

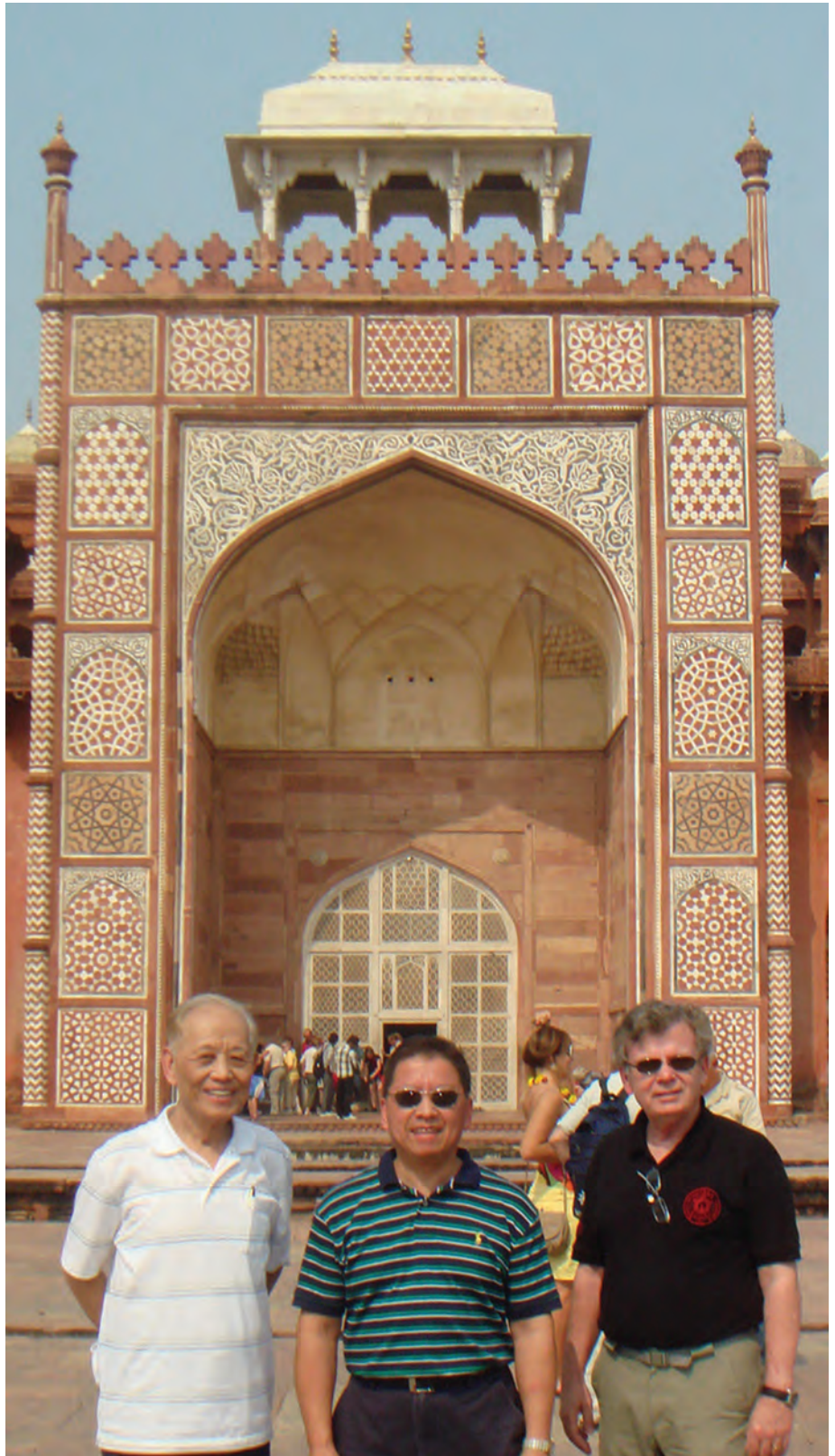
cuaengineer



Dean Charles Nguyen Presents Approved Engineering Degree Candidates
at the 124th CUA Commencement

Table of Contents

Dean's Message.....	1
Nurturing Ideas to Improve Human Health.....	2
Robotic Systems That Help Humans on the Ground and Under the Sea	3
School of Engineering Expands Collaboration with Universities in India	4
Deputy Secretary of Energy Honored with School Alumni Award	4
Civil Engineering Professor Receives ASCE Award	5
EECS Robotics Exhibition at the DC FIRST Regional Robotics Competition	5
Out-of-Classroom Experience: Students and Faculty Tour Plant	6
Mechanical Engineer Brings Pope Emeritus' Thought to Light	6
Concrete Canoe Innovates for Success	7
Promising Research On Protecting Construction Schedules Against Delays.....	8
Engineers Without Borders Travels to Paraguay	9
Development Board Sponsored Entrepreneurship Panel Discussion	10
Executive Development Board Elects New Chair	10
Alumni Corner	11
Career Services Fall 2013 Events	11
New Frontiers Engineering Summer Camp	12
CUA Mechanical Engineering Students Succeed in Texas	13
New Faculty and Staff	14-15
Student Awards, Service, and Honors	15
Faculty Awards, Grants, Presentations, and Publications	16
Faculty Activities	24
School Honors Faculty and Staff for Excellence	27
2012-13 Honor Roll of Donors	28



CUA delegation in India. (Left to right) Professor Frank Pao, Dean Charles Nguyen, Provost James Brennan.

Dean's Message



During 2012–2013, the final year of my third term as dean, I had the fortunate opportunity to witness many successes and achievements in the School of Engineering. I am happy to report them to you below.

