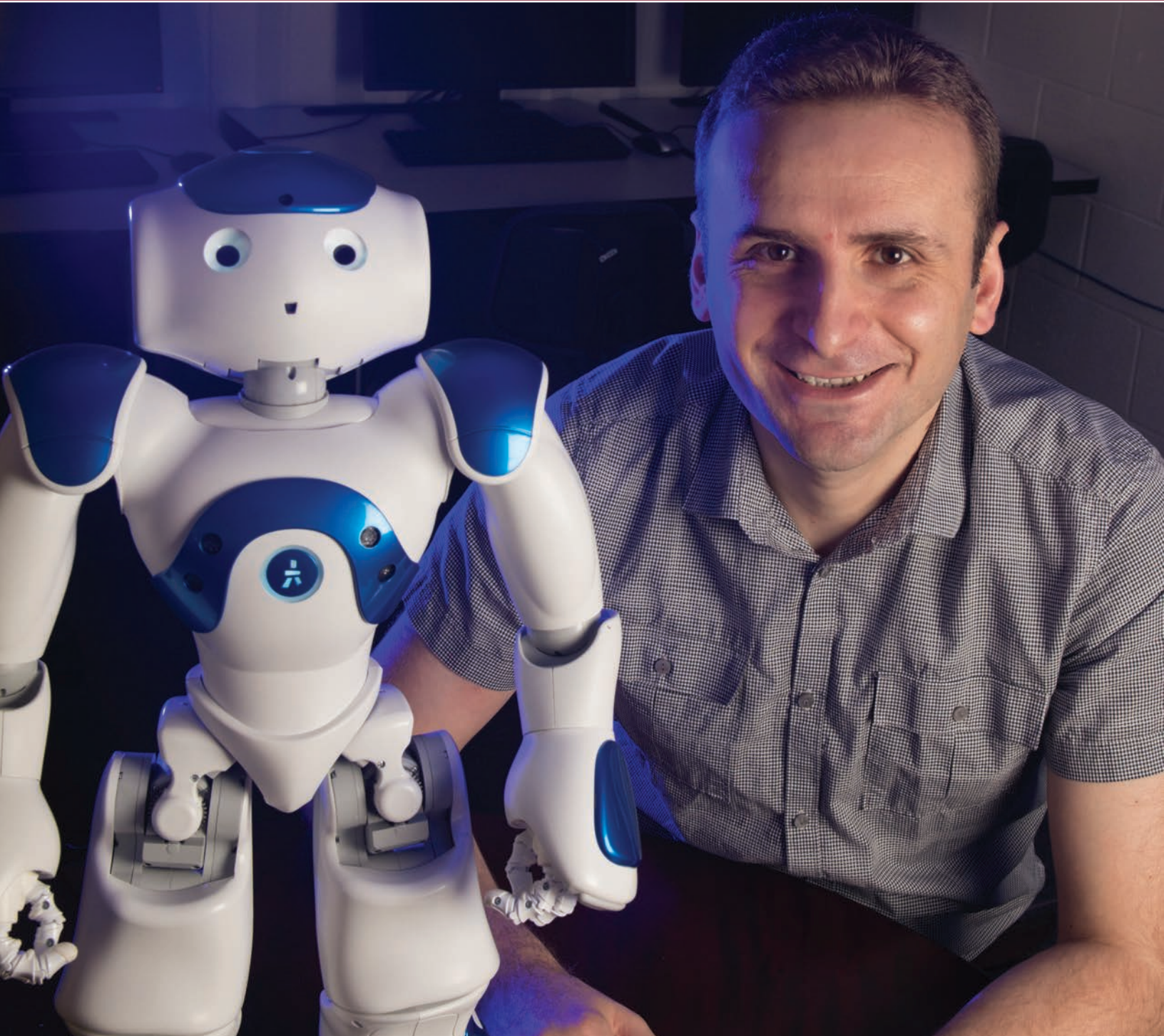


THE CATHOLIC UNIVERSITY OF AMERICA

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cuaengineer



**NSF Funds Plaku Robotics and
Computational Biology Research**

Table of Contents

New Staff	Inside front cover
Dean's Message	1
Faculty Profile Hang Liu	2
Faculty Profile Diego Turo	3
NSF Funds Plaku Robotics and Computational Biology Research	4
New Educational Developments in Vietnam	5
Professor Visits Partner University.....	6
School of Engineering Honors Vietnamese Canadian Bishop	6
Civil Engineering Lecturer Wins Book Award	7
Faculty Win K-12 STEM Grants	7
NASA Executive Scientist Visits	8
Dean Nguyen Honored with Asian Heritage Award	8
Adjunct Faculty Honored by U.S. Department of Commerce	9
Student Project Launched into Space	9
CUA Team Conducts <i>High Impact</i> Research	10
New Student ASHRAE Branch Wins Award	10
Firsthand Look at Wastewater Treatment for Engineering Students	11
Students Aim High in Their Class Project	11
ACM Charters Student Chapter	12
Society of Women Engineers Hosts Career Event.....	12
Senior Engineering Students Shine on Design Day	13
School of Engineering Celebrates E-Week	13
First Indoor Soccer Championship Scores with Faculty and Students	14
Engineering Alumnus Finds Calling in Hubble Space Telescope Project	15
School Honors Faculty and Staff for Excellence.....	15
Alumni Corner	16
ONR Research Director Honored	17
Faculty Awards, Grants, Presentations, Publications, and Activities	18
School Remembers Professors Ling and Atabek	18
Student Awards, Service, and Honors	26
Congratulations, Class of 2015	26–27
2014–2015 Honor Roll of Donors	28

New Staff



Amanda Crowe

Amanda Crowe first came to Washington, D.C., from Florida in 2008 to attend The George Washington University, earning a B.A. in international affairs there in 2012. In January 2014 she joined the Department of Electrical Engineering and Computer Science as the assistant to the chair. Currently, she is working toward an M.A. in world politics at Catholic University. She is extremely fond of pandas and loves collecting trinkets for her desk.



Engineering Senior Design Day

Dean's Message



As I was completing the second year of my fourth term as dean of the School of Engineering during 2014–2015, the school continued its record of successes and milestones that I am proud to report to you as follows.

- In the fall semester 2014, our school received 154 new undergraduate students comprising new freshmen, new joint-degree students, and transfer students. This number of new students continues to attest to the school's ability to sustain the enormous increase in new students in the fall semester of 2012 with a 45% increase in new students and, more important, about a 70% increase in new freshmen as compared to the fall semester 2011. In the fall 2014, the school also welcomed 74 new graduate students. During the 2014–2015 academic year, we granted 78 bachelor's degrees, 75 master's degrees, and 10 doctoral degrees. Pages 26–27 of this issue list the graduates' names and degrees.
- The school enjoyed a noticeable increase in faculty grantsmanship with substantial increase in proposal submission and funded research projects. The school received funding for seven new research projects from federal agencies such as NSF, NIH and DOE, etc., totaling about \$1.5 million. It is worth mentioning that Professor Sang Wook Lee received a prestigious NSF CAREER Award for \$0.5 million. As reflected in the Faculty Section of the issue, our faculty continued to be active in publishing, attending conferences, and providing service to technical and professional societies in the role of conference organizers, officers, reviewers, and editors.
- In September 2014 the school received the final reports from ABET as a follow-up of its onsite visit in October 2013 for the evaluation of our degree programs for accreditation. The biomedical, civil, electrical, and mechanical engineering programs are accredited by the Engineering Accreditation Commission of ABET, and the computer science program is accredited by the Computing Accreditation Commission of ABET. We are very proud that the computer science program secured the ABET accreditation even after the first evaluation visit, which was a very rare occurrence. This was certainly due to a strong accreditation maintenance structure that we established and applied for other engineering programs in the school.

- Regarding global educational development, in January 2015, nine CUA engineering students went to Hong Kong to study at the Hong Kong Polytechnic University (PolyU) and seven students from PolyU came to study at CUA under the existing student exchange program between the two institutions. In the fall 2014 semester, several Vietnamese students joined our school after completing two years in engineering degree programs at the top-ranked engineering universities in Vietnam through the 2+2 programs between CUA and these universities. We also received one student from Christ University, India, and one student from Fu Jen Catholic University, Taiwan, through similar educational programs established with these universities. We expect to have more students coming from the above countries to study at CUA in the near future.
- The Award Selection Committee of the School of Engineering selected Lawrence Schuette, B.E.E. 1983, M.E.E. 1985, and Ph.D. 1995, director of ONR Office of Research, to receive the 2014 Engineering Distinguished Alumni Achievement Award. He received the award at the School of Engineering Homecoming Luncheon in October 2014. Find more details about Schuette on page 17 of this issue.
- The School of Engineering joined the Grand Challenge Scholars Community of the National Academy of Engineering (NAE) in March 2015. It also formally petitioned the NAE to be recognized as the 20th university with an approved Grand Challenge Scholars Program. If granted this recognition, CUA would be only the second Catholic institution with an approved program and the only one serving the immediate vicinity of the nation's capital. The school awaits the response from NAE.
- In late March 2015, responding to the U.S. president's call for our nation to lead the way in addressing 21st-century Grand Challenges, I, together with other engineering deans around the country, submitted a letter of commitment to President Obama at the White House confirming the school's commitment to educate a new generation of engineers to meet challenges identified through national initiatives, including the White House Strategy for American Innovation, the National Academy of Engineering Grand Challenges for Engineering, and the United Nations Millennium Development Goals.
- During a 12-day trip to Vietnam in March 2015, I met with leaders of Vietnamese universities with whom we have agreements to reconfirm our commitment to support the educational programs including the 2+2 and 4+1 programs that we established at these universities. During this trip, I also signed new agreements with two top-ranked engineering and technology universities and participated in two panels of the third Vietnam Engineering Education Conference in Danang. Details and accomplishments of this trip can be found in an article on page 5 of this issue.

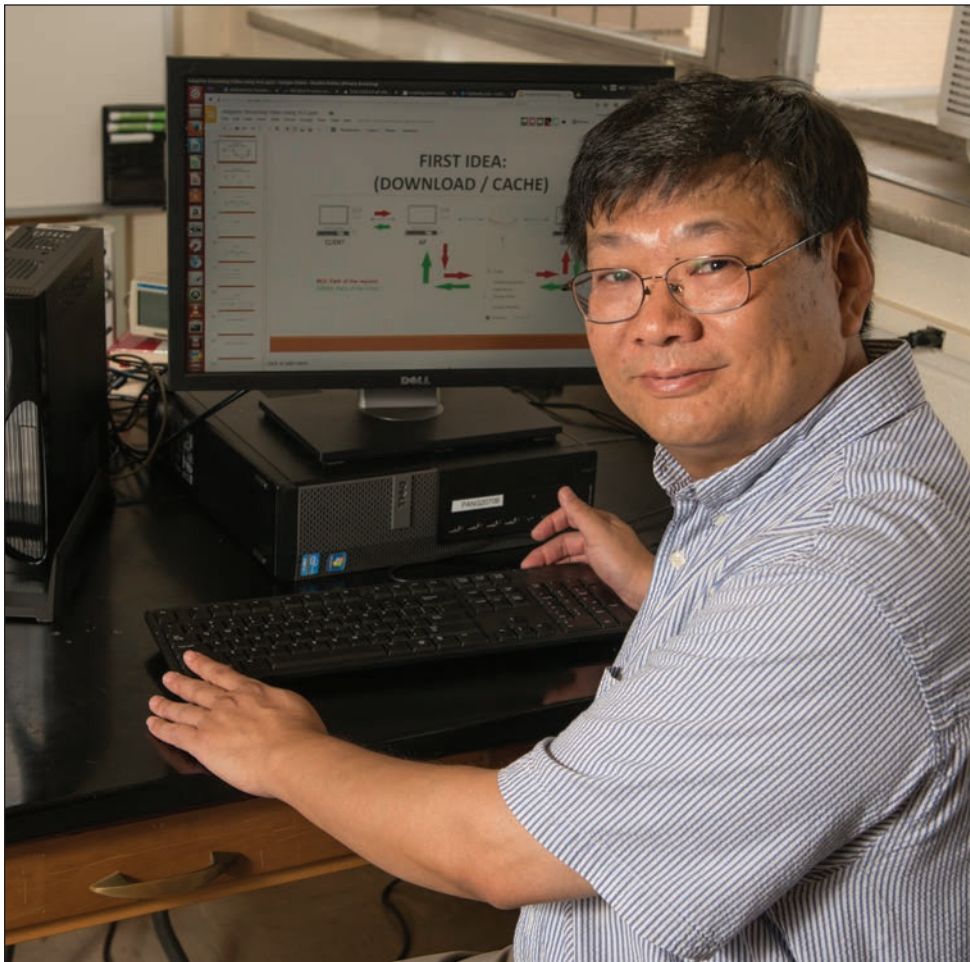
In conclusion, I am very satisfied with the progress the school made during the 2014–2015 academic year, especially in undergraduate student recruitment, faculty grantsmanship, and accreditation. With the strong foundation the school has established in the last 10 years, I am very confident that 2015–2016 will be another successful year for the school. Enjoy reading this issue of *CUA Engineer*.

Regards,

A handwritten signature in black ink, appearing to read "Charles Cuong Nguyen". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Charles Cuong Nguyen
Dean, School of Engineering
nguyen@cua.edu

Professor Works for Faster Mobile Internet, New Collaborations



Associate Professor Hang Liu

In the competitive world of mobile Internet technology, companies are always searching for ways to make communications faster, more advanced, and more profitable. It can sometimes be difficult to find the support for truly out-of-the-box research.

Prior to joining the Department of Electrical Engineering and Computer Science in 2013, Associate Professor Hang Liu spent more than 10 years working in the high-stakes world of wireless communication networks and the Internet. After earning his Ph.D. in electrical engineering from the University of Pennsylvania, he worked in senior research and management positions at several companies, including InterDigital Communications, Thomson Corporate Research Lab in Princeton, N.J., and NEC Laboratories America. At the same

time, he was an adjunct professor at Rutgers University, and led several industry/university collaborative research projects.

Though he has always been fascinated by networking technology, Liu said he felt constrained by the parameters of his research in the corporate world.

“For the industry, they pay you very well and they allow you to do research, but there are certain limitations,” Liu said. “They don’t sponsor a lot of fundamental research. The competition is pretty high and companies need to generate profits, so they want their researchers to focus more on the near-term R&D problems.”

That’s why he left the private sector and joined the School of Engineering faculty.

“I’ve always been interested in teaching and

having more time to work on the research I like to do,” he said. “I have more freedom on selecting my research topics here.”

Since coming to CUA, Liu has been awarded three grants from the National Science Foundation (NSF).

One of his grants supports the study of millimeter wave communications, which Liu calls “the next-generation mobile networks” with the potential to achieve a data rate that is 1,000 times faster than what is possible today.

“We are doing some cutting-edge research trying to design a new wireless system and having some breakthroughs,” Liu said. “We are solving not only theoretical problems, but also very practical system issues.”

Liu is also working to establish an industry/university cooperative research center site at CUA. The site will be a part of the Broadband Wireless Access and Application Center (BWAC), a multi-university research center sponsored by the NSF. Other BWAC sites include the University of Arizona, Auburn University, the University of Notre Dame, the University of Virginia, Virginia Tech, and the University of Mississippi.

Liu will be in charge of the Catholic University site once it is established next year. He hopes it will lead to more long-term research collaboration with industry and government, and provide the CUA students with more opportunities in their career development.

“We are talking with the potential partners, and several companies and government agencies are interested in joining our CUA site,” Liu said. “From a company’s point of view, they can get more advanced research, and they sponsor our research projects because we know what the industry needs.”

According to the forecast from Cisco, global mobile data traffic will increase nearly tenfold between 2014 and 2019, and there will be 11.5 billion mobile-connected devices by 2019.

Liu says he is excited to be at the forefront of that growth.

“We are always looking at least five years into the future,” he said. “We hope after five years some of the systems we are designing and some algorithms we are developing could be in use around the world.”

Researching the Acoustics of Everything

Faculty Profile

While growing up in Italy, Diego Turo was always interested in space and astrophysics. When the time came to study at the University of Naples Federico II, he studied aerospace engineering to tie his interests with a field he believed to be more practical. Soon he found himself fascinated with a completely different field all together — acoustics.

“Nobody ever pays attention to acoustics,” Turo said. “When I talk about acoustics with friends, they think about music and equalizers and how to design stadiums with speakers, but the truth is that acoustics is almost everywhere. There are so many fields that involve acoustics that it’s almost incredible.”

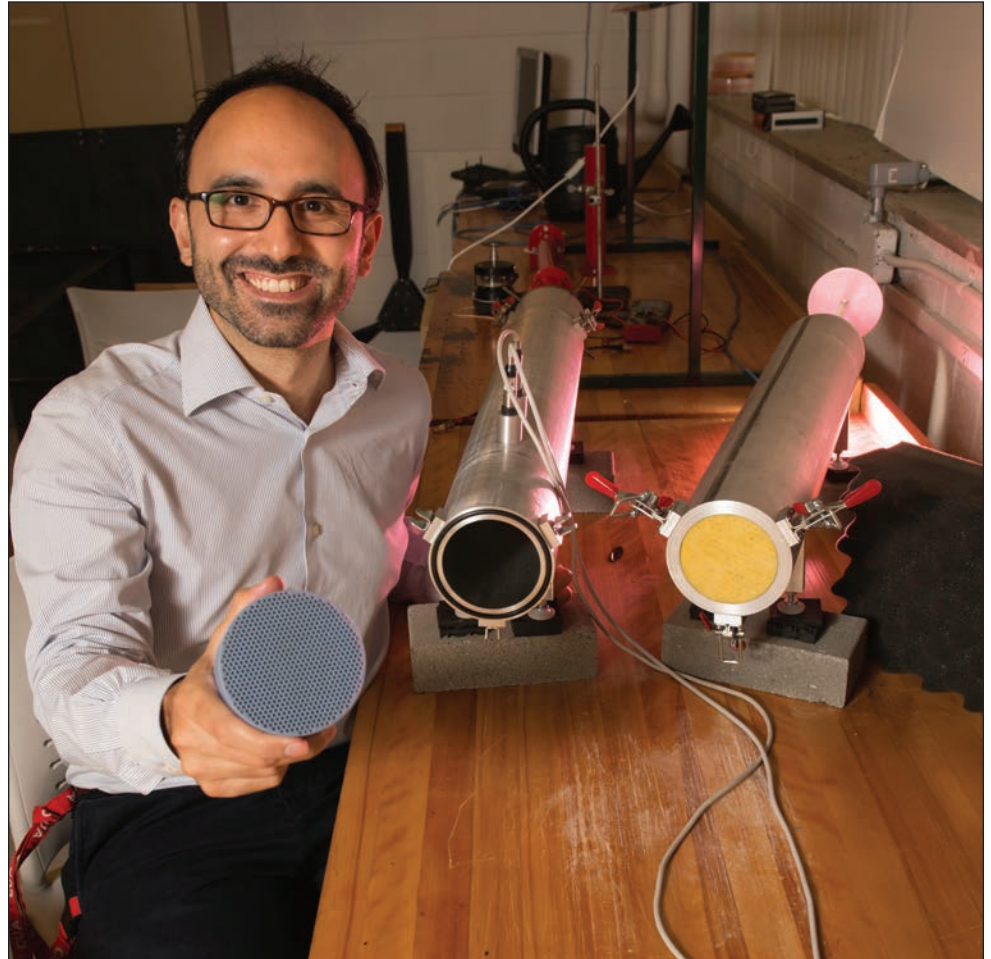
Turo first learned about acoustics as a student in Naples. As part of his research, he was looking at Boeing 787 airplanes and trying to predict the noise levels inside the fuselage during flight. Following that, he earned his doctorate in acoustics at the University of Salford in the United Kingdom. While there, his research looked at the ways sound waves propagate through porous materials like foam, mineral wool, and gravel.

