Virtual Institute on Structural Walls

In 2014 Professor **John W. Wallace** was awarded a National Science Foundation *Science Across Virtual Institutes* (SAVI) grant to lead an international team in addressing the performance of structural wall systems.

Structural wall systems are solid concrete walls commonly used around stairwells and elevators because they are economical to construct, efficient in separating spaces, and effective in protecting buildings from strong ground shaking.

However, damage that occurred to structural walls in recent earthquakes – including Chile in 2010 and New Zealand in 2011, as well as damage observed in recent laboratory tests in the United States and Japan – suggests that structural engineers have pushed seismic design limits for structural walls beyond a critical boundary.

As a result, considerable research has been initiated on the seismic performance and design of structural walls. The work requires large-scale laboratory testing to validate and calibrate computational models, and to develop and refine seismic design recommendations for building codes.

The SAVI grant is intended to facilitate international collaborations using both in-person meetings and by creating a virtual institute that includes researchers from Chile, Japan, New Zealand and the United States.

The CEE Department has hosted two wall institute workshops, one at UCLA in the fall of 2014 and another at UC Santa Barbara in August 2015. A third meeting, in New Zealand, is in the planning stages.

UCLA Hosts Post-Earthquake Reconnaissance Workshop



Adjunct Prof. Robert Kayen

In April the CEE Department hosted a Geotechnical Extreme Events Reconnaissance (GEER) Association post-earthquake reconnaissance workshop. GEER organizes the response of geoenvironmental professionals to earthquakes and other natural disasters.

Reconnaissance has served an important role in earthquake engineering research and has led to significant advances in understanding geoenvironmental phenomena. Speakers at the workshop focused on methods of standardizing reconnaissance practices among geotechnical professionals, improving the quality of data collection efforts, organizing findings for digital reports and map delivery, and maintaining safety in the field.

Presenters at the event included CEE Department Chair **Jonathan P. Stewart**, Adjunct Professor and U.S. Geological Survey Senior Research Scientist **Robert Kayen**, University of Washington Professor Joseph Wartman, UC Berkeley Professor Nicholas Sitar and Jeff Keaton, principal at Amec Foster Wheeler.

GEER is supported by the National Science Foundation.

UCLA – Hohai Water Partnership

The UCLA Civil & Environmental Engineering Department has established an academic and research partnership with the College of Hydrology and Water Resources at Hohai University (HHU) in Nanjing, China, which is the top-ranked program for water resources in China and an international leader in this field of study.

The academic program allows for selected undergraduate students in their third year at HHU to be admitted to UCLA as Undergraduate Student Visitors to complete their fourth year, after which their BS degree will be awarded by HHU. While in their fourth year, these students can apply to enroll in the MS program at UCLA the following year. After completing the program requirements, students will receive an MS Degree from UCLA.



Jonathan Stewart presenting HHU President Xu Hui with UCLA banner.

During meetings held in July 2015 in Nanjing between a UCLA delegation (Associate Professor **Mekonnen Gebremichael**, Professor **Steve Margulis**, and Professor and Chair **Jonathan Stewart**) and HHU Dean Zhongbo Yu and University President Xu Hui, among others, it was agreed to pursue major research objectives through this

partnership. Topics to be covered in this research will include flood hazard mitigation and water resource management in the face of global climate change and urban growth. This research will benefit from extensive large-scale hydrological lab facilities and field test sites maintained at HHU as a State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering.

YEH WINS INTERNATIONAL PRIZE for Water Management and Protection



Professor William W-G. Yeh in Riyadh, December, 2014.

Distinguished Professor **William W.G. Yeh** was named the winner of the 2014 Water Management & Protection Prize by the council for the Prince Sultan Bin Abdulaziz International Prize for Water. Yeh traveled to Riyadh, Saudi Arabia, in December 2014 to accept the prize from council chairman Prince Khaled Bin Sultan Bin Abdulaziz. Among those present at the ceremony was Crown Prince Prince Salman bin Abdulaziz Al Saud, now king and prime minister of Saudi Arabia.

Yeh received the honor for his work in developing optimization models to plan, manage and operate large-scale water resources systems throughout the world.

His methodology utilizing systems analysis techniques — as well as the algorithms he developed for the real-time operation of complex, multiple-purpose, multiple-reservoir systems — has been adopted in the United States and throughout the globe, most notably in Brazil, Korea, Taiwan and the People's Republic of China.

His work represents the practical and novel application of new methods to deal with many different and difficult aspects of water management under a wide and diverse range of situations.

CEE STUDENT CLUBS ENHANCE THE UCLA EXPERIENCE

American Society of Civil Engineers at UCLA (ASCE at UCLA)

President: **Zachary McFann**
<http://www.ascebruins.org/>

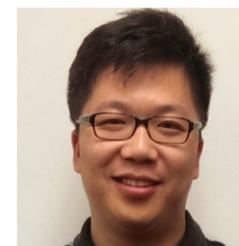


ASCE at UCLA is one of the largest and most active student groups on campus. In 2014-15 the chapter earned three top 10 finishes in competitions, the most ever for the chapter. This spring, ASCE at UCLA was recognized as the Outstanding Chapter of the Year in the ASCE L.A. Section. The chapter received a certificate of commendation from the national chapter of ASCE, which annually recognizes the top 5 percent of student chapters in the country.