- In the fall semester 2012, the school matriculated a record 138 new undergraduate students, including new freshmen, joint degree students, and transfer students. This number of new students set an unprecedented record, with about a 45 percent increase in total new students and, more important, a 70.1 percent increase in new freshmen as compared to the fall semester of 2011. The school also matriculated 83 new graduate students. During the past academic year, the school granted 68 bachelor's degrees, 77 master's degrees, and four doctoral degrees to its graduates. Their names and degrees are listed in the back cover of this issue.
- As presented in the Faculty Section, our faculty continued their excellent performance in teaching, research, and service, manifested by their frequent publication, active participation in grantsmanship, and service in technical and professional societies.
- Regarding accreditation, as the school moved into the final stage of the preparation for the upcoming ABET visit, the program chairs worked diligently with faculty, students, and advisory boards to prepare their self-study reports, that were submitted to ABET on July 1. The computer program successfully passed the ABET readiness review and will be reviewed at the same time as other engineering programs including biomedical, civil, electrical, and mechanical engineering.
- As part of the Five-Year Plan submitted to and approved by the provost to deal with the student enrollment increase in the last several years, the school hired two new clinical professors and six tenure-track professors. We also welcomed a new assistant to the dean for administration.
- Melvin G. Williams Jr., who served as the associate deputy secretary of energy and earned a Master of Science in Engineering from CUA in 1984, received the 2012 Engineering Distinguished Alumni Achievement Award at the School of Engineering Homecoming Luncheon in October 2012.
- The international programs of the school continue to do very well. During the spring semester 2013, nine CUA engineering students studied at the Hong Kong Polytechnic University (PolyU) and 10 students from PolyU came to study at CUA under the existing student exchange program between our universities. Through the 2+2 program and other programs with the top-ranked engineering universities in Vietnam, 45 Vietnamese students currently study at CUA. In May 2013, nine Vietnamese students received their bachelor's degrees; most of them will stay at CUA to pursue graduate degrees. In January 2013, the first student from Christ University in Bangalore, India, arrived at CUA for the 2+2 program we recently entered into in January 2013; he is pursuing a Bachelor of Mechanical Engineering degree. More information about our trip to India is below.
- The School of Engineering Executive Development Board continued to be very active in fundraising for the school. The board held several phone and face-to-face meetings with its members. After serving as the board chair for five years, Matt Burns stepped down and the board elected John Heisse as its new chair.
- In October 2012, I traveled with Provost James Brennan and Director of International Programs Hsien Pao to India to visit Christ University in Bangalore, Rajagiri School of Engineering and Technology in Cochin, and St. Francis Institute of Technology in Mumbai. In addition, the school hosted several officials from other institutions, including Christ University, India; Ho Chi Minh City University of Technology, Vietnam; Southeast University, China; National Vietnam International University, Vietnam; and Rajagiri School of Engineering and Technology, India. Agreements and Memoranda of Understanding for educational program and research collaboration were signed during the visits.
- The Summer Camp Engineering New Frontiers hosted about 50 students from high schools around the country in July 2012. This one-week program provided students with hands-on activities as well as field trips to local research facilities and cultural events.

As evidenced by the facts presented above, last year the school did very well in terms of enrollment, research, and development. In January 2013, after a formal consultation with the faculty of the school, CUA President John Garvey expressed his desire to appoint me for the fourth term as dean and I am happy to inform you that I gladly accepted his offer. I look forward to serving the school in the next four years. I hope you enjoy reading the Fall 2013 issue of *CUA Engineer*.

Regards,

A handwritten signature in black ink, appearing to read "Charles Nguyen".

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

Nurturing Ideas to Improve Human Health

Faculty Profile

Improving human health through development of microsystems is something that Xiaolong Luo, assistant professor in the Department of Mechanical Engineering, feels passionate about.

“Taking an interdisciplinary perspective in research is most rewarding,” he says. “Having an open mind is the gateway of turning our curiosity into success in science and engineering. What excites me most in my work is seeing how the basic engineering principles can be applied in the fields of biology or medicine to accomplish beyond what was done before.”

Luo teaches fluidic mechanics, thermodynamics, mechatronics, and microfabrication. In his research, he works with fluids in microscale (called microfluidics), fabricates devices and systems with technology developed in microelectronics (known as microfabrication), develops novel approaches to integrate biology into devices (called biofabrication), and diagnoses biological events (biosensing) with optical signals. In his work, Luo uses polysaccharides derived from crab and insect shells and seaweed algae in microfluidic networks.

“My research aligns with the big picture of transforming conventional laboratory functions into microsystems, known as lab-on-a-chip, to speed up drug discovery and thereby improve human health,” he says.

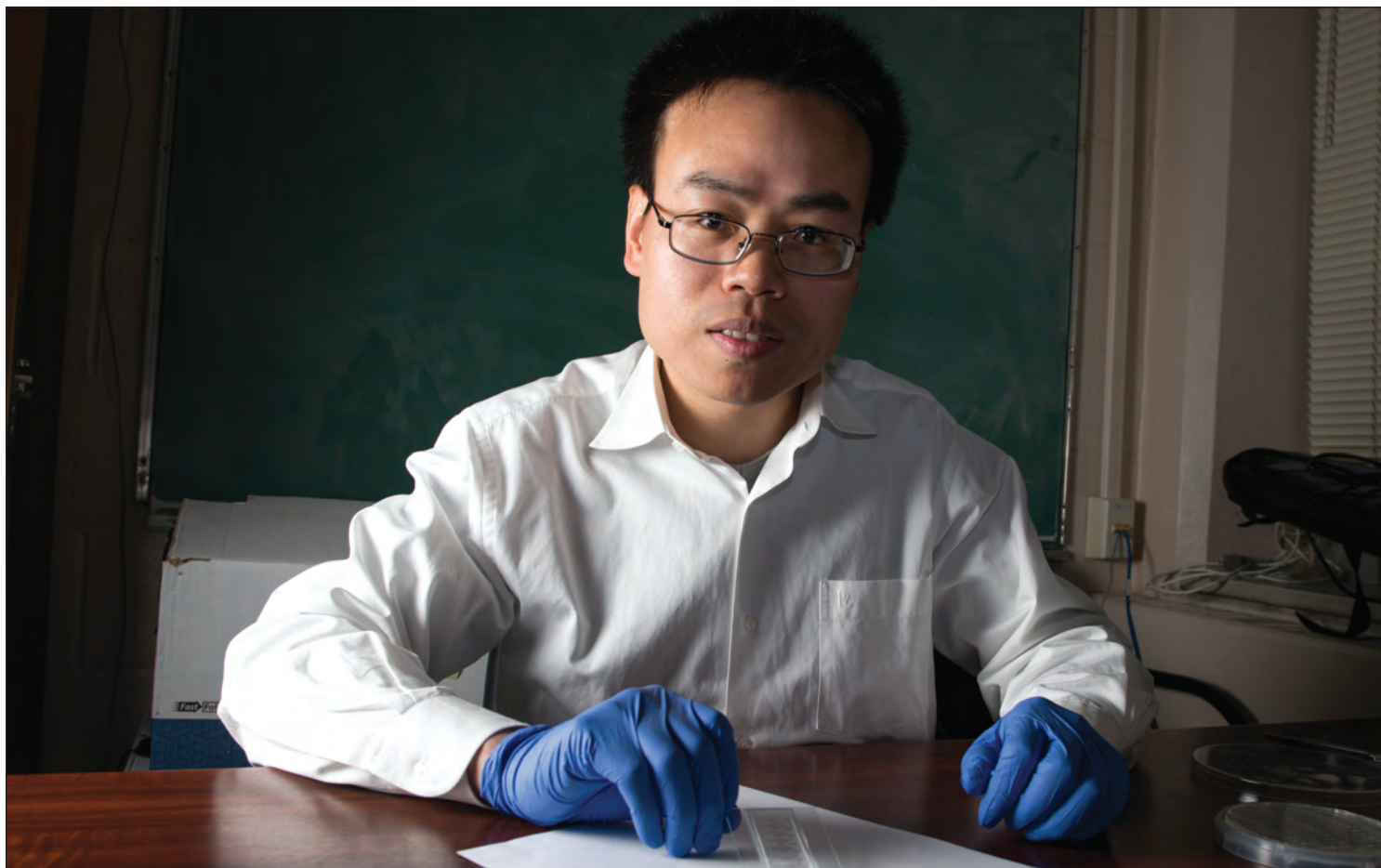
He is currently involved in three projects. The first is studying active modulation of cell-to-cell communication in a microfluidically partitioned synthetic ecosystem. “Like a human being communicating with cell phones

and Twitter, bacteria are known to communicate with ions and small molecules,” he says. “This project has demonstrated the communication of signals among multiple cell populations, locally or remotely, in a synthetic ecosystem in microfluidic networks.”