In 2010, Turo’s wife accepted a fellowship with the National Institutes of Health in Bethesda, Md. Having just earned his doctorate, Turo moved with her and became involved in the Washington, D.C., chapter of the Acoustical Society of America, where he volunteered as webmaster and, eventually, president. Through connections he made in the society, Turo became connected with The Catholic University of America. He helped to set up the School of Engineering’s acoustics lab and taught occasional summer graduate classes.

At the same time, Turo held a postdoctoral fellowship and, later, a research assistant professor position at George Mason University in Fairfax, Va. While there, Turo worked in the biomedical engineering department and studied how sound waves move through the human body and how those waves can be used to detect and categorize hard nodules in muscles that trigger neck pain.

“You can vibrate the tissue and generate an elastic wave into the tissue,” Turo said. “Because the nodule is harder than the surrounding tissue, the elastic wave will propagate faster compared to the surrounding tissue. With an ultrasound probe, you can detect the elastic wave motion so you can see whether the wave is going faster or slower and draw an elastographic image of the interrogated tissue.”

Since joining the CUA faculty as a full-time



Clinical Assistant Professor Diego Turo

assistant professor in mechanical engineering in fall 2014, Turo has begun several acoustic research projects.

With professors Joseph Vignola, and John Judge, Turo is part of a group collaboration working on projects funded by the United States Navy Office of Naval Research. They will look at atmospheric sound propagation models for littoral environments to predict how close Navy platforms can be to shore without being detected, and a method for determining properties of layered elastic structures to improve acoustic detection of unexploded shells on the ocean floor.

With the same team, Turo is also researching ways to measure the acoustic properties of wet dirt and living grass. The goal is to improve acoustic imaging, which is used for mine detection in grasslands.

Soon, Turo hopes to collaborate with civil engineering professor Masataka Okutsu looking at

Europa, one of Jupiter’s moons, which is covered with a thick layer of ice. The pair hopes to generate an acoustic wave through the moon’s surface in order to learn about the mechanical properties of the ice.

Turo counts himself lucky to be able to work at Catholic University. He said he enjoys working closely with both students and faculty members.

“The faculty, at least in the mechanical engineering department, is just perfect,” he said. “Everyone is very helpful. We’re like a family.”

As a researcher, he also loves that his research can be applied to so many circumstances, from inside the human body to the depths of outer space.

“I’ve been so lucky because I’ve been covering a lot of fields,” he said. “A lot of people focus on just one thing, but I have had the luck of being able to work on different projects.”

NSF Funds Plaku Robotics and Computational Biology Research



Assistant Professor Erion Plaku

Assistant Professor Erion Plaku's research sounds like it is straight out of a science-fiction movie: Every day from his office in Pangborn Hall, he sets to work on developing systems that will allow robots to function autonomously.

Plaku's research is funded in part by a \$149,995 grant from the National Science Foundation. He was awarded the grant in September 2014 for a two-year project focused on increasing the productivity and capabilities of robotic systems.

"The common theme is to make the supervision of robots similar to the supervision of humans where you can tell the robot, 'This is the task that you need to do. Go ahead and figure it out. Do it on your own,'" Plaku said. "If the robot is successful, it comes back to you and says, 'I completed the task,' but if the robot has difficulty, it may come back and ask you a question and you can tell it to either modify the task or try a different plan."

Plaku has worked with the U.S. Naval Research Laboratory to test his algorithms with drones and underwater vehicles, taking into consideration wind speeds and ocean currents. He also researches ways to help robots work together and communicate with each other in teams.

"My focus is on the software, the algorithms to make them intelligent so they can work on their own without human supervision," he said. "I just focus on the brains of the robots to make them behave as you would like."

"The overall goal for the next 10 or 15 years is to make the supervision of robots similar to humans so they can work alongside us."

In February, the National Science Foundation awarded Plaku a second grant of

\$215,476 for a project in which he collaborates with his wife, George Mason University Associate Professor Amarda Shehu, and University of Florida Professor Adrian Roitberg. The project focuses on computational biology using ideas from robotics to advance algorithmic research in molecular biology.

"For some reason robots and molecules share some similarities," said Plaku. "We're using this research for software that is going to help researchers in robotics and researchers in biology to share their ideas so one community can benefit from the other."

Plaku studied computer science at the State University of New York in Fredonia, N.Y., and Clarkson University in Potsdam, N.Y., and earned his Ph.D. in computer science at Rice University in Houston, Texas. Prior to coming to Catholic University in 2010, he held a two-year postdoctoral fellowship in the Laboratory for Computational Sensing and Robotics at Johns Hopkins University, where he studied medical robotics and developed algorithms for the DaVinci Surgical System.

With the growing interest and developments in driverless cars, Plaku hopes more people will see the importance of how that same technology can be used for drones, underwater vehicles, and other robotic devices. In the future, Plaku can see his research being used for military, commercial, and environmental purposes.

"You could use these drones to monitor a fire and figure out where it is occurring," Plaku said. "Or if you want to cover coastal areas, you could send a drone and survey the large environments without much use of human supervision."

New Educational Developments in Vietnam

Dean Charles Nguyen traveled to Vietnam in March 2015 to visit partner universities, sign new agreements, and take part in an engineering education conference.

After arriving in Ho Chi Minh City, Dean Nguyen and Uyen Nguyen, Ph.D., director of international programs in Asia, met with Professor Tuyen Le, vice president of Saigon Technology University (STU), Professor Phong Ho, rector of the International University (IU), and Professor Thanh D. Vu, rector of the Ho Chi Minh City University of Technology (HCMUT) to reconfirm CUA's commitment to collaborate with these universities in the areas of research, teaching and faculty exchange. The School of Engineering currently has active 2+2 and 4+1 programs with IU and HCMUT that have brought many students to CUA.

The CUA leaders then traveled to Can Tho University (CTU) where Dean Nguyen signed a new agreement with the dean of the CTU College of Engineering Technology to establish 2+2 and 4+1 programs. CTU is the biggest and best public university in southern, Vietnam with more than 45,000 students.

The CUA delegation then visited administrators of the Ho Chi Minh City University of Architecture (HCMC-UA). Besides the architectural programs, this university has a strong civil engineering program that our School of Engineering could consider establishing educational programs with in the future.

The CUA delegation then traveled to Danang where Dean Nguyen served on a panel titled "Inspiring the Undergraduate Engineer's Entrepreneurial and Innovative Mindset: Ideas and Models for Vietnam" at the Third Annual Vietnam

Engineering Education Conference. He moderated another panel, titled "Vietnam in 2030: How Can Higher Engineering Education Be a Catalyst for Development" with panelists that included the country director of the World Bank in Vietnam, Victoria Kwakwa, Ph.D., and the Vietnam mission director of USAID, Joakim Parker.

Dean Nguyen also signed a new agreement with the rector of Danang University of Science and Technology (DUST) to establish the first Advanced Undergraduate Program at DUST, a collaboration in which students at DUST will be trained through the ABET-accredited curriculum from CUA. This new program would enhance the pool of DUST students eligible to participate in the existing 2+2 program between CUA and DUST.

The CUA administrators then traveled to Hanoi where they visited with key administrators of Hanoi Architectural University (HAU), which, with HCMC-UA mentioned above, are the most prestigious architecture universities in Vietnam. As with HCMC-UA, HAU has a strong civil engineering program with which the School of Engineering could consider establishing educational programs in the future.

Before leaving Vietnam, the CUA delegation also met with the chair of the Department of Biology of the Hanoi University of Science (HUS) and delivered an MOA signed by CUA's interim provost to establish 2+2 and 4+1 programs to bring HUS students to CUA to pursue undergraduate and graduate degrees in biology. A group of HUS administrators visited CUA in 2014 and this new agreement was the follow-up of the visit.



Dean Charles Nguyen chairing a VEEC panel in Vietnam.

Professor Visits Partner University in India

In January 2015, Sahana N. Kukke, Ph.D., assistant professor of biomedical engineering, visited Christ University, one of the School of Engineering's partner universities in Bengaluru (a.k.a. Bangalore), which has an active 2+2 program with CUA. While Bengaluru may seem an unlikely and exotic destination to many at CUA, it is Kukke's ancestral home. Bengaluru is the capital city of Karnataka state in India and that nation's information technology hub.

The Christ University Faculty of Engineering (CUFE) is located just outside the busy city on the gorgeous, verdant, and spacious Kengeri campus. Professor Kukke was welcomed warmly by Professor Iven Jose, associate dean of the faculty of engineering at Christ University, who introduced her to other faculty members. On behalf of the CUA School of Engineering, she made a brief presentation on opportunities for CUFE undergraduate and graduate students to study abroad at CUA. Over tea, they spoke as a group on topics of mutual interest and the possibility for future research partnerships.

Father Benny Thomas gave Professor Kukke a personal tour of their state-of-the-art engineering classrooms and labs. She met some enthusiastic students who were hard at work on design projects. Finally, she learned about Christ University's India Gateway Program (IGP), a two-week experience for foreign students to visit India. Professor Kukke hopes to take a group of CUA students to the IGP in the future, as she is convinced that it would be a fun, insightful, and memorable experience.



Assistant Professor Kukke with her family in India.

School of Engineering Honors Vietnamese Canadian Bishop



Bishop Vincent Nguyen and Dean Charles Nguyen

On Sept. 8, 2014, Most Rev. Vincent Nguyen, auxiliary bishop of Toronto, visited the School of Engineering and was honored at a luncheon in Pangborn Hall. Bishop Nguyen was born in Saigon, Vietnam, and earned his bachelor's degree in electrical engineering from the University of Toronto before becoming a priest.

During the luncheon, attended by former Provost James Brennan, deans from the schools of canon law, philosophy, and social work as well as engineering faculty, Bishop Nguyen spoke about his Catholic faith and told the audience that his great-great-grandfather was killed for his Catholic belief.

Following the luncheon, Dean Charles Nguyen presented the bishop with a special plaque honoring his excellent service to the Catholic Church. "I would like to thank the bishop for becoming a bishop after becoming an engineer," Dean Nguyen said. "Now I not only can say to prospective engineering students that after obtaining an engineering degree, they can become a Wall Street investor, a lawyer, a medical doctor, a university president, a dean, they can also become a bishop. This definitely will help me to recruit more engineering students to join CUA."

After graduating with his bachelor's degree in 1991, Bishop Nguyen earned his Master of Divinity degree from St. Augustine's Seminary of Toronto in 1998. He was ordained to the priesthood on May 9, 1998. On Nov. 6, 2009, Pope Benedict XVI appointed him auxiliary bishop of Toronto. His episcopal ordination took place at St. Michael's Cathedral in Toronto on Jan. 13, 2010. Prior to the luncheon, the bishop had meetings with University President John Garvey and Provost Brennan. During his meeting with President Garvey, the bishop spoke about the state of Catholic higher education in Canada and the Church in Vietnam, where vocations are high, but there are few qualified professors for seminarians.

Civil Engineering Lecturer Wins Book Award

Zhen-Gang Ji, Ph.D., lecturer in civil engineering, received the 2014 Best Ocean Science and Technology Book Award in China for *Hydrodynamics and water quality: modeling rivers, lakes, and estuaries*. Originally published by John Wiley, Inc. in the United States in 2008, the book was translated into Chinese



Lecturer Zhen-Gang Ji

and published in China in 2012. The award recognizes the book's outstanding contributions to ocean science and technology. It was well received by the science and engineering communities in the U.S. and overseas, and has been referred to as the "must have" reference book for its numerical modeling of surface waters. It has been reviewed in more than 10 professional journals in U.S. and Europe.

This hands-on book illustrates the principles, basic processes, mathematical descriptions, and practical applications of modeling surface waters. It discusses hydrodynamics, sediment processes, toxic fate and transport, and water quality and eutrophication in rivers, lakes, estuaries, and coastal waters. There has been great progress in mathematical modeling that simulates surface waters numerically. Modeling is becoming a powerful tool for analysis of water quality, and this reference gets readers up to speed quickly. This is a core reference for water quality professionals and an excellent text for graduate students.

Ji's research interests include hydrodynamics, sediment transport, water quality and eutrophication, toxic metals, and oil spill transport. His specialty is numerical modeling and statistical analysis of these processes in rivers, lakes, estuaries, wetlands, and coastal waters.

Faculty Win K-12 STEM Grants

Teachers in our elementary, middle, and high school classrooms play a crucial role in shaping the minds of future engineers, educators, and leaders. Otto Wilson and Binh Tran, both associate professors of biomedical engineering, teamed up with Angela McRae, assistant professor of education, to win a Library of Congress Teaching with Primary Sources Regional Grant. Titled STREAM Primary Source Inquiry to Cultivate Excellence in Education by Design (SPICED), the grant focuses on providing D.C. teachers with opportunities for designing and developing Next Generation Science Standard-aligned lessons and curriculum to transform the classroom learning environment through inquiry. SPICED will be designed using game theory and is inspired by the popular Food Network Show, Chopped.

Wilson also teamed up with McRae and John Philips, an associate professor of physics, to win a Department of Education Teacher Quality Improvement Grant. This grant, Propagating Inspiring Questions to Unleash Excellence and Engagement in Education by Design (PIQUED) Curiosity, focuses on uncovering the big STEM-related questions through history to pique the curiosity of teachers and students in D.C. Faculty and students from the School of Engineering and School of Arts and Sciences will partner with teachers and students from Harriet Tubman Elementary School, Imagine Hope Community Public Charter School (PCS), and Roots PCS to design, implement, and assess STEM-related teacher professional development activities.



Professor Otto Wilson (left) and Professor Tran

NASA Executive Scientist Visits

In fall 2014, Ramon P. De Paula, Ph.D., program executive for the Phoenix Mission and for the Mars Reconnaissance Orbiter Mission at the National Aeronautics and Space Administration (NASA), visited the School of Engineering and spoke with the Brazil Scientific Mobility Program (BSMP) students. The School of Engineering has now hosted more than 50 BSMP engineering students since 2012 and more than 70 BSMP students pursued academic training during the summer of 2015.

De Paula manages the research and technology programs in space communications and photonics at NASA headquarters. He is also responsible for supporting and promoting the effective inclusion of satellite systems in the Global Information Infrastructure (GII). Prior to joining NASA headquarters, he was a research scientist at NASA's Jet Propulsion Laboratory, Litton Industries,

and the Naval Research Laboratory. He received a B.S.E.E. and a Ph.D. from The Catholic University of America, and an M.S. from the University of California Berkeley. De Paula has published more than 100 papers in conference proceedings and journals.

De Paula and his wife, who was also kind enough to visit, shared their life and professional experiences with the students, who listened to both enthusiastically. The students asked De Paula many questions, seeking advice about coursework, studying tips, and future engineering areas of interest. The event was also attended by Dean Charles Nguyen; two representatives of the Brazilian Embassy in Washington, Franklin Netto and Maricy Schmitz; Duilia de Mello, an associate professor of physics; and Jandro Abot, a clinical associate professor of mechanical engineering.

Dean Nguyen Honored with Asian Heritage Award



Dean Nguyen with his wife, Kim-Yen, (right) and National Medal of Science Honoree Shu Chien (left) at the AHA Award Gala.



Dean Nguyen and his wife, Kim-Yen, at the AHA Gala

On Nov. 22, 2014, Dean Charles Nguyen traveled with his wife, Kim-Yen, to California to receive the 2014 Asian Heritage Award (AHA) in the category of Opportunity in Education from the Asian Heritage Society (AHS), a nonprofit organization located in San Diego. Dean Nguyen was selected for the award as he has established several educational programs in Vietnam, Taiwan, and India that provide affordable educational opportunities to deserving international students who otherwise might not have been able to finance their study in the U.S. Students come to study engineering at CUA through programs such as the 2+2 Program

and the 4+1 Program that the University created with its partner universities in Southeast Asia.

The AHS honored Dean Nguyen for “seizing opportunity from the front lines of devastation in Vietnam to become a prime example of success and achievement,” as well as for the dean’s commitment to “seeing that others have the same opportunity to succeed.” Each year, the AHA Award Committee considers nominations and selects seven to eight individuals for awards in various categories, including education, science and technology, health, medicine, and business.

This year, the awards were given at the 11th

Annual AHA Gala at the California Center for the Arts in Escondido. In addition to an award plaque, each award recipient received congressional citations from representatives Scott Peters, Susan Davis, Juan Vargas, and Duncan Hunter, as well as citations from California Treasurer John Chiang. This year’s award recipients included Tina Guo, cellist virtuoso, for Innovation, and Veerabhadran Ramanathan, Ph.D., for Science and Technology on global warming. Past award recipients included Shu Chien, Ph.D., National Medal of Science honoree, and Pradeep Khosla, Ph.D., chancellor of the University of California-San Diego.