At the Pacific Southwest Regional Conference, the chapter placed second out of 18 schools, the best overall finish since 2010. The GeoWall team placed sixth at the National Geo-Congress, and the Seismic Design team placed second at the Earthquake Engineering Research Institute Nationals. Chapter membership increased 12 percent. The accomplishments of the last year are just stepping stones towards an even brighter future. And as everybody knows, #CivilsHaveMoreFun.

Earthquake Engineering Research Institute (EERI)

President: **Yazhou Xie**
uclaeeri@gmail.com
<http://www.studentgroups.ucla.edu/eeri/>



UCLA's student chapter of EERI had an exciting 2014-2015 and continues to grow. In addition to field trips and the first annual Seismic Research Showcase, the chapter hosted a Post-Earthquake Reconnaissance Workshop for EERI's Southern California professional and student members. This event will serve as a model for future EERI workshops around the country. UCLA's undergraduate team placed second at this year's Seismic Design Competition, ahead of all other American universities. Go Bruins!

The California Geotechnical Engineering Association at UCLA (CalGeo)

President: **Jerry Chen**
<http://www.calgeobruins.org>
calgeobruins@gmail.com

CalGeo at UCLA enhances the experience of students interested in geotechnical engineering by providing vital opportunities



outside the classroom. Last academic year, the chapter hosted field trips to major sites such as the Gerald Desmond Bridge and the Bouquet Canyon Dam, welcomed guest speakers, and organized networking events including the fall BBQ and UCLA CalGeo Expo. This year, CalGeo aims to create more opportunities to learn about and promote geotechnical engineering.

The Institute of Transportation Engineers (ITE)

President: **Janet Ye**
<http://iteucla.wordpress.com/>
iteucla@gmail.com



UCLA ITE is a great resource for students to develop technical and non-technical skills through hands-on experience with the transportation industry. Major events include on-going transportation projects, professional conferences and technical tours. In 2014-2015, ITE held its first annual

Professional & Student Mixer, with more than 50 attendees. In addition, ITE is growing in numbers of students in various disciplines. The chapter strives to bring more educational and career opportunities to students, and this year, we will expand its project base by collaborating with different municipalities.

Chi Epsilon (XE)

President: **Abigail Gunning**
<https://sites.google.com/site/chiepsilonat UCLA/>
xe@seas.ucla.edu



Chi Epsilon at UCLA has a long tradition of promoting and celebrating academic success in civil engineering. The chapter hosts a variety of professional and social events, as well as technical development opportunities. Last year Chi Epsilon hosted an AutoCAD workshop led by a professional

structural engineer, and field trips to various engineering firms, including Englekirk. Each year the chapter sends representatives to the Pacific District Conference, which includes Chi Epsilon chapters from all over California and Hawaii. For 2015-2016, Chi Epsilon aims to broaden its influence among the civil engineering community at UCLA and is looking forward to the Pacific District Conference at San Jose State University and the National Conclave at Northeastern University.

CEE Ph.D. Graduates Summer 2014-Summer 2015

Ph.D. Graduate	Faculty Advisor	Thesis
Muhammad Ghulam Barik	Terri Hogue	Hydrologic Modeling in the Upper Colorado River Basin
Scott Boyce	William W.-G. Yeh	Model Reduction via Proper Orthogonal Decomposition of Transient Confined and Unconfined Groundwater-Flow
Chia-So Chuang	Jiann-Wen "Woody" Ju	Hybrid Fiber Reinforced Concrete With Phase Change Material
Chung-Wen Chuang	Jiann-Wen "Woody" Ju	Interface Energy and Particle Size Effects on Nanocomposites
Benjamin Jacob Feinberg	Eric Hoek	Scale-up Characteristics of Salinity Gradient Power Technologies
Marcia Ferreira	Michael Stenstrom	Rational Design Concepts Applied to Stormwater Runoff Management
Richard James Henry Gash	Ertugrul Taciroglu	Discrete-Time Filters for Soil-Structure Interaction Analyses
Saeedreza Hafeznezami	Jennifer Jay	Arsenic Mobilization and Sorption in Subsurface Environments
Christopher William Hilson	John W. Wallace	Reinforced Concrete Structural Wall Boundary Elements
Christopher John Motter	John W. Wallace	Testing of Steel-Reinforced Concrete Coupling Beams
Vincent Reyes	Shaily Mahendra	Microorganism Sensitivity to Metal-Containing Nanoparticles
Helen Mariette Sanchez	Jennifer Jay	Antibiotic Resistance in Bacteria Isolated from Commercial Meat Samples and Air Samples Near Agricultural Sites
Pouya Vahmani	Terri Hogue	Modeling and Remote Sensing of Urban Land-Atmosphere Interactions
Mavis Ching Yan Wong	Eric Hoek	Osmotic Membrane Structure and Separation Performance