The second project involves developing a miniaturized microsystem with freestanding membrane structures that integrates both antibody manufacturing cells and on-chip detection of manufactured antibodies, and in the third project Luo is developing integrated optical sensors to detect signaling molecules for cell-to-cell communications.

Luo also values inspiration from other disciplines. Once a presentation on a chemistry topic at an international conference inspired him to use the same mechanism discussed for biofabrication in microfluidics. “I immediately started the exploration, and the research project eventually evolved as the thrust of my post-doctoral research,” he says. His plans to continue to apply engineering principles in his research to develop novel, integrated microsystems for the biomedical field.

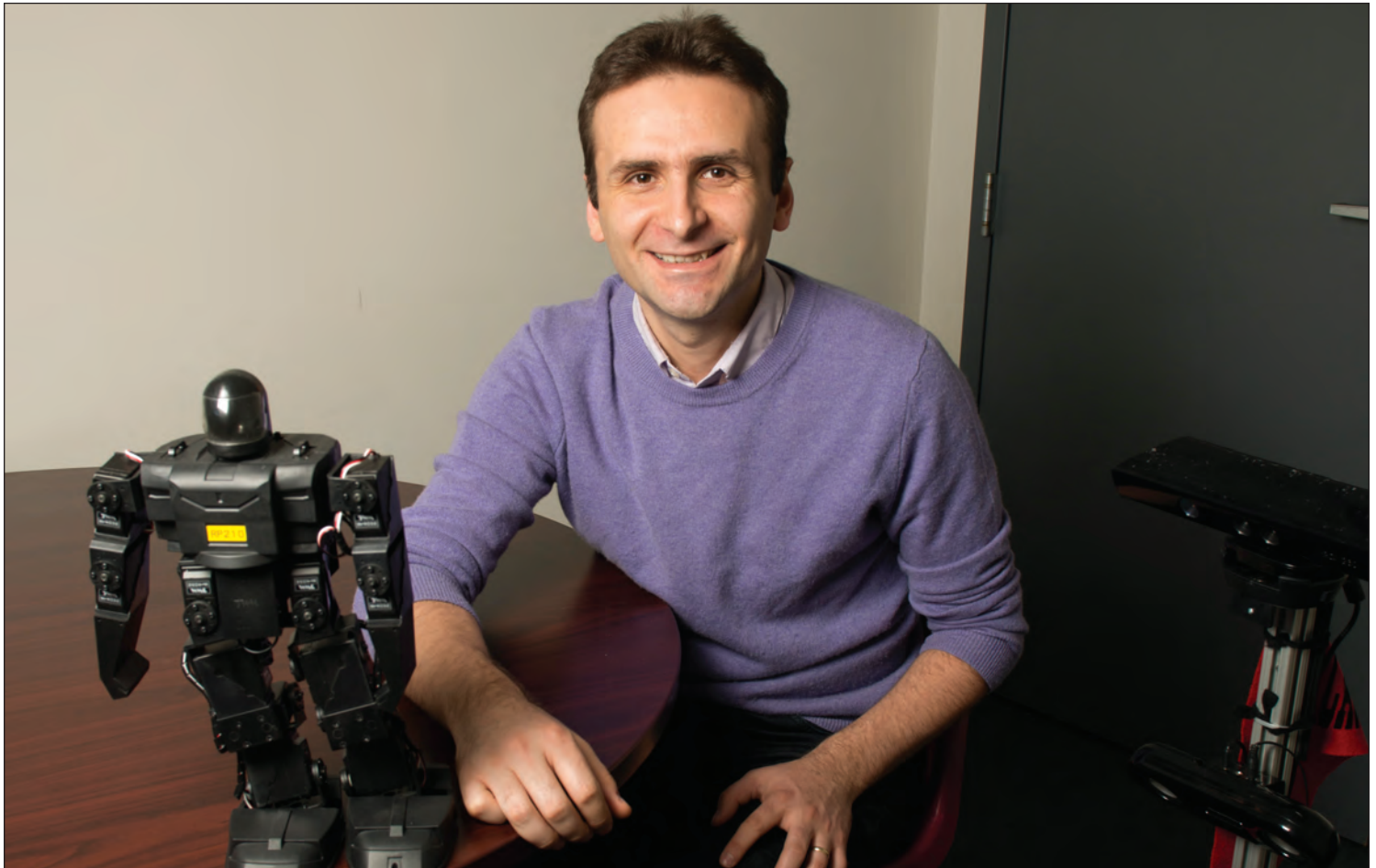
“Most of the fantastic ideas from my night dreams or daytime idling end up nowhere,” he smiles. “However, what I enjoy most of research is the freedom to exploit a naïve idea, nurture it like a baby, grow it like a tree, and turn it into something useful.”



Assistant Professor Xiaolong Luo

Robotic Systems That Help Humans on the Ground and Under the Sea

Faculty Profile



Assistant Professor Erion Plaku

Artificial intelligence and robotics are often treated like fantasy realms out of a Hollywood movie. However, they are quite real, with research in the field conducted by scientists and engineers around the world. One of those researchers is Erion Plaku, assistant professor in the Department of Electrical Engineering and Computer Science.

“My research is on intelligent planning to enhance the autonomy of robotic systems and provide assistance in human-machine cooperative tasks,” says Plaku. “The need for intelligent planning arises in diverse applications, such as those targeted in my research — mobile robotics, robotic-assisted surgery, and autonomous underwater vehicles.”

In addition to his research, Plaku teaches robotics, artificial intelligence, computer programming, and theory of computing, as well as working as an adviser to Ph.D. students.

“This year, my Ph.D. student James McMahon and I have started to work on motion planning and decision-making mechanisms to enhance the autonomy and capabilities of underwater vehicles to carry out search and inspection missions in confined waterways and constrained environments,” he says.

He is also working with Ph.D. student Turkey Aboalola and undergraduate students Duong Le, Tuan Nguyen, and Thanh Nguyen to enhance planning frameworks so robots equipped with arms and grippers can pick up objects

and transfer them. “Such research has applications in service robotics where the robot can act as a personal assistant and in search-and-rescue missions.”