Adjunct Faculty Honored by U.S. Department of Commerce



Long Phan (left) and his Joplin Tornado Investigation team at the 2015 NIST Award Ceremony

Long Phan, Ph.D., acting director of the Disaster and Failure Studies program at the National Institute of Standards and Technology (NIST) and lecturer in civil engineering, was recognized in January 2015 by the U.S. Chamber of Commerce with a Gold Medal for Scientific/Engineering Achievement, its highest honorary award. Phan received the honor for the technical investigation of the EF5 tornado that leveled Joplin, Mo., on May 22, 2011, and has the distinction of being the deadliest and costliest tornado in the U.S. since the 1950s. The tornado caused 161 fatalities, destroyed approximately 8,000 buildings, and caused nearly \$3 billion in economic losses.

The award citation reads *“Dr. Phan and his group is recognized for the multidisciplinary investigation of the May 2011 Joplin Tornado. The study was the first to combine an innovative simulation of the EF-5 tornado wind fields, engineering determination of the resulting building failure modes, and an original model of human response to emergency warnings and tornadic conditions. Based on the 47 engineering and sociological findings, the 16 recommendations in the report will enable, for the first time, building code requirements which directly consider tornados. As a result, future construction in tornado-prone areas will be safer.”*

For additional information about Long Phan and the Joplin tornado investigation, visit www.nist.gov/el/disasterstudies/index.cfm.

Student Project Launched into Space

On the morning of Aug. 24, 2014, members of a multidisciplinary team of Catholic University undergraduates and faculty saw their hard work of the previous eight months pay off, as a large high altitude NASA research balloon lifted their payload 23 miles above the earth.

The payload was a 29-inch-tall, 100-pound machine that can track its surroundings, take photos, and self-regulate its temperature. The interdisciplinary team of undergraduate mechanical and electrical engineering, physics, and biology students and professors had researched, built, and tested the prototype altitude determination system (PADS). Operated by a computer, the system comprised a camera, hard drive, power regulator, pressure vessel, special sensors that measure temperature, and a heating system.

The project is part of NASA’s Undergraduate Student Instrument Program (USIP), in which student teams build experiments that are then launched into space on NASA suborbital platforms like rockets, balloons, aircraft, zero-g aircraft, and suborbital reusable launch vehicles. The program is sponsored by NASA’s Science Mission Directorate (SMD) and is intended to promote student interest in science, technology, engineering, and mathematics.

Catholic University was one of 10 college and university teams in the United States selected for USIP’s initial year. The CUA team — led by Ekaterina Verner, a research scientist for the University’s Institute for Astrophysics and Computational Sciences — included mechanical engineering Associate Professor Jandro Abot as well as Brazilian exchange students in engineering Fernando Esteves, Raissa Silva, Victor Casarotto, and Fabio Matubara.

The payload carrying the CUA experiment rose to an altitude of 124,000 feet (more than 23 miles) and stayed aloft for more than six hours before parachuting to Earth. While in space, the box recorded data and photos for later analysis.

The students are listed as co-authors of the presentation about the project that was given at the American Geophysical Union meeting in December 2014.

Constructing the experimental package required students to use all their skills, from computing and engineering to communication and money management, Verner said. She believes students also learned the value of teamwork.

The skills they learned could be applicable in different areas eventually whether they go into computers or electrical design or mechanical design.

“The instrument worked flawlessly and the flight produced fabulous data, which are in the process of being analyzed,” said Verner. The results will be prepared for publication with the participating students as co-authors.



CUA Team Conducts *High Impact* Research

As a key aspect of independent living, proper cognitive function greatly affects individuals' health and wellness. In sports, a tremendous amount of attention has been given to the short-term and long-term impacts of concussions on health and wellness of players in the National Football League. In the past year, concussion lawsuits resulted in \$1 billion allocated to retired NFL players stemming from brain injuries suffered during their playing days. While the spotlight has been on professional football players, concussions are a common occurrence in other professional sports. A growing concern is the amount of brain trauma experienced by children playing high-impact sports, where responsibility for detection and intervention of concussions falls upon lay coaches and parents and head-related injuries are underreported and underdiagnosed.

Research in the Home Care and Telerehabilitation Technology Center, directed by Binh Q. Tran, Ph.D., associate professor of biomedical engineering, is focusing on development of wearable systems for

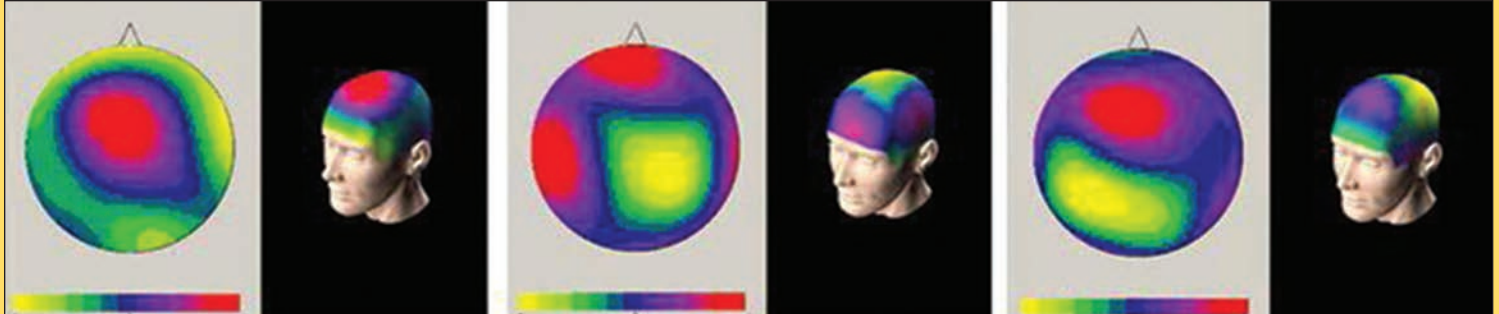
detecting and assessing potential concussions. Working with the lab, Quoc Huynh, Tran's doctoral student, has developed a wireless, inertial impact sensor that can be attached to helmets and sports gear for detecting high-impact collisions. The data can be observed in real-time during games or stored locally for long-term analyses.

For the past year, Kevin Nader, a senior in biomedical engineering, has been conducting impact tests with the helmet sensors in the lab to study forces felt by the head during collisions. "Our preliminary results show a great deal of variation in spatial distribution of forces on the head, especially at high-impact forces," says Tran. "Currently, most helmet sensors are attached to the back of the helmet for convenience and may in fact underestimate the forces experienced by the head itself, especially if impact occurs from different angles."

What happens after a high-impact event is detected from the sensor? Whereas normal concussion tests require athletes to answer a

battery of questions, Tran's lab is seeking a more objective measure for assessing potential brain injury. Tran and Jeffrey Jenkins, a graduate student, are developing a mobile solution for assessing brain function. Through a funded project by the Army Research Office, Jenkins and Tran are developing quantitative techniques to evaluate cognition and cognitive deficits to better diagnose concussive events as they occur during the course of play and can be useful in determining if a player is ready to get back on the field after a concussion occurs.

Tran states, "Our sensor technology can be used for other applications as well. We are currently using the impact sensor to detect falls in the elderly. We showed in a recent article that the system was able to detect falls with greater than 96% sensitivity and specificity, much better than results reported in the literature. The cognitive assessment system has tremendous potential for at-home assessment of conditions such as concussions, depression, Alzheimer's, and PTSD, and response to treatment."



Visualization of changes in brain activity before, during, and after stimuli as measured by the wireless EEG headset.

New Student ASHRAE Branch Wins Award

Since its approval during the 2015 Winter Conference, The Catholic University of America ASHRAE student branch has been very active. The student members built a helidon and donated it to the school for future students to use, volunteered for Discover Engineering Family Day at the National Building Museum, and are providing free energy audits through the Green Impact Campaign.

In recognition of this hard work, CUA's Office of Campus Activities awarded the branch the "In Spirit of the Mission Service Award." This award is given to student organizations that are creatively and strongly connected to Catholic University's mission.

The student branch was sponsored by the National Capital Chapter and Assistant Professor of Architecture Hyojin Kim. He and Associate Dean J. Steven Brown, who is an ASHRAE fellow, serve as its co-advisors.



Firsthand Look at Wastewater Treatment for Engineering Students



CUA engineering students at the Blue Plains.

Twenty-seven students studying civil and mechanical engineering toured the DC Wastewater Treatment Plant, known as Blue Plains, located in southwest Washington, D.C., on March 24, 2015, as part of *ENGR 538 — Introduction to Environmental Engineering*. The course, team taught by Adjunct Assistant Professor Adam K. Wolfe, P.E., and mechanical engineering Chair Sen Nieh, Ph.D., covers environmental subjects as they relate to equipment, processes, and regulations with respect to air, water, wastewater pollutions, and municipal and hazardous waste contamination, so the field trip was tailored to wastewater treatment operations and environmental compliance.

Blue Plains sits on 150 acres and is one of the largest modern wastewater treatment facilities in the country, processing more than 1,000 million gallons per day of wastewater from Virginia (Loudon County), Maryland (Montgomery and Prince Georges counties), and the District of Columbia. Coordinating the three-hour tour on the Blue Plains side was George Mpoyo, a Blue Plains employee and master's degree student in engineering at CUA. Mpoyo enthusiastically served as the technical tour guide on the field trip. Students and professors saw the process of treating wastewater from its beginning to the end. Alexa Mayewski, civil engineering senior, presented a CUA mug to Mpoyo in appreciation for arranging and conducting the tour.



Student Alexa Mayewski (second from the right) presents a CUA mug to Mr. Mpoyo (second from the left), tour guide with ME chair, Sen Nieh (first from the left) and Professor Wolfe (first from the right)

Students Aim High in Their Class Project

On April 18, 2015, students in ME554 Aerospace Design made a trip to an open field in Westminster, Md., to complete their assignment: launch model rockets and make them return to the launch pad. The course is taught by Masataka Okutsu, Ph.D., a clinical assistant professor with a research background in design of space missions.

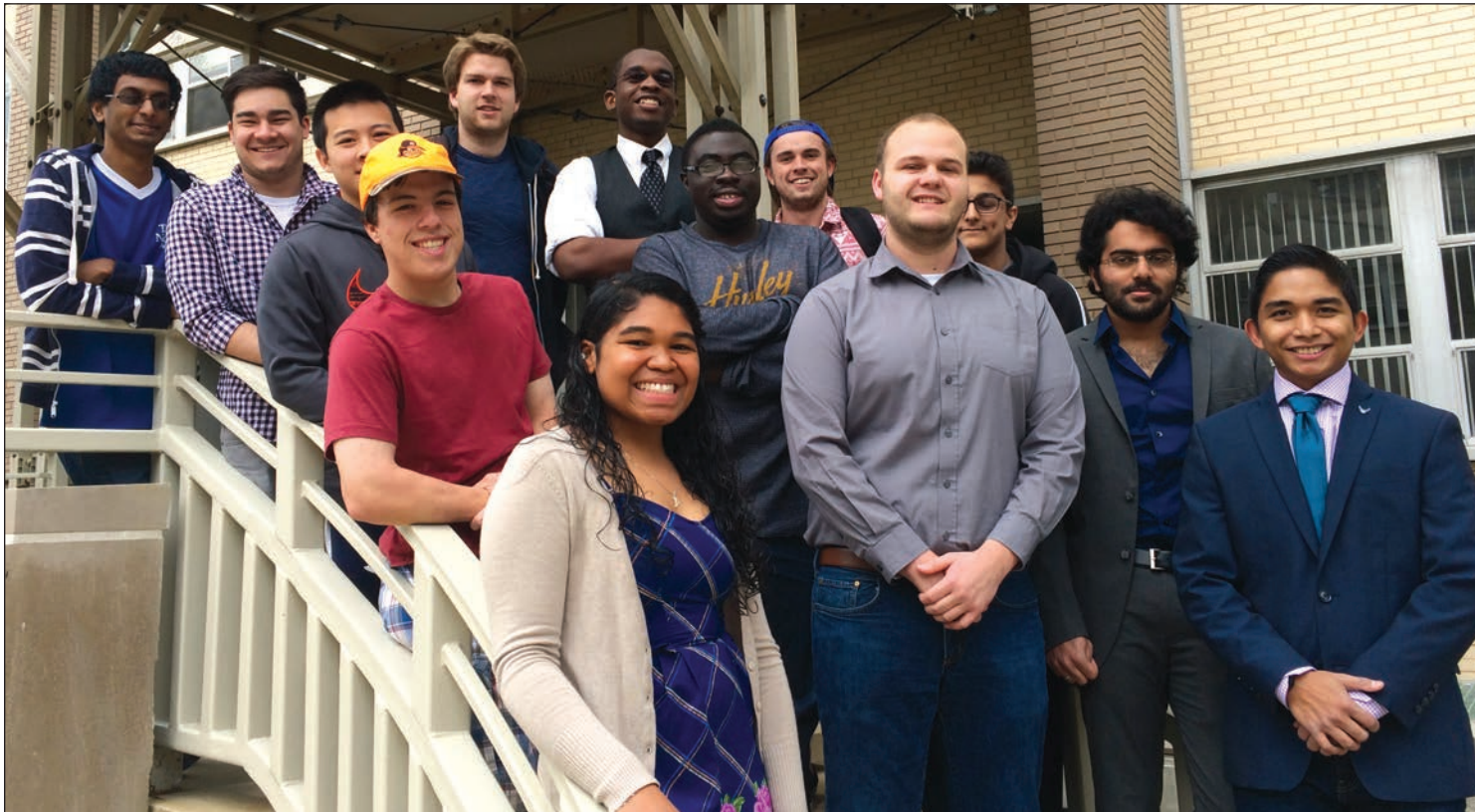
The model rockets used in this project would reach 1,500 feet in altitude, and descend to the ground via parachutes. To make the rockets return to the launch pad, students must launch rockets into the wind. "It is a challenge to estimate how the wind velocities change over the range of altitudes," said Okutsu. "An error in estimated wind velocities would translate into a large error in predicted landing location."

During the semester, students spent many weeks writing computer programs to help them solve differential equations of motions for rockets. They conducted a series of experiments to measure such parameters as the rockets' thrusts and the drag coefficients. Some of the students learned how to use theodolites — equipment used in civil engineering surveys — to accurately measure the altitudes reached by their rockets.

Ronaldo Limberger Tomiozzo, an exchange student from Brazil, was one of the students in the course. "While studying in the U.S., I wanted to experience things that I could do only here," he said. "I was happy to be a part of this project. At my university back home, there is no course like this."



ACM Charts Student Chapter



The Catholic University of America Association for Computing Machinery (ACM) Student Chapter was officially chartered by ACM's chief operating officer on April 30, 2015. ACM is the world's largest international scientific and educational computing society. Catholic University's chapter is open to anyone who has an interest in the field of computer science.

"It has been almost a year since we made our first effort in getting our student chapter recognized by the University as an on-campus organization, and then recognized by the ACM's COO nationally," said chapter president Austin Mueller. "We achieved it through the efforts of the other ACM officers (Brianna Navarro, Phillip Samra, and Peter Kuebler) and our faculty advisor (Assistant Professor Lin-Ching Chang). We are very happy and excited about our achievement and

are looking forward to encouraging more students to join us."

The ACM student chapter's goals for next year are to expand its membership and take advantage of all the benefits of being a chartered ACM chapter. "There are a lot of resources available to student chapters," continued Mueller, "including the ACM distinguished speakers program, a network of professionals in the computer science field that are willing to be guest speakers at universities." The chapter also has been in contact with a local middle school about working with their STEM program to host an event that will be educational and fun for both groups. Mueller, who graduated with a Bachelor of Computer Science degree in 2015, is confident about the organization's future. "I know that this organization will continue to grow and become a great organization here at CUA."

Society of Women Engineers Hosts Career Event

Catholic University's student branch of the Society of Women Engineers welcomed Soo Jennings, Chelsea Powell, Jenny Tsao, Amanda Amsler, Livia Motz, and Kate McGuire, active members of the Baltimore-Washington Society of Women Engineers Profession Division, to campus on March 30 for a panel discussion for engineering students.

The panel provided an excellent opportunity for both men and women of all engineering disciplines get the inside story about what a day as an engineer is really like. The days featured both structured questions for the panel to answer and a more freeform Q&A with students, with the goal of helping

students gain more knowledge about the field and reassurance that they are on the right career path.

Student Rachel Vierra, who attended the event, said, "It was reassuring to know that these women were able to be moms and have a family as well as love their profession and excel in the workplace as engineers."

SWE members thank the panel members for coming and donating their valuable time and give a special thanks to our faculty advisor, Lin-Ching Chang, Ph.D., as well as to the members of ASME and ACM for helping organize the event.

Senior Engineering Students Shine on Design Day

At the end of each spring semester Senior Design Day presents graduating students with the opportunity to share yearlong projects with the entire University community. Monday, May 4, marked the 7th annual Engineering Senior Design Day, held in the Great Room of the Edward J. Pryzbyla University Center. A total of 87 seniors from four departments and five programs in 25 teams displayed their completed projects with presentations and posters, including 27 students in seven teams from mechanical engineering, 19 students in six teams from biomedical engineering, 19 students in four teams from civil engineering, and 23 students in eight teams from electrical engineering and computer science.

Commenting on the day, Associate Dean Steven Brown remarked, “Senior Design Day has become more and more an integral and important part of the life of the school. This is illustrated by the support shown by the highest levels of the University’s administration, with the presence of both Very Rev. Morozowich, then interim provost, who recognized the winners from each department, and President John Garvey, who spent a good 30 to 45 minutes touring the student exhibits and interacting with student participants.

“The students and their faculty mentors and advisers should be proud of the outcome of their yearlong efforts in producing high-quality projects,” Brown concluded.

More than 50 faculty members and visitors attended the event, judging the presentations and poster sessions. From mechanical engineering, the judges selected SAE Aero Design West Competition, whose team members were Joshua Bryant, Cameron Daniels, Diogenes Dichoso, and Hannah Gillis. The

winning biomedical engineering team, comprising members Tyler Cork, Reagan McCloskey, and Reanna Sealey, were selected for their Validation of the Kinect v2 vs. Vicon and GAITRite for Gait Pattern Parameters: Pilot Study. The electrical engineering and computer science team winners were Anthony Nguyen, Tri Nguyen, and Tung Nguyen who developed a Rice Cooking Robot. The civil engineering team chosen by the judges, with members Nareg Khachadorian, Shane Kelly, Nick Sangwa, Cheryl Anderson, and Steven Manozzi, won for their project Green Space. The day concluded with an awards ceremony at which the four winning teams were honored by Father Morozowich and Dean Nguyen.