Faculty Positions Obtained by Ph.D. Graduates 2010-15

Lourdes Abellera PhD '05
California State Polytechnic University, San Luis Obispo.
Advisor: Michael Stenstrom

Sheng-Wei Chi PhD '10
University of Illinois at Chicago
Advisor: J.S. Chen

Yung-Chia Chiu PhD '09
College of Ocean Science and Resource, National Taiwan Ocean University
Advisor: William W.-G. Yeh

Joseph Coe PhD '10
The Citadel
Advisor: Scott Brandenburg

Michael Durand '07
Ohio State University
Advisor: Steven Margulis

Barton Forman PhD '10
Clark School of Engineering, University of Maryland
Advisor: Steve Margulis

Richard Gash PhD '15
United States Military Academy at West Point
Advisor: Ertugrul Taciroglu

Pai-Chen Guan PhD '09
College of Engineering, National Taiwan Ocean University
Advisor: J.S. Chen

Joohyon Kang PhD '05
Civil and Environmental System Engineering Dongguk University, South Korea
Advisor: Michael Stenstrom

Annie Kwok, PhD '07
National Taiwan University.
Advisor: Jonathan Stewart

Anne Lemnitzer PhD '09
Henry Samueli School of Engineering, UC Irvine
Advisors: Jonathan Stewart and John Wallace

Shao-Yuan (Ben) Leu PhD '09
Hong Kong Polytechnic University
Advisor: Michael Stenstrom

Sami Maalouf PhD '14
California State University, Northridge
Advisor: William W.-G. Yeh

David Naish PhD '10
Civil & Environmental Engineering, California State University Fullerton
Advisor: John Wallace

Peerapong Pornwongthong PhD '14
King Mongkut's University of Technology, Thailand
Advisor: Shaily Mahendra

Lisa Star PhD '11
Civil Engineering, California State University, Long Beach
Advisor: Jonathan Stewart

Fariborz Tehrani, PhD '08
California State University, Fresno
Advisor: Jiann-Wen "Woody" Ju

Vanessa Thulsiraj PhD '14
Mount St. Mary's College
Advisor: Jennifer Jay

Salih Tileylioglu PhD '08
Cankaya University, Ankara, Turkey
Faculty Advisor: Jonathan Stewart

Thien Tran PhD '12
University of Danang, Vietnam
Advisor: John Wallace

Shi-Yu Xu PhD '10 (also UCLA post-doctoral scholar)
City University of Hong Kong
Doctoral advisor: Jian Zhang
Post-doctoral advisor: Ertugrul Taciroglu

Keiji Yanase, PhD '09
Fukuoka University, Japan
Advisor: Jiann-Wen "Woody" Ju

Judy P. Yang, PhD '12
National Chiao Tung University, Taiwan
Advisor: J.S. Chen

Eric Yee PhD '11
KEPCO International Nuclear Graduate School, South Korea
Advisor: Jonathan Stewart

Sam Yniesta PhD '15
École Polytechnique de Montréal, Canada
Advisor: Scott Brandenburg

Tadeh Zirakian PhD '13
Department of Civil Engineering and Construction Management
California State University, Northridge
Advisor: Jian Zhang

Marshall Lew Named CEE Distinguished Alumnus 2015



Dr. Marshall Lew '72, MS '72, PhD '76 has been named the 2015 Distinguished Alumnus of the UCLA Civil & Environmental Engineering Department.

Lew, principal and vice president of AMEC Environment & Infrastructure in Los Angeles, is nationally

renowned as a leader in geotechnical and earthquake engineering. His projects in Southern California comprise many of the landmark structures constructed over the past 40 years, including the 73-story U.S. Bank Tower, the tallest building in the western United States; Metro Line rail projects for the Los Angeles Metropolitan Transportation Authority; the Silver Lake Reservoir replacement project for the Los Angeles Department of Water and Power; Petco Park baseball stadium, home of the San Diego Padres; Keck Hospital of USC, the first base-isolated hospital in the world; and the Ronald Reagan UCLA Medical Center.

Author of more than 130 publications and widely sought as a professional speaker in earthquake engineering, Lew has expertise on topics including seismic microzonation, base isolation for structures, earthquake ground motion characterization, foundation design and performance, seismic soil liquefaction, and building code provisions for seismic design.

A tireless advocate for earthquake safety, Lew is a major figure in the earthquake engineering community, holding leadership posts with the Structural Engineers Association of Southern California, the California Hospital Building Safety Board, California Strong Motion Instrumentation Advisory Committee, and most notably the Earthquake Engineering Research Institute, for whom he was secretary-treasurer for six years.

The C&EE Department Distinguished Alumnus Award was established in 2013. Previous winners are Robert Englekirk MS '65, PhD '70, Soroosh Sorooshian PhD '78, and Yacov Haimes MS '67, PhD '70. By tradition, awardees make a presentation to C&EE freshman students in a fall quarter infrastructure seminar series course.

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*W.E. O'Neil is new member of the IAB in 2015 due to its membership in the Platinum CEE Partners program.

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