In robotic-assisted surgery, Plaku says he “seeks to enhance automation and assist in training novice surgeons.” Robotic-assisted surgery also presents significant challenges. “Even suturing, which is elementary in open surgery, requires the surgeon to determine sequences of high-level actions, such as ‘Grasp, Push, Pull.’” The framework he is working on would automatically plan motions for the robot to perform common surgical tasks, he added.

As his research progresses, Plaku plans to make supervision of robotic systems similar to the supervision of human operators, which will increase productivity and capabilities.

In considering what aspects of his work are most rewarding, two things come to mind, he says. One is the state-of-the-art infrastructure the School of Engineering has put into place that allows him to work most efficiently. The other is the opportunity to involve undergraduate students in the research conducted in his lab. Their enthusiasm in getting a robot to carry out commands or developing algorithms for Microsoft Kinect to interpret sign language, for example, “is infectious and certainly recharges me after long days or weeks of programming.”

School of Engineering Expands Collaboration with Universities in India

Following up on an April 2011 exploratory trip to India made by Dean Charles Nguyen and Director of International Programs Frank Pao, representatives from Christ University visited CUA in July 2012. They included Father Thomas Mathew, vice chancellor of Christ University, and Father Thomas TV, director of the Institute of Management. During the visit, an agreement for 2+2+1-B.S.+M.S. Program between Christ University and CUA was signed.

In October 2012 a CUA delegation, including Brennan, Nguyen, and Pao, again traveled to India to visit several Indian Universities, including the main campus of Christ University in Bangalore and its recently built campus for engineering faculty in Bangalore's suburbs. That visit led to an agreement for a 4+1 Program and a memorandum of understanding (MOU) between Christ University and CUA.

Leaving Bangalore, the CUA delegation traveled to Cochin, India, visiting Rajagiri School of Engineering and Technology, a trip that also resulted in the signing of an MOU between the two schools. Nguyen and Pao then travelled to St. Francis Institute of Technology located near Mumbai and met with several key officials of the institute.

During the trip, the CUA leaders also visited InfoSys, the biggest IT company in India, meeting with Adam Grotzky, executive director of US-India Educational Foundation (USIEF), which oversees the Fulbright Program.

CUA welcomed the first student from India in January 2013. Jacob Sunny, a student from Christ University, arrived at CUA campus to participate in the 2+2 program. Sunny is a junior pursuing a bachelor's degree in mechanical engineering at CUA.



CUA officials visit India. (Left to right) Provost James Brennan, Professor Frank Pao, Dean Charles Nguyen.

Deputy Secretary of Energy Honored with School Alumni Award

Melvin G. Williams Jr., M.S.E. 1984, vice admiral, U.S. Navy (retired) and former associate deputy secretary of energy, received the 2012 Engineering Distinguished Alumni Award during the School of Engineering Alumni Homecoming Luncheon. The award is given to engineering alumni based on their excellent professional achievements.

As associate deputy secretary of energy, Williams led the department in its goal to achieve management and operational excellence. He ensured that the department's mission was efficiently and effectively implemented.

Williams, a nuclear trained submariner, served in the U.S. Navy for 32 years as a commissioned officer and one year as an enlisted sailor. Among his significant operational assignments are deputy commander of U.S. Fleet Forces, director of global operations at U.S. Strategic Command, chief of staff for the Kitty Hawk Carrier Strike Group, and executive officer on USS *Louisville*.

Williams holds a Bachelor of Science in Mathematics with merit from the U.S. Naval Academy and a Master of Science in Engineering from CUA. He also attended Harvard University's JFK School of Government. He has received numerous awards, including the Black Engineer of the Year Award for Professional Achievement, the National Society of Black Engineers Award for Lifetime Achievement in Government, and the Thurgood Marshall Award for Service and Leadership. He has been inducted into the STEM Hall of Fame.

With his father, Master Chief Melvin G. Williams Sr. U.S. Navy (Ret.), Williams wrote the leadership book, *Navigating the Seven Seas*, which was nominated by the U.S. Navy in 2012 as "essential reading" for all Navy personnel.



Provost James Brennan (right) presents award plaque to Vice Admiral Williams.

Civil Engineering Professor Receives ASCE Award

Gunnar Lucko's innovative and creative scholarly work in relation to construction engineering and management has earned him the 2013 Daniel W. Halpin Award for Scholarship in Construction from the American Society of Civil Engineers.

The award, announced on April 16, recognized Lucko, who is an associate professor of civil engineering and director of the construction management program, "For extraordinary creativity and innovation in introducing singularity functions into construction engineering and management scholarship and developing novel modeling and analytical procedures for integrated project scheduling and budgeting. His research work has significant potential to improve project planning and control."

Lucko's creative research approach is based on identifying conceptual analogies between construction project management and seemingly unrelated areas, such as structural engineering. This talent in viewing established knowledge from a new and different angle leads him to see the limitations of traditional "tried-and-true" approaches in project planning and find completely new approaches.

For more on the work that won Lucko this recognition, see "New Research Protects Construction Schedules Against Delays," pg. 8.



Professor Gunnar Lucko (left) receiving certificate at the award ceremony.

EECS Robotics Exhibition at the DC FIRST Regional Robotics Competition

The DC FIRST Regional Robotics Competition this year involved 45 Washington area high schools and teams from eight states and two countries — Israel and Brazil — competing in Frisbee® flinging and pyramid climbing. Starting without any human assistance, robots would fling Frisbees into baskets similar to free throws in basketball. Afterwards, students teleoperated the robots, attempting to score as many points as possible. The more advanced robots would even try to climb and place Frisbees on top of a pyramid.

Based on last year's success, the EECS Robotics and Artificial Intelligence Laboratory, headed by Assistant Professor of Engineering Erion Plaku, was invited again to showcase the robotics program during the competition. Undergraduate students Duong Le, Thanh Nguyen, Tuan Nguyen, and Hung Tran demonstrated their projects on autonomous robotics in which robots equipped with Microsoft Kinects follow people; interpret body-language gestures; and respond to voice commands to find, pick up, and bring back different objects. The interactive nature of the exhibit provided exciting moments as people would dance in front of Kinect or walk in funny ways to see if the robots would follow (and they did). The

Microsoft exhibitors, which were next to CUA's, were so impressed by the projects that they invited the students to run the exhibit at one of their flagship stores in D.C. These exhibits are

part of the long-term commitment of EECS and School of Engineering to broaden the research and educational efforts in our community and inspire young students to science and technology.



Professor Plaku (second from left) and his students at the DC FIRST Competition.