School of Engineering Celebrates E-Week

Engineering Week, a fun and educational week for all students — engineering ones and others — took place from Monday, Feb. 23, to Friday, Feb. 27, in the Edward J. Pryzbyla University Center and Pangborn Hall.



Each day honored a different engineering society. Monday featured the members of the Biomedical Engineering Society who showed how robots and the Kinect can be used to help people recover from brain injury. On Tuesday, the American Society of Civil Engineers took the floor, illustrating the principles of engineering design, particularly bridge design, through a mini bridge building competition using the West Point Bridge Builder software. The Institute of Electrical and Electronics Engineers (IEEE) presented an interactive activity involving a laser maze. Thursday belonged to the American Society of Mechanical Engineers who illustrated engineering design by having participants construct robots based on Lego Mindstorms. The week included two seminars. The first, “Full-Underlay Satellite Communications” hosted by IEEE and the Department of Electrical Engineering, was delivered by Khanh Pham, Ph.D., of the Air Force Research Laboratory. The second, hosted by the newly founded ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers) Student Branch covered “Sustainability in Building Design” and was given by Roger Chang, principal of Westland Reed Leskosky.

We are looking forward to an even better and more rewarding 2016 edition of E-Week!

First Indoor Soccer Championship Scores with Faculty and Students



On April 28, 2015, in collaboration with the other departments in the School of Engineering, the Department of Electrical Engineering and Computer Science organized the Indoor Soccer Championship, the first of many events envisioned to foster community and break barriers between undergraduate students, graduate students, and faculty. The event generated intense interest. More than 80 undergraduate and graduate students from various departments participated. Members of engineering faculty were also eager to show their soccer-playing skills.

Four teams, representing electrical engineering and computer science (EECS), mechanical engineering (ME), biomedical engineering (BE), and civil engineering (CE), were formed. EECS faculty Erion Plaku and George Nehmetallah were in charge of the EECS team; ME was led by Zhaoyang Wang; Christopher Raub led BE; and Chanseok Jeong was in charge of CE. The event proceeded as a knockout tournament. Nagy Abdelrazek, the director of intramural sports, graciously agreed to referee the games. It was hard to keep up with the energetic undergraduates, but faculty gave it their all. The first game was a hard-fought battle between ME and BE. After being behind by a goal or two in the first half, BE pushed forward in the second half with some creative combination play and soon took the lead, which it maintained until the end. EECS started well against CE, even taking the lead. CE,

however, reorganized and was able to withstand the pressure thanks also to some outstanding saves by its goalkeeper. Having found the confidence, CE pushed forward and was able to tie, take the lead, and eventually win the game.

The final was an exciting encounter between BE and CE. BE started strong and was leading by three goals. Perhaps thinking that a three-goal lead was insurmountable BE started to relax, which allowed CE to come back and tie the game with only a few minutes remaining on the clock. BE reorganized, started to circulate the ball in the midfield, and eventually scored the winning goal, and so became the Champion of the First Indoor Soccer Championship of the School of Engineering at CUA. Abdullah Alalyani was the MVP, putting on an excellent performance, and even scoring a hat-trick, including the winning goal in the final. We hope that the soccer tournament generated a sense of community and will become a regular event.

The winning team received a cup custom designed by Amanda Crowe, EECS administrative assistant. Spirits were high at the end of the event, with players from other departments pitching in for each other and students requesting that this become an annual competition.



Engineering Alumnus Finds Calling in Hubble Space Telescope Project

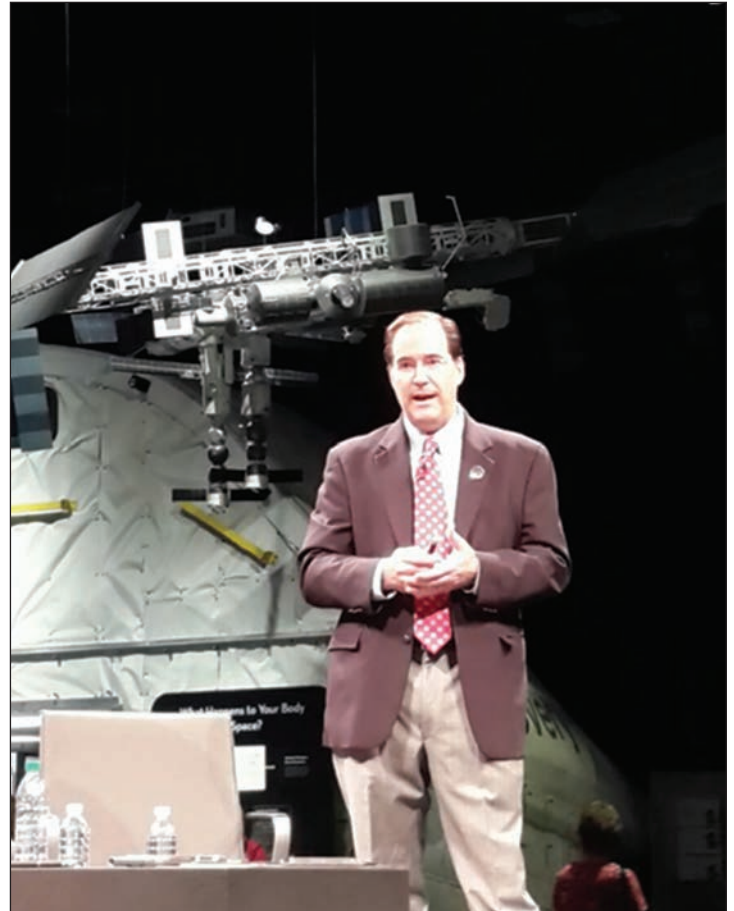
In 1988, senior mechanical engineering student Justin Cassidy (B.M.E. 1988, M.M.E. 1992) and his class toured the NASA-Goddard Space Flight Center (GSFC) Robotics Laboratory in Greenbelt, Md. During that visit he knew he had found his calling. After graduating from CUA he joined the NASA team that, over 15 years, designed, developed, and created highly specialized astronaut tools for the Hubble Space Telescope servicing missions.

As an engineering student Cassidy, now Space Robotics Applications Office deputy, never imagined that he would not only design some of the most intricate tools for space applications, but would also be required to learn how to scuba dive for his job. For years, diving in the Neutral Buoyancy Lab (NBL) in Houston became as commonplace in his professional life as sitting in front of a computer to review tool designs. His team spent hundreds of hours at NBL training astronauts on the use of each tool for each task, reviewing the tool design with them, and making the necessary adjustments for flawless execution in space.

The last servicing mission to the space telescope in 2009 required his team to develop and design 180 primary and contingency astronaut tools used to recover two of the Hubble's main scientific instruments: the space telescope imaging spectrograph and the advanced camera for surveys.

The Hubble Space Telescope servicing missions have led to countless discoveries over a greater timeline than originally planned thanks to the telescope's modular framework, advancements in technology, and a space shuttle vehicle capable of delivering astronauts to the telescope to conduct multiple servicing missions. Twenty-five years after its launch, the Hubble Space Telescope is a testament to human ingenuity and tenacity and the power of science, engineering, and creativity.

Justin Cassidy is married to Rosa Cassidy (Tünnermann) (B.M.E. 1988, M.M.E. 1990). Their son, Justin Cassidy, is a member of the class of 2018 at the School of Engineering.



Justin Cassidy spoke at the Air and Space Museum in Washington, D.C., in June 2015.

School Honors Faculty and Staff for Excellence

Each year, the School of Engineering Award Selection Committee identifies recipients for school awards established to honor members of the faculty and staff for their outstanding performance during the academic year.

The Kaman Faculty Award for Excellence in Teaching was given to Ujjal Bhowmik, clinical assistant professor in the Department of Electrical Engineering and Computer Science, in honor of his excellent undergraduate instruction in core engineering courses ENGR 212-Electric Networks and ENGR 321-Electronics. He received very good teacher evaluations from students with several pointing out his availability, willingness to help, and wit in the classroom.

The Kaman Faculty Award for Excellence in Research was given to Erion Plaku, assistant professor of electrical engineering and computer science, who published five journal articles and six conference papers, and was awarded two grants by the National Science Foundation and one by the Office of Naval Research.

Two faculty members were named Burns Faculty Fellows. Max Liu, assistant professor of civil engineering, was selected for his proposed work on understanding the long-term performance of green roof buildings under climate change, and Chris Raub, assistant professor of biomedical engineering, was selected for his proposed development of a fiberoptic endoscopy technique that generates quantitative indices of articular cartilage biomechanics.

Masa Okutsu of civil engineering received the Dean's Service Award for Faculty for his outstanding service to the school and his department. He was particularly recognized for assisting students in multiple departments in aerospace-related design projects and coursework, and for establishing a CUA Chapter of AIAA (American Institute of Aeronautics and Astronautics).

The Staff Excellence Award was given to Amanda Crowe, administrative assistant, in the Department of Electrical Engineering and Computer Science for her outstanding service to department faculty, staff, and students.

Alumni Corner

1960s

Jude Eric Franklin, B.E.E. 1965, M.E.E. 1968, Ph.D. E.E. 1980, designed underwater acoustics equipment, including towed sonar arrays. He was vice president of applied engineering at MAR Inc., first manager of the Navy AI Center at NRL, vice president and chief technology officer at Litton PRC Inc., and technical director for Raytheon Technical Services. He has more than 47 technical publications and is a fellow of the Washington Academy of Science and an associate fellow of AIAA. He serves on the School of Engineering Development Board, CUA Alumni Relations subcommittee, and the CUA 1961 50th Class Reunion Committee. He retired in 2012 and enjoys cooking, traveling, and seeing grandchildren with his wife, Mary Fran Bizot Franklin, B.A. 1965, B.S.N. 1980.

John (Jack) Mecholsky Jr., B.C.E. (1966); M.C.E. (1968) Ph.D. (1973), is a professor in the Department of Materials Science and Engineering at the University of Florida. He also served as chair of the university's Faculty Senate (2009–2010); and was on the Board of Directors of American Ceramic Society (2007–2010) and St. Francis House (Homeless Shelter) and the UF Board of Trustees (2009–2010).

1970s

Victor A. Atiemo-Obeng, B.Ch.E. 1970 *cum laude* retired as Dow Fellow from the Dow Chemical Company in January 2012 after 34 years of engineering science research and practice. He was invited out of retirement to serve from July to

December 2012 as director and country manager to establish Dow Chemical West Africa LLC in Ghana for commercial operations. He previously served as a research scientist at the Council for Scientific and Industrial Research, Accra, Ghana from 1978 to 1980.

Joseph J. Allan Jr., B.M.E. 1979, is currently working for the MITRE Corporation in McLean, Va., as a program manager providing consulting to policy and IT executives in the federal government.

1980s

David L. Danner, Ph.D., 1982, founder and CEO of IDEAMATICS Inc. was one of eight distinguished individuals recognized for his achievements by the Washington Academy of Sciences, during their annual awards banquet hosted at the Sphinx Club in Washington, D.C., on May 8, 2014. He received the academy's award for Achievement in Engineering Science.

1990s

Antonio (Tony) Delgado P.E., B.S.M.E. 1993, is vice president and market sector leader in Food and Personal Care for Alliance Engineering, an engineering and construction management firm based in the Mid-Atlantic that provides services to national clients in a variety of manufacturing and power generating sectors.

Bryan P. Walsh, B.S.M.E. 1997, is general manager, Duke Energy, Power Generation Operations, in charge of three coal-fired power

plants, one combined cycle power plant, one hydroelectric power plant, and numerous simple cycle combustion turbines in Duke Energy's Midwest Fleet. He has five publications based on his graduate school research at Georgia Tech.

Jeffery Jerrels, AIA, LEED BD+C, Engineering/M.S.E. 1998, is the architecture operations manager for the Alexandria, Va., office of Michael Baker International, managing operations for a multidiscipline practice encompassing architecture, interiors, landscape architecture, and planning. This firm is celebrating 75 years and is proud of the way "We Make a Difference" for our clients and communities.

Bill LaPlante, Ph.D., mechanical engineering 1988, was sworn in as the assistant secretary of the Air Force for acquisition. He was an instructor at Catholic University in the School of Engineering through the spring of 2013.

2000s

Parris J. McGhee-Bey, M.C.E. 2000, works as a civil engineer/lead negotiator for the Department of Defense, U.S. Army Corps of Engineers. McGhee-Bey has worked for the corps since June 2009.

Steve Peduto, B.M.E. 2003, is a senior lead engineer with Booz Allen Hamilton. Since graduating from CUA, he has served in systems engineering roles of increasing responsibility as a contractor for the Navy, the Missile Defense Agency (MDA), NASA, and NOAA. Since 2011, he has served in a series of systems engineering leadership roles supporting NASA and NOAA in the development and testing of the Joint Polar Satellite System (JPSS), the nation's next generation polar-orbiting weather and climate satellite network. He was awarded the International Council on Systems Engineering's (INCOSE) Certified Systems Engineering Professional (CSEP) certification in 2011. He resides in Frederick, Md., with his wife, Ashley, and their two children.

Rev. David D. Nerbun, B.C.E. 2005, was ordained a priest for the Diocese of Charleston, S.C., and assigned to a parish near Hilton Head for two years. He was sent back to CUA to finish a Licentiate in Theology of Marriage and Family Life at the John Paul II Institute. He is currently working on his doctorate there in the same field. He will be moving in May to St. Louis to help with seminarian formation at Kenrick-Glennon Seminary.



Research Director Honored

Lawrence C. Schuette B.E.E. 1983, M.E.E. 1985, Ph.D. 1995, director of research, Office of Naval Research (ONR) received the 2014 Engineering Distinguished Alumni Award during the Alumni Homecoming Luncheon in October 2014. The award is presented annually to an engineering alumnus/a based on the recipient's exceptional professional achievements. The luncheon was attended by more than 200 guests, including University administrators, faculty, staff, students, and alumni.

In his current role, Schuette oversees and manages the fundamental and applied research portfolios for the U.S. Navy and Marine Corps. Previously, he was the director of innovation at ONR, managing the Innovative Naval Prototype, Tech Solutions, and Swampworks portfolios. These advanced research efforts are directed at providing innovative solutions to a multiplicity of naval challenges.

In 1983, Schuette began his career in the Acoustics Division at the Naval Research Laboratory at the request of Henry "Hank" Dardy, Ph.D., a longtime adjunct professor of the CUA School of Engineering. He also worked in the Information Technology and Tactical Electronic Warfare divisions. Beginning in 2003, he began a series of assignments in the Pentagon, including working as head of the Innovative Systems

Subgroup of the Office of the Secretary of Defense Technical Joint Cross Service Group, deputy chief of the Joint IED Defeat Organization, and special assistant to the assistant secretary of the Navy for research development and acquisition. Schuette entered the Senior Executive Service at ONR in 2007.

Schuette's awards include the Secretary of Defense Medal for Exceptional Civilian Service, the Department of Navy Superior Senior Service Award, the Department of Navy Meritorious Civilian Service Award, and the American Red Cross Certificate of Extraordinary Personal Action.



Mrs. Schuette, Dr. Schuette, Dean Nguyen, and Karin Schuette Mulquin (sister of Dr. Schuette)

Stephanie A. Kennedy, B.B.M.E., 2006, after completing a Ph.D. in biomedical engineering at Duke University in 2012, began working for ICON plc in 2012, and was named the top U.S. senior analyst in the first quarter of 2014. She was then promoted to consultant within ICON Commercialisation & Outcomes, and is now working as a project manager and consultant within the Pricing and Market Access division.

Ronald Hupczey, B.B.E. 2008, was hired as a patent examiner in February of 2008 at the United States Patent and Trademark Office where he works in electrosurgical medical devices. After several promotions he was named primary patent examiner in January 2014.

Gregory Powell, B.B.E. 2008, graduated with a doctorate in physiological sciences from the University of Arizona in 2014. He was first author on two publications in the *Journal of Neurophysiology* on the effects of nicotine exposure

during development of respiratory neurons.

Nicholas Backert, B.C.E. 2009, M.C.E. 2012, began working for Harkins Builders Inc., a general contractor, as a project engineer, after graduation in 2009. From 2010 to 2013 he worked for the U.S. Army Corps of Engineers as a project engineer. He currently works for Arlington National Cemetery as a project manager, planning and supervising construction and maintenance projects at the cemetery.

2010s

Daniel Joyce, B.C.E; 2011, is a project engineer at the Bozzuto Group, and a LEED-accredited professional in building design and construction.

Alexandra Wildes, B.C.E. 2012, worked as a project engineer in high-end residential building for James G. Davis Construction Company, a general contractor located in Rockville, Md., after

graduation until 2014. She then moved to Austin, Texas, to work as an assistant project manager at Rogers-O'Brien Construction. She became a LEED green associate in 2013.

Teresa Ryan, Ph.D., mechanical engineering, 2013, after two years as a teaching assistant professor in the Engineering Department at East Carolina University, will move into a tenure track position as assistant professor at the university, effective August 2015.

Ali Taylor, B.B.E. 2014, is a clinical engineer for the Naval Medical Logistics Command.

Ali Sheikhbahaei, M.C.E. 2014, moved from staff engineer at HSA Inc. in Washington, D.C., and senior staff engineer at Somat Engineering in Beltsville, Md., to senior project geotechnical engineer at Burgess and Niple Inc. He recently received his Engineering in Training Certification.

Faculty

Awards and Honors

- **Abot, J. L.**, Strain Monitoring and Damage Detection in Polymers and Composite Materials Using Carbon Nanotube Fiber Sensors. Fulbright U.S. Scholar Program, U.S. Department of State. 2014–2015.
- **Liu, H.**, Best Paper Award of 9th International Conference on Wireless Algorithms, Systems, and Applications, 2014.
- **Lucko, G.**, Outstanding Young Alumni Award, Charles E. Via, Jr. Department of Civil and Environmental Engineering, Virginia Tech, 2014.
- **Lucko, G.**, Daniel W. Halpin Award for Scholarship in Construction, Construction Institute, American Society of Civil Engineers, Reston, Va., 2014.

- **Nguyen, C.**, 2014 Asian Heritage Award in Opportunity from the Asian Heritage Society at the 11th Annual Asian Heritage Awards Gala at the California Center for the Arts in Escondido, Calif., Nov. 22, 2014.
- **Plaku, E.**, Faculty Research Fellowship, Office of the Naval Research, June 2014.