Out-of-Classroom Experience: Students and Faculty Tour Plant

On March 3, a group of CUA students and their professors were treated to tour of a fully functional wastewater treatment plant, supplementing classroom study in Introduction to Environment Engineering (ENGR 538) with a real-life application. George Mpoyo, a process engineer with 17 years of experience in DC Water who is also a master's degree candidate in the Department of Civil Engineering, guided the group through the Blue Plains Washington, D.C., plant, explaining the physical, chemical, biological, and thermal processes and describing the chemicals, waste-eating microorganisms, aeration air, and disinfectants used to cleanse the waste stream. Professor Sen Nieh, Ph.D., chair of mechanical engineering department, and Adjunct Assistant Professor A. Wolfe, Ph.D., P.E., who co-teach ENGR 538, initiated the field trip, which was cosponsored by the Department of Mechanical Engineering and ASME.

The tour presented the students with some surprises — from the initial separation of foreign objects that would damage equipment and pumps from the wastewater stream to the pervasive rotten egg smell natural to wastewater — as well as visual evidence of the treatment process. As the students moved through the plant, they observed the slow, progressive change in the color and turbidity of water, from brown to light yellow to crystal clear.

No class, even one in the field, would be complete without a test. At the end of the tour, Nieh held up two beakers of water and asked which sample was from the faucet and which was treated wastewater from the plant. Key to answering correctly was discerning the difference in smell: the tap water smelled of chlorine; the plant-treated water didn't. That's because the

treated wastewater has no added chlorine or other chemicals. What renders the wastewater undrinkable — no chlorine — makes it healthy for the fish in the Potomac River, where the treated wastewater is discharged.

At the end of the tour the students were excited to have seen in action the processes they studied in their classroom.



Professor Sen Nieh (middle) challenges engineering students to identify waste water at the Blue Plains Plant.

Mechanical Engineer Brings Pope Emeritus' Thought to Light



As an associate professor in the School of Engineering's Department of Mechanical Engineering, J. Steven Brown has a record of publications dealing with refrigerants, his specialty, in such journals as *HVAC&R Research*, *International Journal of Refrigeration*, and *Journal of Chemical and Engineering Data*. But in May 2013, Brown added a new subject and a new outlet to his CV with the publication of *Pope Benedict XVI. A Reason Open To God: On Universities, Education, & Culture*, a book of the pope's

writings collected and edited by Brown, published by The Catholic University of America Press (CUA Press).

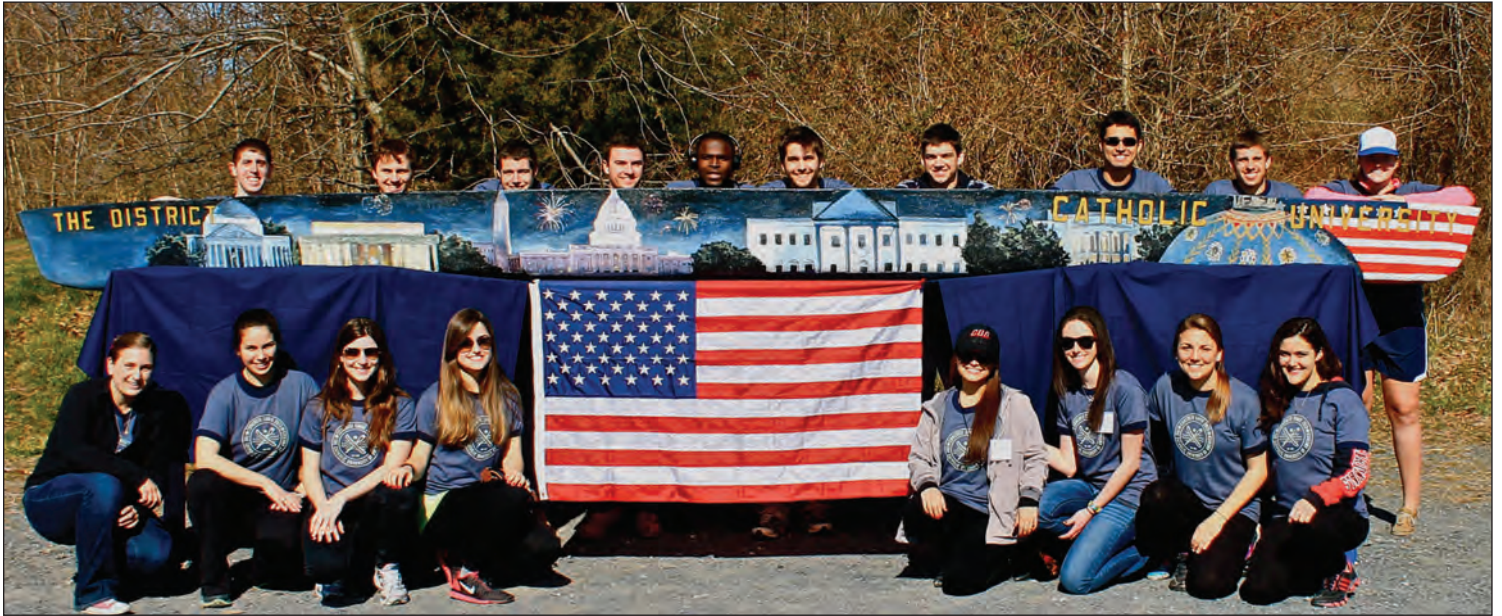
In January 2010 when Brown was asked by CUA's new President to participate in a panel discussion on faith and the intellectual life. Brown immediately began researching addresses on the subject by Benedict XVI,

who had addressed Catholic educators on CUA's campus in 2008, and used them as the foundation for his 10-minute talk, later presenting the Pope's addresses as an inaugural gift to President John Garvey. A fellow faculty member recommended that Brown try to get them published. "I showed what I had collected to the director of CUA Press, hoping he'd send me away, but he said, 'We'd love to publish this,'" Brown recalled in a recent interview. He began grouping the addresses around the themes of faith and reason, freedom and truth, education and love, pedagogy and learning, faith and community, culture and universities, and science and theology. The addresses in the book, Brown says, "are crucial to understanding the thought of Pope Benedict."

At the heart of Catholic University's mission is the belief that faith can be informed by reason. Throughout his nearly 16 years teaching mechanical engineering, Brown says the question of the nature of a Catholic university is one he has "lived existentially, dramatically." His new book is testament to that daily engagement, in and out of the classroom.

For more information or to order Brown's book, see cuapress.cua.edu.

Concrete Canoe Innovates for Success



CUA engineering students proudly pose with canoe *The District*.