Grants

- **Abot, J. L.**, (PI), “Miniature Piezo-Impedance Sensors for Structural Health Monitoring Using Carbon Nanotube Yarn,” Fulbright-Brazil Scientific Mobility Program, Summers 2014 and 2015, \$30,458.
- **Abot, J. L.**, (Co-PI) and Belay, K., (FAMU) (Co-PI) “Strain Monitoring and Damage Detection in Polymers and Composite Materials Using Carbon Nanotube Fiber Sensors,” Air Force Office of Scientific Research, 06/15/2015–06/14/2017. Abot’s share: \$135,000.

- **Brown, J.S.**, “Information Models and Automated Reasoning for Smart Manufacturing and Advanced Robotics,” National Institute of Standards and Technology, April 2, 2012–March 31, 2015, \$575,134.
- **Brown, J.S.**, “Advanced Simulation Models for Enabling Net-Zero Energy, High-Performance Buildings,” National Institute of Standards and Technology, June 1, 2013–May 31, 2015, \$147,199.
- **Brown, J.S.** (PI), **Nieh, S.**, (Co-PI), and **Vignola, J.**, (Co-PI), “Development of STEM Workforce in Mechanical Engineering at The Catholic University of America in Support of NASA’s Strategic Goals,” D.C. Space Grant Consortium (NASA), May 1, 2011–Aug. 26, 2015, \$104,336.
- **Chang, L.-C.**, (PI), “Computer Software Programming Support to NHLBI’s Advanced Cardiovascular Imaging Group,” National Heart, Lung, and Blood Institute, National Institutes of Health, Award No. HHSN268201500119A. June

School Remembers Professors Ling and Atabek

A memorial to honor Professor Emeritus Sung Ching Ling, who passed away March 21, 2015, and Professor Emeritus H. Bulent Atabek, who died Dec. 4, 2013, was held in Scullen Room at Pangborn Hall on May 8, 2015. Ling and Atabek were pioneers in studying in-vivo arterial blood flow in animal models.

The memorial was attended by approximately 30 family members, colleagues, and friends. Very Rev. Mark Morozowich, interim provost, opened with a prayer and remarks. Dean Charles Nguyen presented appreciation plaques to both families in recognition of the deceased professors’ contributions. Jeanne, Ling’s eldest daughter, and Alp, Atabek’s third son, spoke about their fathers on behalf of their families. Many colleagues, including Timothy Kao, John McCoy, Frank Pao, Aydin Tozeren, Bertrand Fang, Binh Tran, and Dave Didion, shared memorable stories. C.F. Kwok, a college classmate of Ling’s in Shanghai, told stories of Ling’s father and wife Gloria. Crispin Chow, a former student of Ling’s, sent a letter with deep emotion in memory of him.

Ling’s research covered a wide field from space, atmosphere, continent, and ocean to living systems. He invented many advanced instruments permitting him to study a variety of physical problems that are of his recent interest. Professor Ling’s recent interest was in the chemical nature related to the capillary blood flow and the clean combustion of fossil fuels and animal wastes. These subjects are presently of major importance to both medical and environmental sciences. In his retirement years, he focused his research interest to a study “on the mechanics of an electron” based on the concept of quantum mechanics and string theory. It is interesting to note that, according to his findings, an electron should take the form of a vortex ring of negatively charged matter with an accompanying flux of a closed magnetic-ring.

Ling was a faculty member in mechanical engineering and later in biomedical engineering from 1963 until his retirement in 2003. In view of his vision and compassion for invention and advanced design, his family is considering setting up a charitable foundation to initiate a S.C. Ling Engineering Design Award at the School of Engineering to encourage students to strive for the best and advanced design in the pursuit of an engineering career.

Atabek was a faculty member in mechanical engineering from 1963 until his retirement in 1995. His research expertise was in the study of fluid dynamics as applied to the human circulatory system. Together he and Ling developed foundational theories on laminar oscillatory flow and wave propagation through viscous incompressible fluids. These foundational works in nonlinear analyses of pulsatile blood flow in arteries are increasingly cited in today’s cardiovascular research and modeling efforts. Atabek was the director of biomedical engineering program in the Department of Mechanical Engineering in early 1990s and was instrumental in establishing and strengthening the biomedical engineering curriculum and research that led to an independent department in 1999. To commemorate his important contribution to biomedical engineering program at CUA, the H.B. Atabek Award was established to give to the graduating seniors with the highest academic performance in the Department of Biomedical Engineering each year.



2015–May 2016, \$39,951.

- **Chang, L.-C.**, (PI) “Computer Software Programming Support for NHLBI Cardiac Magnetic Resonance Image Processing, Visualization and Quantification Tools,” National Heart, Lung, and Blood Institute, National Institutes of Health, Award No. HHSN2682014-00148P. June 2014–May 2015, \$30,000.
- **Dutta, B.**, “Development of high efficiency thermoelectric nanowires”, ZT3 Technologies Inc., Thousand Oaks, Calif., 2007–present, \$2.75 million.
- **Kilic, O.**, “Hardware Accelerated Integration of Full Wave Model and Optimization of Rotman Lenses,” Army Research Office, May 2009–May 2014, \$485,836.
- **Lade, P.V.**, (PI), “Experimental Determination and Constitutive Modeling of Time Effects in Sand,” National Science Foundation, Sept. 1, 2011–Aug. 31, 2015, \$331,985.
- **Lee, S.W.**, (PI), “CAREER: Neuromechanics of functional impairment of upper extremity following stroke and its effective restoration by retraining muscle activation patterns,” National Science Foundation, March 2015–February 2020, \$500,445.
- **Liu, H.**, (PI) and **Kilic, O.**, (Co-PI), “Multi-Input Multi-Output (MIMO) Aware Cooperative Dynamic Spectrum Access,” National Science Foundation, Jan. 1, 2015–Dec. 31, 2017, \$299,998.
- **Liu, H.**, (PI), **Chang, L.C.**, (Co-PI), **Kilic, O.**, (Co-PI), and **Namazi, N.**, (Co-PI), “Planning Grant: I/UCRC for Broadband Wireless Access and Application Center Site at The Catholic University of America,” National Science Foundation, April 1, 2014–March 31, 2016, \$13,000.
- **Liu, H.**, (PI) and **Kilic, O.**, (Co-PI), “WiFIUS: An Architecture for Future Configurable Millimeter Wave Cellular Networks,” National Science Foundation, May 1, 2015–April 30, 2017, \$100,000.
- **Lucko, G.**, (PI), “A Discrete Method for Allocation of Float along the Critical Path in Construction Project Schedules,” National Science Foundation, July 1, 2013–June 30, 2016, \$300,000 + \$73,260 tuition remission.
- **Lum, P.S.**, (PI) “Robot therapy for rehabilitation of hand movement after stroke,” NIH R15 Award, Sept. 2013–Sept. 2016, \$457,954.
- **Lum, P.S.**, (PI) “Biomechanics of Upper Extremity function following Stroke,” VA Merit Review Award, April 2012–April 2015, \$300,000.
- **Lum, P.S.**, (PI of CUA subcontract), “Clinical testing of robotic exoskeletons for rehabilitation of hand function in TBI (PI: Healton),” U.S. Army Medical Research and Materiel Command, Sept. 2012–Sept. 2014, \$160,000.
- **Massoudieh, A.**, (PI), “Probabilistic Optimization of Biologic Treatment Control,” DC Water and Sewer Authority, October 2013– September 2014, \$50,684.
- **Massoudieh, A.**, (PI), “Technical Support for SWMM-SWAT GI Modeling GAP and Analysis, U.S. EPA, October 2014–May 2015, \$62,000.
- **Massoudieh, A.**, (PI), “Developing a chance-constraint framework for optimization of long-term hydraulic performance of green roofs,” United States Geological Survey through DC Water Resources Research Institute, March 2014–February 2015, \$15,000.
- **Massoudieh, A.**, (PI), “Optimal Control of Biological BOD and nutrient removal based on historic influent characteristics,” DC Water and Sewer Authority, October 2014– September 2015, \$50,836.
- **Plaku, E.**, (PI), “Toward Supervised Autonomy for Robotic Systems,” National Science Foundation, August 2014–August 2016, \$149,995.
- **Plaku, E.**, (PI), Shehu, A., and Roitberg A. “A plug-and-play software platform of robotics-inspired algorithms for modeling biomolecular structures and motions,” National Science Foundation, February 2015–February 2018, \$499,999.
- **Sun, L.**, (PI) “CAREER: Stochastic and Dynamic Interaction of Vehicle-Pavement Systems and Its Applications to Transportation Infrastructure,” National Science Foundation, CMMI-0644552 (June 2007–June 2014), \$410,000.
- **Tran, B.Q.**, “Neuroinformation processing and fusion based on functional-electroencephalograms (f-EEG),” Army Research Office, August 2014–April 2015, \$48,961.
- **Vignola, J., Judge, J., Turo, D.**, and Ryan, T., “Modeling Acoustic Propagation in Littoral and Surf-Zone Regions,” White paper and full proposal written for the Office of Naval Research. Submitted March 13, 2015. This proposal has been approved and funding is currently being processed. This is a single-year proposal totaling \$121,692.
- **Vignola, J., Judge, J., Turo, D.**, and Ryan, T., “Investigation of marine mammal acoustic environment during a shallow water seismic survey in the Arctic,” White paper and full proposal written for the Office of Naval Research. Submitted April 15, 2015. This proposal has been approved and funding is currently being processed. This is a single year proposal totaling \$161,014.
- **Wilson, Jr., O.C.**, (PI), McRae, A., and **Tran, B.**, “STREAM Primary Source Inquiry to Cultivate Excellence in Education by Design (SPICED) NGSS Aligned Curriculum Development,” Library of Congress, April 2015–September 2016, \$20,000.
- **Wilson, Jr., O.C.**, (PI), McRae, A., and Philip, J., “Teacher Quality Improvement Grant: PIQUED Curiosity K-12 Teacher Professional Development,” D.C. Office of State Superintendent for Education/Department of Education, April 2015–September 2016, \$100,000.

Presentations and Publications

- **Abot, J. L.**, Alesh, T., Bajar, A., Renner, D., Good, E., Sensale-Rodriguez, B. and Belay, K., “Coupled mechanical and electrical response of carbon nanotube yarn sensors for self-sensing composite materials,” *29th American Society for Composites Conference*, San Diego, Calif., Sept. 8, 2014.
- **Abot, J. L.**, “Self-Sensing Composite Materials Using Carbon Nanotube Yarns: A New Paradigm in Structural Health Monitoring,” *Department of Aerospace Engineering at the Instituto Tecnológico de Aeronáutica*, São José dos Campos, Brazil, Oct. 17, 2014.
- **Abot, J. L.**, Silva, E. C. N., Kiyono, C. Y. and Thomas, G. P., “Strain gauge sensors comprised of carbon nanotube yarn: concept and modeling,” *Proceedings of 13th International Symposium on Multiscale, Multifunctional and Functionally Graded Materials*, Atibaia, São Paulo, Brazil Oct. 21, 2014.
- **Abot, J.L.**, “Self-Sensing Composite Materials Using Carbon Nanotube Yarns: A New Paradigm in Structural Health Monitoring,” *Department of Mechanical and Aerospace Engineering at The University of Oklahoma*, Nov. 12, 2014.
- **Abot, J. L.**, Alesh, T., Bajar, A., Renner, D., Good, E., Sensale-Rodriguez, B. and Belay, K., “Coupled mechanical and electrical response of carbon nanotube yarn sensors for self-sensing composite materials,” *29th American Society for Composites Conference*, San Diego, Calif., 2014.
- **Abot, J. L.**, Silva, E. C. N., Kiyono, C. Y. and Thomas, G. P. “Strain gauge sensors comprised of carbon nanotube yarn: concept and modeling,” *Proceedings of 13th International Symposium on Multiscale, Multifunctional and Functionally Graded Materials*, Atibaia, São Paulo, Brazil, 2014.
- **Abot, J. L.**, Alesh, T., and Belay, K., “Strain dependence of electrical resistance in carbon nanotube yarns,” *Carbon 70*: 95-102, 2014.
- Tran, D., Duong, K., and **Bhowmik, U.K.**, “A VHDL Based Controller Design for Non-contact Temperature and Breathing Sensors Suitable for Crib,” *IEEE BIBE 2014*, Boca Raton, Fla. Nov. 10–12, 2014.
- McLinden, M.O, Domanski, P.A., **Brown, J.S.**, Kazakov, A., and Carande, W, “Optimizing the Selection of Low-GWP Refrigerants: Limits, Possibilities, and Tradeoffs,” *15th International*

Refrigeration and Air Conditioning Conference at Purdue, West Lafayette, Ind., July 2014.

- Fedele, L., **Brown, J.S.**, Di Nicola, G., Bobbo, S., and Scattolini, M., "Measurements and Correlations of cis-1,3,3,3-tetrafluoroprop-1-ene (R1234ze(Z)) Subcooled Liquid Density and Vapor Phase PvT," *20th European Conference on Thermophysical Properties*, Porto, Portugal, September 2014.
- Longo, G.A., Zilio, C., Righetti, G., **Brown, J.S.**, "Experimental Assessment of the Low GWP Refrigerant HFO-1234ze(Z) for High Temperature Heat Pumps," *Experimental Thermal and Fluid Science* 57: 293–300, 2014.
- Fedele, L., **Brown, J.S.**, Di Nicola, G., Bobbo, S., and Scattolini, M., "Measurements and Correlations of cis-1,3,3,3-tetrafluoroprop-1-ene (R1234ze(Z)) Subcooled Liquid Density and Vapor Phase PvT," *International Journal of Thermophysics*, 35(8): 1415–1434, 2014.
- **Brown, J.S.**, Brignoli, R., Daubman, S., "Methodology for Estimating Thermodynamic Parameters and Performance of Working Fluids for Organic Rankine Cycles," *Energy*, 73: 818–828, 2014.
- **Brown, J.S.**, Corvaro, F., Di Nicola, G., Giuliani, G., and Pacetti, M., "PvT Measurements of trans-1,3,3,3-tetrafluoroprop-1-ene + methane and trans-1,3,3,3-tetrafluoroprop-1-ene + nitrogen Binary Pairs," *Journal of Chemical & Engineering Data*, 59(11): 3798–3804, 2014.
- Kedzierski, M.A., **Brown, J.S.**, and Koo, J., "Performance Ranking of Refrigerants with Low Global Warming Potential," *Science & Tech for the Built Environment* 21(2): 207–219, 2015.
- Brignoli, R. and **Brown, J.S.**, "Organic Rankine Cycle Model for Well-Described and Not-So-Well-Described Working Fluids," *Accepted for publication in Energy*, 2015.
- McLinden, M.O., Domanski, P.A., **Brown, J.S.**, Kazakov, A., and Carande, W., "Optimizing the Selection of Low-GWP Refrigerants: Limits, Possibilities, and Tradeoffs," *15th International Refrigeration and Air Conditioning Conference at Purdue*, West Lafayette, Ind., July 2014.
- Fedele, L., **Brown, J.S.**, Di Nicola, G., Bobbo, S., and Scattolini, M., "Measurements and Correlations of cis-1,3,3,3-tetrafluoroprop-1-ene (R1234ze(Z)) Subcooled Liquid Density and Vapor Phase PvT," *20th European Conference on Thermophysical Properties*, Porto, Portugal, September 2014.
- Dao, L., Lucotte, B., Glancy, B., **Chang, L-C.**, Hsu, L-Y., and Balaban, R.S., "Use of independent component analysis to improve signal-to-noise ratio in multi-probe fluorescence microscopy," *Journal of Microscopy*, 256 (2), 133–144, 2014.
- **Chang, L-C.**, **El-Araby, E.**, Dang, V., and Dao, L., "GPU acceleration of nonlinear diffusion tensor estimation using CUDA and MPI," *Neurocomputing*, 135, 328–338, 2014.
- Ducharme, S., Albaugh, M.D., Hudziak, J.J., Botteron, K.N., Nguyen, T-V., Truong, C., Evans, A.C., [..], Pierpaoli, C., Basser, P.J., **Chang, L-C.**, Koay, C.G., Walker, L., Freund, L., Rumsey, J., Baskir, L., Stanford, L., Sirocco, K., Gwinn-Hardy, K., Spinella, G., Alger, J.R., and O'Neill, J., "Anxious/Depressed Symptoms Are Linked to Right Ventromedial Prefrontal Cortical Thickness Maturation in Healthy Children and Young Adults," *Cerebral Cortex* 24 (11), 2941–2950, 2014.
- Kirnosov, V., **Chang, L-C.**, and Pulkkinen, A., "Automatic Segmentation of Coronal Mass Ejections from STEREO white-light coronagraph images," *Proceedings of the 2014 International Conference on Image Processing, Computer Vision, and Pattern Recognition (IPCV)*, July 2014, worldcomp-proceedings.com/proc/p2014/IPCV2739.pdf
- Makki, E., and **Chang, L-C.**, "E-Commerce in Saudi Arabia: Acceptance and Implementation Difficulties," *Proceedings of the 2014 International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government (EEE)*, July 2014, worldcomp-proceedings.com/proc/p2014/EEE2294.pdf.
- Jacobs, M., Gorbachev, M.A., Benovoy, M., **Chang, L-C.**, Arai, A.E., and Hsu, L-Y., "Automated Measurement of Arterial Input Function in First-Pass Myocardial Perfusion Magnetic Resonance Images Using Independent Component Analysis," *Proceedings of 12th IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro*, Pages 1332–1335, April 2015.
- Liang, X., Lu, N., Maghrebi, M., Nguyen, H.T., **Chang, L-C.**, and **Massoudieh, A.**, "A Copula-based model to identify the parameters of run and tumble bacterial motility," *The Association of Environmental Engineering and Science Professors (AEESP)*, June 2015.
- Kirnosov, V., **Chang, L-C.**, and Pulkkinen, A., "Automatic Tracking of Coronal Mass Ejection using STEREO Red-colored RGB Coronagraph Images," *Proceedings of the 2015 International Conference on Image Processing, Computer Vision, and Pattern Recognition (IPCV)*, July 2015.
- Makki, E., and **Chang, L-C.**, "The Impact of Mobile Usage and Social Media on E-commerce Acceptance and Implementation in Saudi Arabia," *Proceedings of the 2015 International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government (EEE)*, July 2015, accepted.
- Bhatta, R. P., Annamalai, S., Brandys, M., Pegg, I. L. and **Dutta, B.**, "Processing and Thermal Conductivity of Lead Telluride Microwires," *Journal of Electronic Materials*, 43, 7, 2731–37, May, 2014.
- Gan, H., Chaudhuri, M., **Dutta, B.**, and Pegg, I. L., "Compositions and methods for converting hazardous waste glass into nonhazardous products," Patent Application #20140073830, 2014.
- Annamalai, S., Bhatta, R. P., Pegg, I. L., and **Dutta, B.**, "CaCo1-xRuxOy: Role of Ru/Co Ratio on its Transport Properties," *New Journal of Glass and Ceramics*, 4, 8–17, 2014.
- Bhatta, R. P., Henderson, M., Eufrazio, A., Pegg I.L., and **Dutta, B.**, "Properties of p- and n-type PbTe Microwires for Thermoelectric Devices," *Journal of Electronic Materials*, DOI: 10.1007/s11664-014-3327-7, 2014.
- Esmaeilzadeh Seylabi, E., **Jeong, C.**, and Taciroglu, E., "Evaluation of the impedance functions of rigid and flexible foundations for heterogeneous soils," *the 11th World Congress on Computational Mechanics (WCCM)*, Barcelona, Spain, July 20–25, 2014.
- Esmaeilzadeh Seylabi, E., Kurtulus, A., Farid Ghahari, S., Abazarsa, F., Stokoe, K.H., **Jeong, C.**, Taciroglu, E., "Soil and foundation properties of a vertically excited drilled shaft," *Second European Conference on Earthquake Engineering and Seismology*, Istanbul, Turkey, Aug. 24–29, 2014.
- **Jeong, C.**, Kallivokas, L. F., Kucukcoban, S., Deng, W., and Fathi, A., "Maximization of wave motion within a hydrocarbon reservoir for wave-based enhanced oil recovery," *Journal of Petroleum Science and Engineering*, Vol. 129, pp. 205–220, 2015.
- **Judge, J.**, "Vibration Localization in Arrays of Coupled Microresonators," invited lecture, *Seventh ISSS International Conference on Smart Materials, Structures, and Systems*, Bangalore, India, July 2014.
- Glean, A. A., **Judge, J. A.**, **Vignola, J. F.**, and Bull, N. B., "Shaping The Spectral Response Of An Acoustic Resonator Using An Array Of Subordinate Resonators," presented at *ASME 2014 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, 17-20, Buffalo, N.Y. August 2014.
- Sterling, J., Glean, A. A., **Judge, J. A.**, **Vignola, J. F.**, Bull, N. B., and Ryan, T. "Micro vibrometry measurements of a subordinate oscillator array," *11th International Conference on Vibration Measurements by Laser Techniques: Advances and Applications*, Ancona, Italy, June 25–27, 2014.
- Glean, A. A., **Judge, J. A.**, **Vignola, J. F.**, and Ryan, T. J., "Mode-shape-based mass detection scheme using mechanically diverse, indirectly coupled microresonator arrays," *Journal of Applied Physics*, Vol. 117: 054505, 2015.
- Dang, V., Nguyen, Q., and **Kilic, O.**, "Hybrid CPU-GPU Implementation of Fast Multipole Method for Large-Scale Electromagnetic

- Scattering Problems," *The 30th International Review of Progress in Applied Computational Electromagnetics (ACES 2014)*, Jacksonville, Fla.
- Nguyen, Q., and **Kilic, O.**, "A Hybrid Method for Electromagnetic Scattering from Multiple Conducting Objects," APS/URSI, Memphis, Tenn., USA, July 6–12, 2014.
 - Dang, V., and **Kilic, O.**, "A compressive sensing based approach for through-wall tracking of moving Targets," *ACES 2015*, Williamsburg, Va., March 2015.
 - Nguyen, Q., and **Kilic, O.**, "Mutual Coupling Effects in Through-the-Wall Imaging of Targets Behind Wall Structures," *ACES*, Williamsburg, Va., March 22–26, 2015.
 - Tran, N., Dang, V., and **Kilic, O.**, "Near-Field Interactions for Micro-Doppler Signature of Human Motion in Forest using FMM on Hybrid Platforms," *ACES*, Williamsburg, Va., March 22–26, 2015.
 - Dang, V., and **Kilic, O.**, "Joint DoA-range-Doppler Tracking of Moving Targets Based on Compressive Sensing," in *2014 IEEE Antennas and Propagation Society International Symposium (APSURSI)*, Memphis, Tenn., July 6–11, 2014.
 - Nguyen, Q., and **Kilic, O.**, "A Hybrid Method for Electromagnetic Scattering from Multiple Conducting Objects," *APS/URSI*, Memphis, Tenn., July 6–12, 2014.
 - Garcia-Rubia, J. M., **Kilic, O.**, Dang, V., Nguyen, Q. M., and Tran, N., "Analysis of moving human micro-doppler signature in forest environments," *Progress In Electromagnetics Research*, Vol. 148, 1–14, 2014.
 - **Kilic, O.**, Garcia-Rubia, J.M., Tran, N., Dang, V., and Nguyen, Q., "Tracking of moving human micro-Doppler signature in forest environments with swaying tree components by wind," *Radio Science*, 2014.
 - **Kommer, E. M.**, "Numerical modeling of flow boiling instabilities using TRACE," *Annals of Nuclear Energy*. 76. 263–270, January 2015.
 - **Kukke, S.N.**, de Campos A.C., Damiano D., Alter K.E., and Hallett M., "Cortical activation and inter-hemispheric sensorimotor coherence in individuals with arm dystonia due to childhood stroke," *Society for Neuroscience Annual Meeting*, Washington, D.C., 2014.
 - **Kukke, S.N.**, de Campos, A.C., Damiano, D., Alter, K.E., Patronas, N., and Hallett, M., "Cortical activation and inter-hemispheric sensorimotor coherence in individuals with arm dystonia due to childhood stroke," *Clin Neurophysiol*. Nov. 15, 2014. [Epub ahead of print].
 - **Kukke, S.N.**, Paine, R.W., Chao, C.C., de Campos, A.C., and Hallett, M., "Efficient and reliable characterization of the corticospinal system using transcranial magnetic stimulation," *J Clin Neurophysiol*, Vol. 31(3), pp. 246–52, Jun 2014.
 - Chao, C.C., Karabanov, A.N., Paine, R., de Campos A.C, **Kukke, S.N.**, Wu, T., Wang, H., and Hallett, M., "Induction of motor associative plasticity in the posterior parietal cortex-primary motor network," *Cereb Cortex*, Vol. 25(2), pp. 365–73, February 2015.
 - **Lade, P.V.**, "Shear Banding in Torsion Shear Tests on Cross-Anisotropic Deposits of Fine Nevada Sand," presented at the *10th International Workshop on Bifurcation and Degradation of Geomaterials*, Hong Kong Polytechnic University, Hong Kong, May 28–30, 2014.
 - **Lade, P.V.**, Rodriguez, N.M, and Van Dyck, E.J. "The Influence of Shear Banding on the Strength Variation in Cross-Anisotropic Sand," *10th International Workshop on Bifurcation and Degradation in Geomaterials*, Hong Kong, May 28–30, 2014.
 - **Lade, P.V.** and Karimpour, H. "Time Effects in Granular Materials: From Micro to Macro Behavior," *IS-Cambridge*, Sept. 1–3, 2014.
 - **Lade, P.V.**, Rodriguez, N.M. and Van Dyck, E.J. "Failure of Cross-Anisotropic Sand under 3D Stress Conditions with Principal Stress Rotation," invited keynote lecture presented at the *International Conference on Plasticity 2015*, Montego Bay, Jamaica, Jan. 4–9, 2015.
 - **Lade, P.V.**, Rodriguez, N.M., and Van Dyck, E.J., "Effects of Principal Stress Directions on 3D Failure Conditions in Cross-Anisotropic Sand," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(2):04013001-1-12, DOI: 10.1061/(ASCE)GT.1943-5606.0001005, 2014.
 - Trads, N. and **Lade, P.V.**, "Experimental Evidence of Truly Elastic Behavior of Artificial Sandstone Inside the Cementation Yield Surface," *Rock Mechanics and Rock Engineering*, Springer Verlag, 47(2):335-345, DOI 10.1007/s00603-013-0403-x, 2014.
 - **Lade, P.V.**, and Liggio, Carl, Jr., "Stability and Instability of Granular Materials under Imposed Volume Changes: Experiments and Predictions," *International Journal of Geomechanics*, ASCE, 14(5): 04014020-1-14, ISSN 1532-3641/04014020(14), 2014.
 - **Lade, P.V.**, Van Dyck, E. and Rodriguez, N.M., "Shear banding in Torsion Shear Tests on Cross-Anisotropic Deposits of Fine Nevada Sand," *Soils and Foundations*, 54, pp. 1081–1093, DOI information: 10.1016/j.sandf.2014. 11.004, 2014.
 - **Lade, P.V.**, "Estimating Parameters from a Single Test for Three-Dimensional Failure Criterion for Frictional Materials," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(8):0401438-1-5, DOI: 10.1061/(ASCE)GT.1943-5606.0001137, 2014.
 - **Lade, P.V.**, and Rodriguez, N.M., "Comparison of True Triaxial and Hollow Cylinder Tests on Cross-Anisotropic Sand Specimens," *Geotechnical Testing Journal*, ASTM, 37(4): 585–596, DOI:10.1520/GTJ20130155, 2014.
 - Monkul, M.M, **Lade, P.V.**, Etmnan, E., and Senol, A., "Compressibility as an Indicator of Liquefaction Potential," *Geotechnical Engineering Journal of the SEAGS & AGSSEA*, 45(4): 73–77, December 2014.
 - **Lade, P.V.**, and Trads, N., "The Role of Cementation in the Behavior of Cemented Soils," *Geotechnical Research (ICE)*, 1(4): 111–132, 2014.
 - **Lade, P.V.**, and Yamamuro, J.A., "Temporary Stability of Steep, Noncemented and Lightly Cemented Soil Slopes," *Canadian Geotechnical Journal*, (accepted), 2014.
 - **Lade, P.V.** and Karimpour, H., "Stress Relaxation in Virginia Beach Sand." *Canadian Geotechnical Journal* (accepted), 2014.
 - Qian, K., Traylor, K., **Lee, S.W.**, Ellis, B., Weiss, J., and Kamper, D.G., "Mechanical properties vary for different regions of the finger extensor apparatus," *Journal of Biomechanics*, 47: 3094–3099, 2014.
 - **Lee, S.W.**, Nguyen, H.B., Harris-Love, M.L., and **Lum, P.S.**, "What promotes interhemispheric interaction during bilateral tasks?" Evidence from intermuscular coherence, *44th Annual Meeting of Society for Neuroscience*, Washington, D.C., 2014.
 - Kim, D.H., **Lee, S.W.**, and Park, H.S. "Feedback control of biomimetic exotendon device for hand rehabilitation in stroke," *36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Chicago, Ill., 2014.
 - Srimongkolpitak, U., Yang, Y., and **Liu, H.**, "Enhanced Source Location Privacy Based on Random Perturbations for Wireless Sensor Networks," *Special Issue on Information and System Security, International Journal of Software and Informatics (JSI)*, vol. 8, no. 2, pp. 145–166, 2014.
 - Xing, X., Jing, T., Zhou, W., Cheng, X., Huo, Y, and **Liu, H.**, "Routing in User-centric Networks," *IEEE Communications Magazine*, vol. 52, no. 9, pp. 44–51, September 2014.
 - Jing, T., Zhou, J., **Liu, H.**, Zhang, Z., and Huo, Y., "SoRoute: a Reliable and Effective Social-Based Routing in Cognitive Radio Ad Hoc Networks," *EURASIP Journal on Wireless Communications and Networking*, vol. 2014, no. 11, pp. 200–215, November 2014.
 - **Liu, H.**, "Information-Centric Networking Architecture and Its Impacts," in *Proc. OSA Advanced Photonics for Communications/ Photonic Networks and Devices '14*, San Diego, Calif., July 2014.
 - Zhang, F., Zhang, Y., Reznik, A., **Liu, H.**, Qian C., and Xu, C., "A Transport Protocol for Content-

- Centric Networking with Explicit Congestion Control,” in *Proc. IEEE ICCCN’14*, Shanghai, China, August 2014.
- Luo, L., Wu, D., and Liu, H., “MIMO-Aware Spectrum Access and Scheduling in Multi-Hop Multi-Channel Wireless Networks,” in *Proc. 9th International Conference on Wireless Algorithms, Systems, and Applications (WASA ’14)*, Harbin, China, June 2014 (Won the Best Paper Award).
 - Yang W. and Liu, H., “Content-Centric Optical Networking: Opportunities and Challenges for Photonic Networks and Devices,” in *Proc. OSA Advanced Photonics for Communications/ Photonic Networks and Devices’14*, San Diego, Calif., July 2014.
 - Liu, M., “A fast procedure for practical member sizing optimization of steel moment frames,” *ASCE Practice Periodical on Structural Design and Construction*, ASCE, DOI: 10.1061/(ASCE)SC.1943-5576.0000240, August 2014.
 - Liu, M., “Probabilistic prediction of green roof energy performance under parameter uncertainty,” *Energy*, Vol. 77, pp. 667-674, December 2014..
 - Liu, M., “Pull-down analysis for progressive collapse assessment,” *ASCE Journal of Performance of Constructed Facilities*, Vol. 29, Issue 1, Paper ID: 04014027, February 2015.
 - Lucko, G., and Su, Y., “Singularity functions as new tool for integrated project management,” *Creative Construction Conference*, Prague, Czech Republic, 2014.
 - Lucko, G., Said, H. M. M., and Bouferguene, A., “Spatially-constrained scheduling with multi-directional singularity functions,” *Construction Research Congress*, Atlanta, Ga., 2014.
 - Su, Y., and Lucko, G., “Unevenly distributed markup in cash flow modeling with singularity functions,” *Construction Research Congress*, Atlanta, Ga., 2014.
 - Lucko, G., and Su, Y., “Singularity functions as new tool for integrated project management,” *Procedia Engineering*, 2014, Vol. 85, pp. 339–350.
 - Su, Y., and Lucko, G., “Analogies from traffic phenomena to inspire linear scheduling models with singularity functions,” *Proc. 46th Winter Simulation Conference*, Savannah, Ga., 2014, pp. 3365–3376.
 - Lucko, G., Said, H. M. M., and Bouferguene, A., “Spatially-constrained scheduling with multi-directional singularity functions,” *Proc. Construction Research Congress*, Atlanta, Ga., 2014, pp. 1448–1457.
 - Su, Y., and Lucko, G., “Unevenly distributed markup in cash flow modeling with singularity functions,” *Proc. Construction Research Congress*, Atlanta, Ga., 2014, pp. 1438–1447.
 - Su, Y., and Lucko, G., “Optimum present value scheduling based on synthetic cash flow model with singularity functions,” *Journal of Construction Engineering and Management*, in print, 2015.
 - Su, Y., and Lucko, G., “Synthetic cash flow model with singularity functions for unbalanced bidding scenarios,” *Construction Management and Economics*, 10.1080/01446193.2015.1012527, 2015.
 - Su, Y., and Lucko, G., “Synthetic cash flow model with singularity functions I: Theory for periodic phenomena and time value of money,” *Journal of Construction Engineering and Management* 10.1061/(ASCE)CO.1943-7862.0000938: 04014078(12), 2015.
 - Su, Y., and Lucko, G., “Synthetic cash flow model with singularity functions II: Analysis of feasible prompt payment discount scenarios,” *Journal of Construction Engineering and Management* 10.1061/(ASCE)CO.1943-7862.0000906: 04014079(13), 2015, *accepted as-is on first submission* (0.6% of submissions in 2014).
 - Lucko, G., Said, H. M. M., and Bouferguene, A., “Construction spatial modeling and scheduling with three-dimensional singularity functions,” *Automation in Construction*, Vol. 43, July, pp. 132–143, 2014, *downloaded 392 times until February 2015*.
 - Chan, E., Breceda Tinoco, E., Sandbrink, F., Dromerick, A.W., Lum, P.S., Mohapatra, S., Silva, R., Harris-Love, M., “Transcallosal effects of chronic below-elbow amputation: Behavior and physiology,” *Society for Neuroscience Annual Meeting*, Washington, D.C., November 2014.
 - Brokaw, E.B., Nichols, D., Holley, R.J., and Lum, P.S., “Robotic therapy provides a stimulus for upper limb motor recovery after stroke that is complimentary and distinct from conventional therapy,” *Neurorehabilitation and Neural Repair*, Vol. 28(4), pp. 367–76, 2014.
 - Lum, P.S., Black, I., Holley, R.J., Barth, J., and Dromerick, A.W., “Internal models of upper limb prosthesis users when grasping and lifting a fragile object with their prothetic limb,” *Experimental Brain Research*, Vol. 232(12), pp. 3785–95, 2014.
 - Godfrey, S.B., Holley, R.J., and Lum, P.S., “Evaluation of HEXORR Tone assistance mode against Spring assistance,” *IEEE Trans Neural Syst Rehabil Eng*. Feb. 4, 2015. [Epub ahead of print.]
 - Renner, D. and Luo, X. L., “Pressure measurement in PDMS microchannels using the ideal gas law,” *2014 BMES Annual Meeting*, San Antonio, Texas, Oct 22–25, 2014.
 - Luo, X. L., and Rubloff, G. W., “In situ microfluidic partition with semi-permeable membranes for static gradient generation,” *Proceedings of the 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014)*, San Antonio, Texas, Oct. 26–30, 2014, pp. 2534-2535.
 - Luo, X. L., Tsao, C. Y., Wu, H. C., Quan, D. N., Payne, G. F., Rubloff, G. W., and Bentley, W. E., “Distal modulation of cell-cell signaling in a synthetic ecosystem in partitioned microfluidics,” *Lab on a Chip*, 2015, DOI: 10.1039/c5lc00107b.
 - Luo, X. L., Wu, H. C., Betz, J., Bentley, W. E., and Rubloff, G. W., “Air bubble-initiated biofabrication of freestanding, semi-permeable biopolymer membranes in PDMS microfluidics,” *Biochemical Engineering Journal*, 2014, 89, 2–9.
 - Maghrebi, M., Niazi, M., and Massoudieh, A., “A new framework for forward and inverse modeling of stormwater LIDs,” *AEESP Conference*, Yale University, 2015.
 - Stewart, H., Al-Omari, A., DeClippeleir, H., Murthy, S., and Massoudieh, A., “Parameter Estimation of Activated Sludge Models using Inverse Modeling,” *AEESP Conference*, Yale University, 2015.
 - Alikhani, J., Al-Omari, A., Murthy, S., Takacs, I., and Massoudieh, A., “Stochastic calibration and uncertainty analysis of activated sludge models: A Case Study on the Blue Plains Wastewater Treatment Plant, Washington, D.C.,” *AEESP Conference*, Yale University, 2015.
 - Massoudieh, A., “Inference of long-term groundwater age transience using environmental tracers”, *EWRI Congress*, Portland, Ore., 2014.
 - Massoudieh, A., and Sharifi, S., “Probabilistic Parameter Estimation of Activated Sludge Processes using Markov Chain Monte Carlo,” *EWRI Congress*, Portland, Ore., 2014.
 - Lu, N., Massoudieh, A., Liang, X., Kamai, T., Zilles, J. L., Nguyen, T. H., and Ginn, T. R., “A kinetic model of gene transfer via natural transformation of *Azotobacter vinelandii*,” *Environ. Sci.: Water Res. Technol.*, DOI:10.1039/c5ew00023h, 2014.
 - Stewart, H.A., Massoudieh A., and Gellis A., “Sediment source apportionment in Laurel Hill Creek, PA using Bayesian Chemical Mass Balance and isotope fingerprinting,” *Hydrological Processes*, 29(11), 2545-2560, 2015.
 - Sharifi, S., Murthy, S., Takacs, I., and Massoudieh, A., “Probabilistic Parameter Estimation of Activated Sludge Processes using Markov Chain Monte Carlo,” *Water Research*, 50, pp. 254-266, 2014.
 - Nieh, S., Invited Seminar, “Applied Energy Systems and Environmental Impacts,” School of Engineering, Chung Yuan Christian University, Taoyuan, Taiwan, July 16, 2015.
 - Nieh, S., Invited Lecture and Round Table Panel, “Multi-Fueled Vortex Combustion and Clean Coal-Fired Vortexing Fluidized-Bed Boilers,” Tatan Thermal Power Plant, Taipower Company,