Each year CUA students, and engineering students around the country, tackle the task of designing, fabricating, and racing a canoe made out of concrete while adhering to the rigorous parameters set by the American Society of Civil Engineers (ASCE). This year, Catholic University's 2013 ASCE Concrete Canoe Team, led by captains Nick Colameco and Rachel Berry, prepared for success by adopting approaches that had worked in the past and innovating where they felt they could improve on the process. To start, the captains recruited close to 30 new team members from disciplines that included civil engineering, mechanical engineering, and architecture. The

new team revitalized several aspects of the program, the most important of which was the composition of the concrete mix. Tapping the expertise of concrete professionals, the team generated a strong, lightweight concrete mix that could float on water while maintaining structural integrity under the stresses of racing.

But the team didn't stop there. One of the most noticeable improvements was in the realm of aesthetics. The captains recruited artistically talented CUA students who designed and painted a mural depicting Washington, D.C., architectural icons on the canoe's hull. (See photo.) The canoe, appropriately, was named *The District*, celebrating

the art as well as Catholic University's 20th anniversary of being the only District of Columbia school to compete in the competition.

This year the Virginia Regional Conference was hosted by Howard University at Black Hill Regional Park on April 5. Breaking an eight-year dry spell, despite limited resources and a tight schedule, the team placed third in final product display, rowing, and overall. In addition, the team's design report placed second in the region.

In honor of these successes, on April 9, the American Concrete Institute's National Capitol Chapter awarded the team \$1,000 in scholarship money toward next year's activities.



Promising Research On Protecting Construction Schedules Against Delays



Associate Professor Gunnar Lucko visits the Monroe Street Market project across the street from the University's campus.

“Be on time!” What seems like a straightforward goal in daily life is a professional challenge for construction managers, who are responsible for all work on their site. Specific tasks like pouring concrete or installing windows are coordinated by a complex schedule that is vulnerable to weather and other unforeseen circumstances, yet often with little built-in flexibility.

“The traditional approach weaves discrete tasks into a network schedule, but causes its longest uninterrupted sequence to be critical, which in scheduling means inherent inflexibility,” explains Gunnar Lucko, associate professor of civil engineering and director of CUA’s Construction Engineering and Management Program. “It’s paradoxical to create a group of tasks that is automatically important, yet especially vulnerable.”

With those challenges in mind, he began National Science Foundation-funded research in summer 2013, investigating ways to remove criticality.

“Although scheduling flexibility is essential to protect against and accommodate changes, no method exists to calculate how much flexibility is needed and where in a schedule to strategically place it,” he says. “Currently each manager must judge by gut feeling to include some buffer, because we lack a formula for the exact portions of flexibility that would level the playing field.”

Industry participation is an important aspect of his research. Bozzuto Construction, currently building Monroe Street Market south of CUA’s campus, will provide schedules to be simulated using the new buffering technique. Key is allocating time buffers to critical tasks in proportion to their inherent risk.

Lucko’s research is inspired by his interest in exploring analogies across scientific fields. “I enjoy asking myself what a concept could mean if we apply it to construction.”

Engineers Without Borders Travels to Paraguay



Engineering students with local people in Paraguay.

In May 2013, members of the CUA Engineers Without Borders (EWB) student chapter traveled to the rural community of Naranjaty Guazu in northeastern Paraguay. The group included three undergraduate students — senior John Burns, junior Hannah Gillis, and sophomore Frances Anne Tosto — chapter adviser John Judge, associate professor of mechanical engineering, and their professional mentor, civil engineer Clifford Schexnayder. Their mission was to perform an initial site assessment for a project to design and construct a honey processing facility.

The *campesinos* of rural Paraguay are peasant farmers who raise livestock and grow crops, predominantly for their own use. Georgia native Lester Moore first came to Naranjaty Guazu (which means “Big Orange” in the local Guaraní language) as a Peace Corps volunteer in the early 90s, to teach the community members to keep beehives on their farms and sell the honey in cities as an source of cash income. A passionate beekeeper, Moore has remained in Paraguay and devotes his time to helping residents harvest, process, and distribute their honey, as well as educating new beekeepers. For years, he has used space in his own kitchen for the equipment necessary to extract honey from the honeycomb and then filter and bottle the honey.

The CUA EWB chapter will design and construct a separate facility for the community to house honey processing equipment for use by all the local beekeepers. The building will be constructed using local materials and must be engineered to protect the honey from extremes of temperature and humidity. Once the processing operation is moved into the new facility, Moore plans to train all his beekeeper associates to extract, filter, and bottle their own honey, freeing him to dedicate his time to outreach efforts to bring beekeeping to more Paraguayan farmers.

The weeklong trip involved two days of travel in each direction, including a seven-hour bus ride between the Asunción, the capital of Paraguay, and Horqueta, the nearest town to the village of Naranjaty Guazu. The group spent four days in the community, discussing preliminary plans with Moore and local contractors, surveying possible sites, and meeting with members of the community, including some of Moore’s beekeeper protégés. They also enjoyed local cuisine, cooked by one of Moore’s neighbors, and learned about the history and culture of the country and its native Guaraní people. The chapter looks forward to returning to Paraguay with a larger group once design work is complete to begin construction of the honey processing facility.

Development Board Sponsors Entrepreneurship Panel Discussion

On April 11, 2013, the School of Engineering hosted a panel discussion on entrepreneurship entitled “Catching the Global Innovation Wave — Turning your college degree or research interests into a meaningful and lucrative business,” sponsored by the school’s Executive Development Board. The event was well attended, with an audience of more than 50 student and faculty members representing the schools of engineering, nursing, and business. The panel discussion was designed to pique the interest of students and faculty in creating a business. The panel was moderated by Bob Kavetsky, (B.M.E. 1975, M.M.E. 1978, and M.S.E. 1980), president of the Energetics Technology Center in Southern Maryland. Panelists included Michael Tracey, (Ph.D. 2000), head of Global Surgical Device R&D, Johnson and Johnson; Shirley

Collier, president of Tech Growth, Inc., nationally known speaker, author, technology entrepreneur, philanthropist, and advocate for economic development through innovation; Michael Dailey, former executive director and president of the Frederick Innovative Technology Center, currently a principal with Next Level Performance Consulting; and Matthew Burns, B.E.E.1980, president and CEO of Burns Engineering, as well as outgoing chair of the Engineering Development Board.

Tracey kicked off the discussion by commenting on some dimensions of innovating, such as the “environment,” or that innovation should focus on solving human-centric problems, not machine-centric problems. Collier followed with her own story of how she came to be an entrepreneur, initially following her mother’s advice to get a

good job with a big company, with good benefits. Dailey shared his experience in running a high-tech incubator and being an entrepreneur himself. Burns concluded the individual presentations, noting that his time at CUA was an excellent preparation for taking over a very small, family business and growing it into a company of more than 120 people, and pointing out the importance of integrity and ethical behavior in building a business. Kavetsky shared how taking philosophy classes at CUA kindled in him an interest in writing, resulting in his having published six books to date, highly unusual for an engineer.