- Taoyuan, Taiwan, June 17, 2014.
- **Nieh, S.**, Invited Seminar, “Oxygen-Enriched Reforming and Combustion of Heavy Liquid Hydrocarbon Fuels,” *Refining & Manufacturing Research Institute*, China Petroleum Company, Jiayi, Taiwan, June 16, 2014.
 - **Nieh, S.**, Invited seminar, “Clean VC/VFBC Burning of Coal and Waste,” *Institute of Nuclear Energy Research, Atomic Energy Council*, Longtan, Taiwan, June 12, 2014.
 - **Nieh, S.**, Invited Seminar, “Vortex Combustion of Coal and Autothermal Reforming/Combustion of Jet Fuels,” School of Engineering, Da Yeh University, Changhua, Taiwan, May 29, 2014.
 - **Nieh, S.**, Invited keynote speaker, “Technology Development of Natural Gas Combined Cycle (NGCC) for Power Generation and Its Outlook in Taiwan,” *Energy and Combined Cycle Power Generation Outlook Conference*, TaiPower Headquarters, Taipei, Taiwan, 10–10:30 a.m., July 7, 2015.
 - **Nieh, S.**, “Combustion and Cycle Modifications for Improved NGCC Performance,” *Energy and Combined Cycle Power Generation Outlook Conference*, TaiPower Headquarters, Taipei, Taiwan, 1:40-2:20 p.m., July 7, 2015.
 - Siebert, M. and **S. Nieh**, “Investigation of Hydrogen-Enriched Combustion of Kerosene in an Open Flame,” *Proc. 46th Power Sources Conf.*, Sec. 13.3, pp. 209–212, 2014.
 - Kimmel, J., T.G. DuBois, and **S. Nieh**, “Effects of Polynuclear Aromatics on Autothermal Reforming of Jet Fuel,” *Proceeding of 46th Power Sources Conference*, Section 13.5, Orlando, Fla., 2014.
 - DuBois, T.G., R. Scenna, J. Kimmel, and **S. Nieh**, “Role of Aliphatic and Aromatic Hydrocarbon Compounds on Carbon Formation in JP-8 Fuel Reformers,” *Proc. 46th Power Sources Conf.*, Sec. 16.1, pp. 237–240, 2014.
 - Wolfe, A.K., and **Nieh, S.**, “Boxcar Model for Teaching Convection & HVAC Topics,” *Education & STEM Intal Conf.*, www.huichawaii.org/steam2014p.html#stem2014wxyz, 2014.
 - Preece, B., Bosq, T., and **Namazi, N.**, “A Noise Model for the Design of a Comprehensive Sensing Imaging System,” *SPIE*, Baltimore, Md., May 2015.
 - **Nehmetallah, G.**, “Multi-Wavelength Digital Holographic Microscopy Using A Telecentric Reflection Configuration,” *Topical Meeting in Digital Holography and Three-Dimensional Imaging (DH)*, 2220311, Shanghai, May 2015, 24–28.
 - **Nehmetallah, G.**, Nguyen, T. C., Darudi, A., and Soltani, P., “3D High Speed Characterization of Phase And Amplitude Objects Using The Transport of Intensity Equation,” *SPIE DSS* 9495-38, Baltimore, Md., April 20–24, 2015.
 - Darudi, A., Amiri, J., Soltani, P., and **Nehmetallah, G.**, “Experimental Verification of Reconstruction of Two Interfering Wavefronts Using the Transport of Intensity Equation,” *SPIE* 9489-3, Baltimore, Md., April 20–24, 2015.
 - **Nehmetallah G.**, Banerjee, P., and Khoury, J., “Simulation of Pattern and Defect Detection in Periodic Amplitude and Phase Structures using Photorefractive Four-Wave Mixing,” in *SPIE* 9477-9, Baltimore, Md., April 20–24, 2015.
 - Sepantaie, M. M., **El-Araby, E.**, **Nehmetallah, G.**, **Namazi, N. M.**, and Sepantaie, A. M., “Secure Communication Systems using Synchronized Lorenz Strange Attractor on Reconfigurable Hardware,” *SPIE DSS* 9478-1, Baltimore, Md., April 20–24, 2015.
 - Wight, P., Preece, B., **Nehmetallah, G.**, and **Namazi, N.M.**, “Optimal Design of a Compressive Sensing Imaging System,” *SPIE DSS*, 9452-21, Baltimore, Md., April 20–24, 2015.
 - Williams, L. A., **Nehmetallah, G.**, Aylo, R., and Banerjee, P. P., “Near-field Fresnel Reconstruction of Digital Holograms,” *Topical Meeting in Digital Holography and Three-Dimensional Imaging (DH)*, DTH2B.8, Seattle, Wash., July 13–16, 2014.
 - Williams, L., Banerjee, P. P., **Nehmetallah, G.**, and Praharaj, S., “Volume Displacement Measurement via Multi-Wavelength Digital Holographic Surface Topography at the Microscopic Level,” *SPIE Photonics West*, 9006-19, San Francisco, Feb 1–6, 2014.
 - **Nehmetallah, G.**, Banerjee, P. P., Alam, M., and Khoury, J., “Performance Evaluation of Photorefractive Two-Beam Coupling Joint Transform Correlator,” *SPIE DSS*, 9094-21, Baltimore, Md., May 5–9, 2014.
 - Alam, M. S., Khoury, J., Banerjee, P. P., Durrant, W. M., Martin, D. M., and **Nehmetallah, G.**, “Performance evaluation of optimal filters for target detection and tracking using SAR imagery,” *SPIE DSS*, 9094-22, Baltimore, Md., May 5–9, 2014.
 - Memarzadeh, S., Banerjee, P. P., and **Nehmetallah, G.**, “Noninterferometric Tomographic Reconstruction of 3D Static and Dynamic Phase and Amplitude Objects,” *SPIE DSS*, 9117-17, Baltimore, Md., May 5–9, 2014. (Invited.)
 - Khoury, J., Alam, M. S., Banerjee, P. P., **Nehmetallah, G.**, Durrant, W. M., Martin, D. M., Donoghue, J., Peyghambarian, N., and Yamamoto, M., “Performance comparison of photorefractive two-beam coupling correlator with optimal fiber based correlators,” *SPIE DSS*, 9094-20, Baltimore, Md., May 5–9, 2014. (Invited.)
 - Williams, L. A., **Nehmetallah, G.**, Aylo, R., and Banerjee, P.P., “Application of up-sampling and resolution scaling to Fresnel reconstruction of digital holograms,” *Applied Optics*, Vol. 54, 1443–1452, 2015.
 - Aylo, R., **Nehmetallah, G.**, Li, H., and Banerjee, P. P., “Multilayer Periodic and Random Metamaterial Structures: Analysis and Applications,” *IEEE Access*, Vol. 2, 437–450, 2014.
 - Williams, L., Banerjee, P. P., **Nehmetallah, G.**, and Praharaj, S., “Holographic Volume Displacement Calculations via Multi-Wavelength Digital Holography,” *Applied Optics*, Vol. 53, 1597–1603, 2014.
 - **Nehmetallah, G.**, Aylo, R., and Williams, L., *Analog and Digital Holography With MATLAB®*, to be published by SPIE, 2015.
 - **Okutsu, M.**, Landau, D.F., Rogers, B.A., and Longuski, J.M., “Low-thrust roundtrip trajectories to Mars with one-synodic-period repeat time,” *Acta Astronautica*, Vol. 110, pp. 191–205, May–June 2015.
 - Wallar, A. and **Plaku, E.**, “Path Planning for Swarms in Dynamic Environments by Combining Probabilistic Roadmaps and Potential Fields,” *IEEE Symposium on Swarm Intelligence*, Orlando, Fla., 2014, pp. 290–297.
 - Wallar, A., **Plaku, E.**, and Sofge, D., “A Planner for Autonomous Risk-Sensitive Coverage (PARCov) by a Team of Unmanned Aerial Vehicles,” *IEEE Symposium on Swarm Intelligence*, Orlando, Fla., 2014, pp. 283–289.
 - Rashidian, S., **Plaku, E.**, and Edelkamp, S., “Motion Planning with Rigid-Body Dynamics for Generalized Traveling Salesman Tours,” *ACM SIGGRAPH Motion in Games*, Los Angeles, 2014, pp. 87–96.
 - McMahon, J., and **Plaku, E.**, “Sampling-Based Tree Search with Discrete Abstractions for Motion Planning with Dynamics and Temporal Logic,” *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Chicago, 2014, pp. 3726–3733.
 - Le, D. and **Plaku, E.**, “Guiding Sampling-Based Tree Search for Motion Planning with Dynamics via Probabilistic Roadmap Abstractions,” *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Chicago, 2014, pp. 212–217.
 - Edelkamp, S. and **Plaku, E.**, “Multi-goal motion planning with physics-based game engines,” *IEEE Conference on Computational Intelligence and Games*, Dortmund, Germany, 2014, pp. 115–122.
 - **Plaku, E.**, “Region-Guided and Sampling-Based Tree Search for Motion Planning with Dynamics,” *IEEE Transactions on Robotics*, Vol. 31, pp. 1–13, 2015.
 - **Plaku, E.**, and McMahon, J., “Motion Planning and Decision Making for Underwater Vehicles Operating in Constrained Environments in the Littoral,” *Towards Autonomous Robotic Systems*, Vol. 8069, pp. 328–339, 2014.
 - Wallar, A., and **Plaku, E.**, “Path Planning for Swarms by Combining Probabilistic Roadmaps and Potential Fields,” *Towards Autonomous*

- Robotic Systems*, Vol. 8069, pp. 417–428, 2014.
- **Raub, C.B.**, Lee, C., and Kartalov, E., “Sequestration of Bacteria from Whole Blood by Optimized Microfluidic Cross-Flow Filtration for Rapid Antimicrobial Susceptibility Testing,” *Sensors and Actuators B*, Vol. 210, pp. 120–123, October 2014.
 - **Simari, P.**, Picciau, G., and Floriani, L. D., “Fast and Scalable Mesh Superfacets,” *Computer Graphics Forum*, Volume 33, Number 7, pp. 181–190, October 2014.
 - Zhang, N., Zhou, S., Xia, H., and **Sun, L.**, “Evaluation of vehicle-track-bridge interacted system for the continuous CRTS-II non-ballast track slab,” *Science China*, Vol. 57, No. 1, 1–7, January 2014.
 - **Sun, L.**, Wang, Y., and Zhang, Y., “Aging Mechanism and Effective Recycling Ratio of SBS Modified Asphalt,” *Construction & Building Materials*, Vol. 70, November 2014, 26–35.
 - Qiu, K., Chen, H., Sun, W., **Sun, L.**, Hong, J., and Zhao, G., “Determination of mechanical properties of cement asphalt mortar via UPV method,” *ASCE Journal of Materials in Civil Engineering*, Vol. 26, 04014009-1-04014009-5, 2014.
 - **Sun, L.**, Duan, Y., and Zhao, L., “Critical loading position and disadvantageous position of high-speed railway CRTS-II slab track structure,” *Chinese Journal of Applied Mechanics*, Vol. 31 No. 4, 2014.
 - **Sun, L.**, *Transportation Safety Operations Management*, Beijing, China, Academic Press, 2014.
 - Huynh, Q.T., Nguyen, U.D., Irazabal, L.B., Ghassemian, N., and **Tran, B.Q.**, “Optimization of an accelerometer and gyroscope based fall detection algorithm,” *J. of Sensors*, Vol. 2015 Article ID 452078, Hindawi Publishing, 2015. dx.doi.org/10.1155/2015/452078.
 - **Tran, B.Q.**, iAge: “Personalized technologies for facilitating health, wellness, and successful aging,” *NSF Industry/University Cooperative Research Center Site for Broadband Wireless Access and Communications (BWACS)*, CUA, Washington D.C., January 2015.
 - Szu, H., Hsu, C., Willey, J., Landa, J., Hsieh, M., Larsen, L.V., Krzywicki, A.T., **Tran, B.Q.**, Hoekstra, P., Dillard, J.T., Krapels, K.A., Wardlaw, M., Vydellingum, N. A., and Chu, K-D., “Microwaves illuminating stress hormones as thermal biomarker imaged by dual infrared camera,” *SPIE Defense Security Sensing Symposium: ICA LDA NN BMW SB Conference XIII*, Baltimore, Md., April 2015.
 - Jenkins, J., Kopf, J., Frenchi, C., **Tran, B.Q.**, and Szu, H., “Bio-mining for biomarkers with multi-resolution block chain,” *SPIE Defense Security Sensing Symposium: ICA LDA NN BMW SB Conference XIII*, Baltimore, Md., April 2015.
 - Guan, S., Lin, T.-H., **Vignola, J.**, Chou, L.-S., **Judge, J.**, and **Turo, D.**, “Dynamics of soundscape in a shallow water marine environment of Indo-Pacific humpback dolphin (*Sousa chinensis*),” *Journal of the Acoustical Society of America*, 137(5): 2939–2949, 2015.
 - Glean, A. A. J., **Vignola, J. F.**, **Judge, J.**, and Ryan, T., “Energy-Return Method for Detecting Mass Adsorption in a MEMS Resonator Array,” *Proceedings of the 17th U. S. National Congress on Theoretical and Applied Mechanics* Michigan State University, East Lansing, Mich., June 15–20, 2014.
 - **Vignola, J. F.**, Glean, A.A.J., Sterling, J., and **Judge, J.**, “Response shaping and scale transition dynamic systems with arrays of attachments,” presented by Joseph Vignola at the *168th Meeting of the Acoustical Society of America*, Indianapolis, Ind., Oct. 27–31, 2014.
 - Seth Hall, H., **Vignola, J.**, **Judge, J.**, and **Turo, D.**, “Exploration into the sources of error in the two-microphone transfer function impedance tube method,” presented by Seth Hall at the *168th Meeting of the Acoustical Society of America*, Indianapolis, Ind., Oct. 27–31, 2014.
 - Guan, S., Lin, Tzu-Hao., **Vignola, J.F.**, Chou, Lien-Siang., and **Judge, J. A.**, “Temporal and Spatial Patterns of Marine Soundscape in a Coastal Shallow Water Environment,” presented by Shane Guan at the *168th Meeting of the Acoustical Society of America*, Indianapolis, Ind., October 27–31, 2014.
 - Glean, A. A. J., **Vignola, J.**, Ryan, T., and **Judge, J.**, “Mass Sensing Using the Time Domain Response of a Functionalized Microresonator Array,” presented by Aldo Glean at the *167th Meeting of the Acoustical Society of America*, Providence, R.I., May 5–9, 2014.
 - Seth Hall, H., **Vignola, J.**, **Judge, J.**, and **Turo, D.**, “An iterative approach to measurement of oblique acoustic absorption coefficient in three-dimensions,” presented by Seth Hall at the *167th Meeting of the Acoustical Society of America*, Providence, R.I., May 5–9, 2014.
 - Good, C., Glean, A. A. J., **Vignola, J. F.**, Ryan, T., **Judge, J. A.**, and **Turo, D.**, “Acoustical characterization of grass-covered ground,” presented by Chelsea Good at the *167th Meeting of the Acoustical Society of America*, Providence, R.I., May 5–9, 2014.
 - **Wang, Z.**, Kieu, H., Nguyen, H., and Le, M., “Digital image correlation in experimental mechanics and image registration in computer vision: similarities, differences and complements,” *Optics and Lasers in Engineering*, Vol. 65, No. 1, 18–27, 2015.
 - Nguyen, H., Nguyen, D., **Wang, Z.**, Kieu, H., and Le, M., “Real-time, high-accuracy 3D imaging and shape measurement,” *Applied Optics*, Vol. 54, No. 1, A9-A17, 2015.
 - **Wang, Z.**, Nguyen, H., and Quisberth, J., “Audio extraction from silent high-speed video using an optical technique,” *Optical Engineering*, Vol. 53, No. 11, 110502, 2014.
 - Kieu, H., Pan, T., **Wang, Z.**, Le, M., Nguyen, H., and Vo, M., “Accurate 3D shape measurement of multiple separate objects with stereo vision,” *Measurement Science and Technology*, Vol. 25, No. 3, 035401, 2014.
 - Nguyen, H., **Wang, Z.**, and Quisberth, J., “3D shape measurement of shiny object using fringe projection technique,” *2015 SEM Annual Conference and Exposition on Experimental and Applied Mechanics*, Costa Mesa, Calif., June 8–11, 2015.
 - **Wang, Z.**, Nguyen, H., and Quisberth, J., “Accuracy comparison of fringe projection technique and 3D digital image correlation technique,” *2015 SEM Annual Conference and Exposition on Experimental and Applied Mechanics*, Costa Mesa, Calif., June 8–11, 2015.
 - Quisberth, J., **Wang, Z.**, and Nguyen, H., “Acquisition of audio information from silent high speed video,” *2015 SEM Annual Conference and Exposition on Experimental and Applied Mechanics*, Costa Mesa, Calif., June 8–11, 2015.
 - Omokanwaye, T., **Wilson, Jr., O.C.**, Gugssa, A., and Anderson, W.A., “Biominalization of nanoscale single crystal hydroxyapatite,” *Materials Science and Engineering C*, Vol. 56, pp. 84–87, 2015.