Following the individual presentations, panelists fielded a wide array of questions from the audience, including whether it was preferable to obtain an M.B.A. or a master’s degree in engineering, (the panelists provided a mixed response) and whether it is better to start work with a startup versus a big company, (the general consensus of the panel was big company experience was highly useful, albeit for different reasons). A question was posed as to what role diversity plays in starting a business. All of the panelists felt that diversity of thought was key to a successful business, in that each individual has a unique way of approaching problems and with a diverse outlook everyone’s experiences can aid in the success of a company. Attendees also asked about the importance of intellectual property, and if one should be concerned with its protection. The panelists suggested that it is important to protect your ideas, but Tracey did note that the original idea behind creating patents was to share information that might inspire others.



Dean Charles Nguyen (right) poses with panelists and members of the Executive Development Board.

Executive Development Board Elects New Chair

At its semiannual meeting in April 2013, the School of Engineering Executive Development Board elected John Heisse (B.C.E. 1976) as its new chair. At the meeting Matt Burns (B.E.E. 1980), who had served as the board chair for the last five years, officially handed over the charge to Heisse, a board member since 2008.

Heisse recognized Burns for his vision and the hard work that have brought the board to its excellent state today. Dean Nguyen joined in praising Burns for his contribution to the school, manifested by the substantial increase in alumni participation and donation and for his successful recruitment of board members during his tenure as the board chair. The dean went on to thank Burns for his willingness to serve as the chair when asked and for the

establishment of the Burns Family Fellowship Program through an endowment from the Burns family. This fellowship program has given seed grants to the faculty of the School of Engineering to conduct initial research that often led to successful proposals, to agencies, including NSF, NIH, and other grant-making institutions. Because the Executive Development Board was first established when Burns assumed his chairmanship, Nguyen declared Burns the founding chair at a luncheon after the meeting attended by students, staff, and faculty and presented him with an appreciation plaque.

Later, at a dinner hosted by Burns chair, the members welcomed the new chair and intensively discussed the board’s future activities.

Alumni Corner

1950s

Thomas G. Nagle, B.M.E. 1953, just turned 85, and is enjoying his 23rd year of retirement after 36 years in aerospace (five with Douglas; 31 with Lockheed). The past 16 years he has lived in Eagle, Idaho. He is in pretty good health, still travels, and has three of his six children and their families nearby, including eight of his 12 grandkids. He feels life couldn't get much better!

1960s

Michael Edward McCormick, M.S.E. (Applied Mechanics) 1961, Ph.D. (Mechanical Engineering) 1966, has held faculty positions at David Taylor Model Basin, Swarthmore College, The Catholic University of America, Trinity College, U.S. Naval Academy, and Johns Hopkins University. He has written many books, including *Ocean Engineering Wave Mechanics*, as well as numerous technical publications. McCormick has given presentations, edited a few journals, and has three patents. Among his numerous awards is the First Alumni Research Award from the U. S. Naval Academy.

1970s

Brian W. Sheron, M.S. 1971, Ph.D. 1975, is the director of the Office of Nuclear Regulatory Research at the U.S. Nuclear Regulatory Commission in Washington, D.C., a position he has held since 2006. Sheron started with the U.S. Atomic Energy Commission in 1973, moved to the NRC in 1976, and has held progressively more responsible positions throughout his career there.

Edward P. Donovan, B.S. Engr. 1975, received a doctorate in applied physics from Harvard University. He worked at the Naval Research Laboratory in Washington, D.C., for 12 years, then with Science Applications International Corporation for 18 years. Donovan is now with American Systems, Inc., where he supports the Joint Improvised Explosive Device Defeat Organization in test and evaluation of systems to help prevent death and injury to members of the U.S. Armed Forces.

1980s

Steven A. Strazzella, B.C.E. 1989, is the president of Bozzuto Development Company, a national commercial apartment owner/developer/manager. Previously, he was an executive vice president, responsible for a number of the company's largest and most complicated apartment projects. In his new role, Strazzella will preside over the team responsible for creating, planning, and executing all new apartment developments.

2000s

Rebecca C. Roques-Davis, B.B.E. 2000, attended medical school at Louisiana State University School of Medicine in New Orleans, La., and currently works as a physician in oncology and hematology in Hammond, La. She loved her years at CUA and always enjoys hearing what's happening here these days.

Melissa (Currie) Impastato, B.C.E. 2002, is celebrating her 10th year with Clark Construction based in Bethesda, Md., where she is currently a senior project manager working on the City Center DC project in downtown Washington, D.C.

Suttinut Sahasakmontri, dual degree in Project Management and Environmental Management, 2006, has been the director of Thai Tenox Co., LTD, which specializes in soil cement, and assistant managing director of Thai Petchaboon Company, a car transportation business since 2010. Both businesses are located in Bangkok.

Nicholas Berg, B.M.E. 2009, is currently serving as a mechanical engineer at the Armament Research, Development, and Engineering Center at Picatinny Arsenal, a U.S. Army base in New Jersey where he supports the Cannon Artillery Munitions Division managing projectile design and development. Berg has served as team leader for a major four-year Army Technical Objective project. He earned his master's degree in management in 2011 from the Florida Institute of Technology and is pursuing an M.B.A. degree there. Berg coaches basketball and baseball at Morris Catholic High School, Denville, N.J., and is a member of the CUA Alumni Association Board of Governors.

Career Services Fall 2013 Events

We invite engineering alumni to be involved in preparing students for their first career opportunities. To volunteer or sign up for any these events, contact the Office of Careers Service at careers.cua.edu or 202-319-5623.

Employer Recruiting Panel

Sept. 24, 2013

Alumni/employers speak to students about how to get noticed when applying for jobs/internships.

Fall Career Fair

Oct. 4, 2013

Engineering alumni are invited to participate in the Career Fair and talk to students about job and internship opportunities at their place of employment.

Salary Negotiation for Women

Oct. 22, 2013

Presents strategies and tactics for women to even the playing field regarding compensation.

Etiquette Dinner

Nov. 15, 2013

Networking activity between graduating seniors and alumni.

New Frontiers Engineering Summer Camp

High school juniors and seniors from around the country explored engineering disciplines during the annual New Frontiers Engineering Camp, held July 15–19 at Catholic University.

The 36 students participated in lessons and hands-on activities in civil, mechanical, biomedical, and electrical engineering, and toured local

engineering facilities. They also attended a National's baseball game and a theatrical performance. Five CUA engineering seniors participated as camp counselors.

The camp's goals were twofold, said this year's camp organizer Greg Behrmann, clinical assistant professor of biomedical engineering.

"We give the high school students the experience of what being on a college campus is like, and we also expose them to the different engineering disciplines at the same time." A final project for the group was to build and race miniature hovercraft.