Activities

- **Abot, J. L.**, Ph.D., editor of special issue on “Novel Sensing Techniques and Approaches in Composite Materials” for the *Journal of Multifunctional Composites*; reviewer of SMART scholarships for the American Society of Engineering Education; reviewer of Ph.D. scholarships for the American Society for Composites; reviewed manuscripts for more than half a dozen journals; further developed the Intelligent Materials lab for fabrication and electromechanical characterization of composite materials and their structural health monitoring including carbon nanotube sensors research; coordinated the Brazil Scientific Mobility Program (BSMP) in the School of Engineering and assisted with international academic activities in the School of Engineering; coordinated the establishment of an academic training summer program for engineering Brazil Scientific Mobility Program (BSMP) students at CUA and helped recruit more than 70 students for the program; advised and mentored more than 40 undergraduate students in the Department of Mechanical Engineering; trained 10 undergraduate and graduate students on experimental mechanics and materials research at the Intelligent Materials laboratory; advised and mentored more than 30 BSMP engineering students; assisted the Department of Mechanical Engineering and the School of Engineering on recruitment efforts; advised the

- Society of Hispanic Professional Engineers student chapter.
- **Chang, L.-C.**, Ph.D., served as academic advisory board, the D.C. Association for Computing Machinery (ACM), 2008–present; reviewer for *NeuroImage* (Impact factor: 6.132); faculty advisor to student chapters of Society of Women Engineers and Association for Computing Machinery at CUA; section chair in IEEE BigData 2014, Washington, D.C., Oct. 27–30.
 - **Jeong, C.**, Ph.D., reviewer for *Journal of Engineering Mechanics*; *Soil Dynamics and Earthquake Engineering*; *Computational Geosciences*; and the *Arabian Journal for Science and Engineering*, 2014–2015.
 - **Kilic, O.**, Ph.D., elected member at large for the United States National Committee (USNC) for the International Union of Radio Science (URSI), 2012–2014; Education Committee member, Student Design Contest chair, and member of the Technical Program Committee, IEEE Antennas and Propagation Society; editor-in-chief for *ACES Express*, a new journal initiated in 2014.
 - **Lade, P.V.**, Ph.D., presented a seven-day course, “Stress-Strain Behavior and Constitutive Modeling of Frictional Materials,” at the Department of Civil Engineering, Polytechnic University of Catalonia, Barcelona, Spain, June 10–18, 2014; member and U.S. representative, Technical Committee TC-103 on Numerical Methods in Geomechanics, International Society for Geotechnical Engineering and Foundations, 2010–present; editor-in-chief (for the Americas) of *Geomechanics and Engineering, An International Journal*, published by Techno-Press, Korea, 2009–present; and member, Editorial Board, *Geotechnical Engineering Journal of the SEAGS & AGSSEA*, 2013–present; Editorial Board, *Engineering Geology*, published by Elsevier — Chemistry, Earth and Environmental Sciences Department, 2007–present; Editorial Board, *International Journal of Geomechanics*, published by CRC Press LLC, 2001–2002, by ASCE’s G-I Institute, 2003–present; International Editorial Committee, *Soils and Foundations*, published by the Japanese Geotechnical Society, 1998–present; Editorial Board, *Geotechnical Testing Journal*, published by ASTM, 1988–present; Editorial Advisory Board, *International Journal of Numerical and Analytical Methods in Geomechanics*, published by Wiley, 1984–present; and Editorial Board, *Computers and Geotechnics*, published by Elsevier Applied Science Publishers, Ltd., London, England, 1984–present.
 - **Liu, M.**, Ph.D., gave an invited seminar titled “New Methods for Nonlinear Static Analysis of Steel Frame Buildings against Progressive Collapse,” in the Department of Civil, Environmental, and Infrastructure Engineering at George Mason University, April 2, 2015.
 - **Lucko, G.**, Ph.D., member of the Technical Committee for the International Construction Specialty Conference, Canadian Society for Civil Engineering, Vancouver, British Columbia, Canada, 2015; member of the Scientific Committee for the Creative Construction Conference, Krakow, Poland (organized by Szent István University, Budapest, Hungary), 2015; mentor and member of the Senior Advisory Council, ACE Mentor Program of Greater Washington (Career Directions for Students in Architecture, Construction, and Engineering), Laurel, Md., 2014–2015; senior specialty editor, *Journal of Construction Engineering and Management*, 2014–2015; reviewer for *Journal of Computing in Civil Engineering*, *Automation in Construction*, *Journal of Construction Engineering and Management*, 2014–2015.
 - **Lum, P.S.**, Ph.D., on review panels in Washington, D.C., for NIH/NIBIB special initiative “Predictive Multiscale Models for Biomedical, Biological, Behavioral, Environmental and Clinical Research (U01),” May 2014; the NIH Musculoskeletal Rehabilitation Sciences study section, Washington, D.C., June 2014; Science Foundation Ireland, November 2014; NIH Director’s New Innovator Award Program, February 2015.
 - **Luo, X.L.**, Ph.D., member of the Editorial Board for *Journal of Bioengineering & Biomedical Science*, 2012–present; routine journal reviewer for *Analytica Chimica Acta*, *Biomedical Microdevices*, *Chemical Communications*, *Chemical Society Reviews*, *Lab on a Chip*, *Micromachines*, *Nanotechnology*, and *RSC Advances*.
 - **Nieh, S.**, Ph.D., invited speaker and panelist, “De-Communization while Communist Party in Power,” *Identifying Crimes of Communism, Ukraine’s Ban of Communist Symbols and Global de-Communization with Focus on China*, Ukraine Parliament and Roundtable Discussion at UNIAN Multimedia Center, www.unian.info/multimedia/video-1/12972-prestupleniya-kommunizma-i-protsess-dekommunizatsii-v-ukraine-kitae-i-vo-vsem-mire.html, Kiev, Ukraine, June 11, 2015; invited speaker, “Persecution and Anti-Persecution of Falun Gong in China,” *Commemoration of the 40th Anniversary of the Fall of Saigon*, The Vietnam Wall Memorial, Washington, D.C., April 30, 2015; invited speaker and session chair, “Implications of Nine Commentaries on Tuidang Tidalwave in China,” *10th Anniversary Forum of Nine Commentaries of Communist Party*, at South Auditorium, National Science and Industrial Arts Museum, Kaohsiung, Taiwan, Dec. 27, 2014, and International Conference Center, School of Law, National Taiwan University, Taipei, Taiwan, Dec. 28, 2014; invited speaker, “Human Rights Atrocity & Anti-persecution of Falun Gong in China,” *Epoch Times*, www.epochtimes.com/b5/14/7/10/n4197252.htm (Speech in English) at *Lao and Asian Human Rights Conference*, 122 Cannon House Office Building, U.S. Capitol, Washington D.C., July 9, 2014.
 - **Nehmetallah, G.**, Ph.D., conference committee member, SPIE DSS-STA: Dimensional Optical Metrology and Inspection for Practical Applications IV, April 20–24, 2015; conference committee member of the OSA Digital Holography & 3-D Imaging (DH), May 24–28, 2015.
 - **Nguyen, C.**, D.Sc., public member on the 2014 Foreign Service Performance Board of USAID, May 27, 2014; taught Intelligent Robotics to a group of Taiwanese students from Chung Yuan Christian University, June 30, 2014; attended the 2015 Engineering Deans of Catholic Universities (EDCU) Conference in Villanova, Pa., organized by Villanova University, April 26, 2015; traveled to Vietnam for CUA business and met the vice president of Saigon Technology University (STU), the rector of International University of the Vietnam National University System (IU-VNU), and the rector of the Hochiminh City University of Technology of the Vietnam National University System (HCMC-UT-VNU), March 8–20, 2015; traveled to Can Tho, Vietnam, to visit Can Tho University (CTU) and met with the dean of the CTU College of Engineering Technology and signed an agreement to establish a 2+2 program and a 4+1 program, March 12, 2015; met with the vice president and several deans of the Ho Chi Minh City University of Architecture (HCMC-UA) to assess its quality for potential collaboration with the CUA School of Architecture and Planning, March 13, 2015; served on a panel of the 2015 Vietnam Engineering Education Conference (VEEC) in Danang, Vietnam, titled *Inspiring the undergraduate engineer’s entrepreneurial and innovative mindset: Ideas and models for Vietnam*, March 16, 2015; moderated a VEEC panel, entitled Vietnam in 2030: *How can Higher Engineering Education be a Catalyst for Development*, March 17, 2015; signed an MOA with the rector of University of Science and Technology (DUST) to establish the first Advanced Undergraduate Program at DUST in collaboration with CUA, March 17, 2015; visited Hanoi Architectural University (HAU) to assess the quality of this university, met with the chair of the Department of Biology of the Hanoi University of Science of the Vietnam National University System (HUS-VNU) and delivered to him an MOA that the interim provost signed, March 18, 2015; submitted a letter of commitment to President Obama at the White House confirming CUA commitment to educate a new generation of engineers expressly equipped to meet societal challenges identified through national initiatives including the White House Strategy for American Innovation, the National Academy of Engineering Grand Challenges for Engineering, and the United Nations Millennium Development Goals, March 24, 2015.
 - **Pao, H.P.**, Ph.D., organized an on-campus summer program for students from Chung Yuan Christian University, Taiwan, June 28–July 14, 2014; organized a memorial on May 8, 2015,

remembering and honoring professors Sung Ching Ling and H. Bulent Atabek for their outstanding contribution and dedicated service to the University.

- **Plaku, E.**, Ph.D., co-organized a one-week seminar on “Automated Planning and Model Checking” as part of the highly ranked Dagstuhl seminar series, November 2014, Schloss Dagstuhl, Germany; co-organized a workshop on “Model Checking and Automated Planning” at the International Conference on Automated Planning and Scheduling, June 2014, Portsmouth, N.H., in 2014 and 2015; associate editor for the IEEE/RSJ Intelligent Robots and Systems; program committee member of several robotics and AI international conferences, e.g., Robotics: Science and Systems, AAAI Artificial Intelligence, IEEE Robotics and Automation, Automated Planning and Scheduling, Cognitive Robotics.
- **Simari, P.D.**, Ph.D., Program Committee member for the *Argentine Conference in Computer Science (CACIC)* 2014, *CAD/Graphics 2015*, *Graphics Interface (GI)* 2015, and *International Conference on Image Analysis and Processing*

(*ICIAP*) 2015; reviewer for the journals *Transactions on Graphics (ACM)*, *Computer-Aided Design (Elsevier)*, *Computer Graphics Forum (Wiley)*, and *Graphical Models (Elsevier)*.

- **Tran, B.Q.**, Ph.D., reviewer for the *IEEE Transactions on Information Technology in Biomedicine*, *Sensors Journal*, and *IEEE Transactions on Biomedical Engineering*; reviewer for the National Science Foundation’s Graduate Research Fellowship program; NIH grant review panels *AIDS Clinical Studies and Epidemiology Study Section* (November 2014, Mar 2015, July 2015) and *NIH/CSR/ZRG1 SBIB-Q 80/SBIB-Q58/SBIB-Z03 Study Section* (June 2014, October 2014, January 2015, March 2015, June 2015).
- **Wang, Z.**, Ph.D., organizing committee member of the 2014 SEM Fall Conference and International Symposium on Intensive Loading and Its Effects; reviewer of more than 20 manuscripts for 10 prestigious technical journals in 2014–2015; subject of a December 2014 SPIE press release about his work on audio extraction from silent video, which drew considerable attention from technical media.

2015 Student Awards, Service, and Honors

- **Alexander Belk**, The C.C. Chang Award for Excellence in Mechanical Engineering
- **Joshua Bryant, Cameron Daniels, Diogenes Dichoso** and **Hannah Gillis**, ME senior design project award
- **Nicholas Civetti**, Benjamin T. Rome Award
- **Daniel Coleman**, American Society of Civil Engineers National Capital Section Award
- **Tyler Cork, Reagan McCloskey** and **Reanna Sealey**, BE senior design project award
- **Matthew Dillon**, George McDuffie Award for Excellence in Electrical Engineering
- **Alec Droussiotis**, Anthony J. Scullen Award, 2015 and Timothy Kao Award for Excellence in Civil Engineering
- **Hannah Gillis**, Dean’s Service Award
- **Nareg Khachadorian, Shane Kelly, Nick Sangwa, Cheryl Anderson** and **Steven**

Congratulations, Class of 2015

Ph.D. Dissertations

- **Anant Agrawal, B.S., M.S.**
Dissertation: Quantitative Assessment of Optical Coherence Tomography Imaging Performance with Phantom-Based Text Methods and Computational Modeling.
- **Ali Basiri, B.S., M.E.E.**
Dissertation: A Functional Medical Imaging System for the Measurement of Oxygen Saturation in the Superficial Retina Vasculature.
- **Adham Mohammed S. Aleid, B.S., M.S.**
Dissertation: Ultrasound Mediated Intracellular Drug Delivery in 2D Biological Scaffolds.
- **Carlos Font, B.S., M.S.**
Dissertation: Characterization of the Atmosphere as a Random Bit-Stream Generator in a Weak Turbulence Regime.
- **Negar Moharrami Gargari, B.S.C.S., M.S.C.S.**
Dissertation: Effects of Near-Fault Translation and Torsional Ground Motion Components on Dynamic Building Response.
- **Shane Guan, B.S., M.S.C.**
Dissertation: Characterization of the Acoustic Field in Marine

Environments with Anthropogenic Noise.

- **Thomas Jerome Miller, B.S., M.S.**
Dissertation: Polarimetric Radar Scattering Analysis in a Maritime Environment.
- **Fahmida Rahman, B.S., M.S.**
Dissertation: Secure Lightpath Provisioning for All Optical Networks in the Presence of Security Attacks as the Physical Layer.
- **Uthaiwan Srimongkolpitak, B.B.A, M.S.C.S.**
Dissertation: Sensor Source Location Privacy Based on Random Perturbations.
- **Pamela Agwa Tebebi, B.S., M.S.**
Dissertation: Employing pFUS for Treatment of Peripheral Arterial Disease via Homage of Infused Bone Marrow Stromal Cells.

Master of Science, Biomedical Engineering

- Annie George Abraham
- Najmah S. Alghamdi
- Abeer Abdullah Al Huybaysh
- Aisha AbdulMohsen Aljahdali
- Abdulelah Sulaiman Alrebaish
- Fawaz Khalid Alshemas
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- Nazanin Ghassemian

- Bhavik Patel
- Angeline Linsy Premraj
- Tjerignimin Silue

Master of Science, Civil Engineering

- Yasser Mohamed Hekmat Gamil
- Peter James Horgan
- Yue Hou
- Mulenda George Mpoyo
- Sean Pearson
- Gheorghe Petrescu
- Ali Sheikhabaei
- Varayut Wiriya-Amornpun
- YaoMin Zuo

Master of Science, Electrical Engineering

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- William Walter Clark IV
- Bradley L. Preece
- Cori A. Quirk
- Amir Razjouyan

Master of Science, Computer Science

- Duong Thai Le
- Kenneth Perez
- Jason Quisberth
- Sara Rashidian
- Hamed Zahedi

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- Rami Abdullah AlAwaji
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- **Manozzi**, CE senior design project award
- **Reagan McCloskey**, Biomedical Engineering Society Award
- **Austin Mueller**, The John N. Welch Award for Excellence in Computer Science
- **Anthony Nguyen, Tri Nguyen, and Tung Nguyen**, EECS senior design project award
- **Angeline Premraj**, H.B. Atabek Award from the biomedical engineering department for academic excellence
- **Dominic Renner**, American Society of Mechanical Engineering
- **Ryan Van Fleet**, the Dennis F. McCahill Award for Service in Civil Engineering

- **Sarah E. Fuchs**, junior in civil engineering, Construction Management Association of America National Capital Chapter Scholarship, 2015.
- **Q. Huynh**, doctoral candidate in biomedical engineering, 2015 District of Columbia Council on Engineering and Architecture Society's (DCCEAS) 1st place graduate paper competition for "Algorithm for fall detection based upon power spectral analyses of 3-D accelerometry data." **B.Q. Tran**, associate professor of biomedical engineering, advisor.
- **Kevin Johnson**, civil engineering, American Concrete Institute National Capital Chapter Award, April, 2015.
- **Christopher J. Papp**, junior in civil engineering, Gail Abner Hathaway Memorial Scholarship (through American Society of Civil Engineers National Capital Chapter), 2015.
- **Mary O'Neill**, civil engineering, ASCE- Outstanding Graduating Senior, March, 2015

- **Bridget M. Rogers**, civil engineering, American Society of Civil Engineers National Capital Selection Scholarship, March 2015.
- **Yi Su**, doctoral student in civil engineering, Construction Management Association of America National Capital Chapter Scholarship, 2015

Student Activities and Awards

- **Gabriella C. Bologna**, senior in civil engineering, Construction Management Association of America National Capital Chapter Scholarship, 2015.

Congratulations, Class of 2015

Master of Science, Materials Science and Engineering

- Fatimah Almoqaitib
- Jude Anike
- Bitan Chakraborty
- Pallabi Mitra
- Oluwatosin Ogunsile

Master of Science, Mechanical Engineering

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Bachelor of Biomedical Engineering

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- Alexandra Lee Gillis
- James Maxwell Huddleston
- Austin S. Mueller

Bachelor of Mechanical Engineering

- Alexander Joseph Belk
- Joshua R. Bryant
- Peter John Clemente
- Cameron James Daniels
- Colin Michael Feeney
- Hannah Ryan Gillis
- Christian Enrique Guzman
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Dual Degree, Civil Engineering and Architecture Students

- Nareg Khachadorian

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The School of Engineering gratefully acknowledges the following alumni and friends for their generosity. This list includes donors who made gift between May 1, 2014, and April 30, 2015. We have strived to recognize everyone correctly. If you find an error or omission, please contact the Division of University Advancement at 202-319-6910.

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* B: Bachelor's degree
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