CUA Mechanical Engineering Students Succeed in Texas

This year, four teams of senior mechanical engineering students entered the Society of Automotive Engineers (SAE) Aero Design competition, held in Fort Worth, Texas. A fifth team composed of junior mechanical engineering students also worked on the project and prepared for next year's competition. The SAE Aero Design competition is a yearly international competition that provides undergraduate and graduate engineering students with an opportunity to design, fabricate, and fly radio-controlled RC airplanes.

The five teams spent countless hours during the fall semester, each designing their own unique airplanes specifically for the competition. Through careful consideration of multiple different design decisions, each team arrived at a final design and the fabrication began. Once the planes were constructed and successful test flights completed, the planes and students set off for Texas, a two-day, 1,360-mile trip.

Seventy-five teams from all over the world, including South America, Europe, Canada, and Mexico, entered the competition. One of CUA's teams, composed of Chelsea Good, Hong Nguyen, Nick Pavia, and Joe Quigley, scored 4th in the flight portion of the competition with three successful flights through the six rounds. The team was one of only four that had more than three successful flights during the competition.

The competition was made possible by course instructors Associate Professor Joseph Vignola and lecturer Ken Romney, and supported by the mechanical engineering department chairman, Sen Nieh; machinist, Don Smolley, who helped the students build their planes; and Ruth Hicks, who provided administrative support throughout the project.



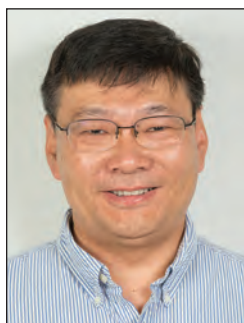
New Faculty



Chanseok Jeong, Ph.D.

Chanseok Jeong, Ph.D., joined the civil engineering department as an assistant professor in August 2013. Prior to joining CUA, he was a postdoctoral research associate and lecturer in the Civil and Environmental Engineering Department at University of California, Los Angeles. He received his M.S. and Ph.D. degrees in civil engineering from the University of Texas at Austin in 2006 and 2011, respectively, and his B.S. degree in civil

engineering from Yonsei University, Korea, in 2003. His current research interests includes wave propagation analysis and inverse problems, associated with energy geoscience (elastic wave-based enhanced oil recovery and geophysical inversion of a hydrocarbon reservoir), nondestructive evaluation, and condition assessment of structures, and dynamic soil-structure-interaction analysis.



Hang Liu, Ph.D.

Hang Liu, Ph.D., joined the engineering school as an associate professor in the Department of Electrical Engineering and Computer Science in January 2013. He came to CUA with more than 10 years of research experience in the networking industry, having held senior research and leadership positions at InterDigital Communications LLC. Liu received his Ph.D. degree in electrical engineering from the University of Pennsylvania. His

current research interests include wireless communications and networking, cognitive radio networks, Internet of Things, network security, mobile content distribution, media streaming, mobile computing, future Internet architecture, and network economics.



Xiaolong Luo, Ph.D.

Xiaolong Luo, Ph.D., joined the faculty of the School of Engineering's Department of Mechanical Engineering as an assistant professor in January 2013. Prior to joining CUA, Luo was a research associate of the Institute of Bioscience and Biotechnology Research, and a member of the Maryland Biochip Collaborative at the University of Maryland. He received his Ph.D. in bioengineering from the University of Maryland in 2008;

his M.S. in mechanical engineering from Temple University, and his B.E. in mechatronics from Zhejiang University in China. For in-depth information on Luo's current research, see the faculty spotlight on page 2.



Georges Nehmetallah, Ph.D.

Georges Nehmetallah, Ph.D., came to The Catholic University of America as a clinical assistant professor in January 2013 and was named assistant professor in the EECS department in August. Prior to joining the faculty, he was a research professor at the University of Dayton from 2012 to 2013, a research engineer at Dayton from 2008 until 2012, and a post-doctoral fellow at the university in 2007; he received his

Ph.D. from the University of Dayton in 2006. His research interests are in digital holography, holographic interferometry and microscopy, compressive holography and metamaterials, with applications to sensors technology and super-resolution imaging.



Patricio Simari, Ph.D.

Patricio Simari, Ph.D., joined the School of Engineering as an assistant professor of electrical engineering and computer science in August 2013. He received his licentiate degree in computer science from the Universidad Nacional del Sur in Bahia Blanca, Argentina, in 2001, and his M.Sc. and Ph.D. in computer science from the University of Toronto in 2004 and 2009 respectively. Simari worked at Johns Hopkins University as a visiting

scholar and postdoctoral fellow from 2008 to 2010. From 2011 to 2012 he held research scientist position with Autodesk Research, after which he joined the faculty at the University of Maryland, College Park, as a research associate until late 2013.

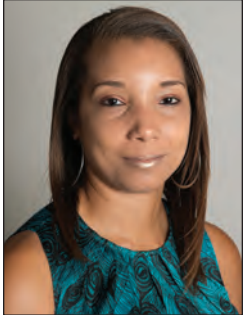


Sahana Kukke, Ph.D.

Sahana Kukke, Ph.D., joins the biomedical engineering faculty from the National Institutes of Health (NIH), where she completed a three-year post-doctoral fellowship in a joint position between the Rehabilitation Medicine Department of the NIH Clinical Center and the Human Motor Control Section of the National Institute of Neurological Disorders and Stroke. Her postdoctoral work focused on elucidating biomechanical and

neurophysiologic characteristics of movement disorders due to early brain injury, research she plans to continue exploring in her faculty career. Kukke received a Ph.D. in bioengineering at Stanford University in 2009, an M.S. in biomedical engineering at Case Western Reserve University in 2002, and a B.S. in biomedical engineering at Northwestern University in 1999. Through her academic and laboratory work, she has developed expertise in electromyography, motion analysis, force platforms, posturography, transcranial magnetic stimulation, and electroencephalography. She is enthusiastic about teaching and mentoring undergraduate and graduate students at CUA with an interest in engineering and clinical neuroscience.

New Staff



Cecelia Harper

Cecelia Harper has joined our school as the new assistant to the dean for administration. She spent several years working in the budget section of the Department of Homeland Security. She also used to work at the School of Engineering and Applied Science of the George Washington University. Harper has a bachelor's degree in management studies as well as a master's degree in technology management from the

University of Maryland University College. She resides in Maryland.

Attention Alumni

If you would like your summary of accomplishments to be included in next year's *CUA Engineer* please send them to harpera@cua.edu.



Student Awards, Service, and Honors

Diego Blasco received The C.C. Chang Award for Excellence in Mechanical Engineering, 2013.

Danika Coaplin, biomedical engineering, received the School of Engineering's Anthony Scullen Award for Academic Excellence, 2013.

Nicholas Colameco received the 2012 American Society of Civil Engineers National Capital Section Award and the Dennis McCahill Award for Service in Civil Engineering.

Chelsea Good received the American Society of Mechanical Engineers Washington DC Regional Award/Scholarship, 2013.

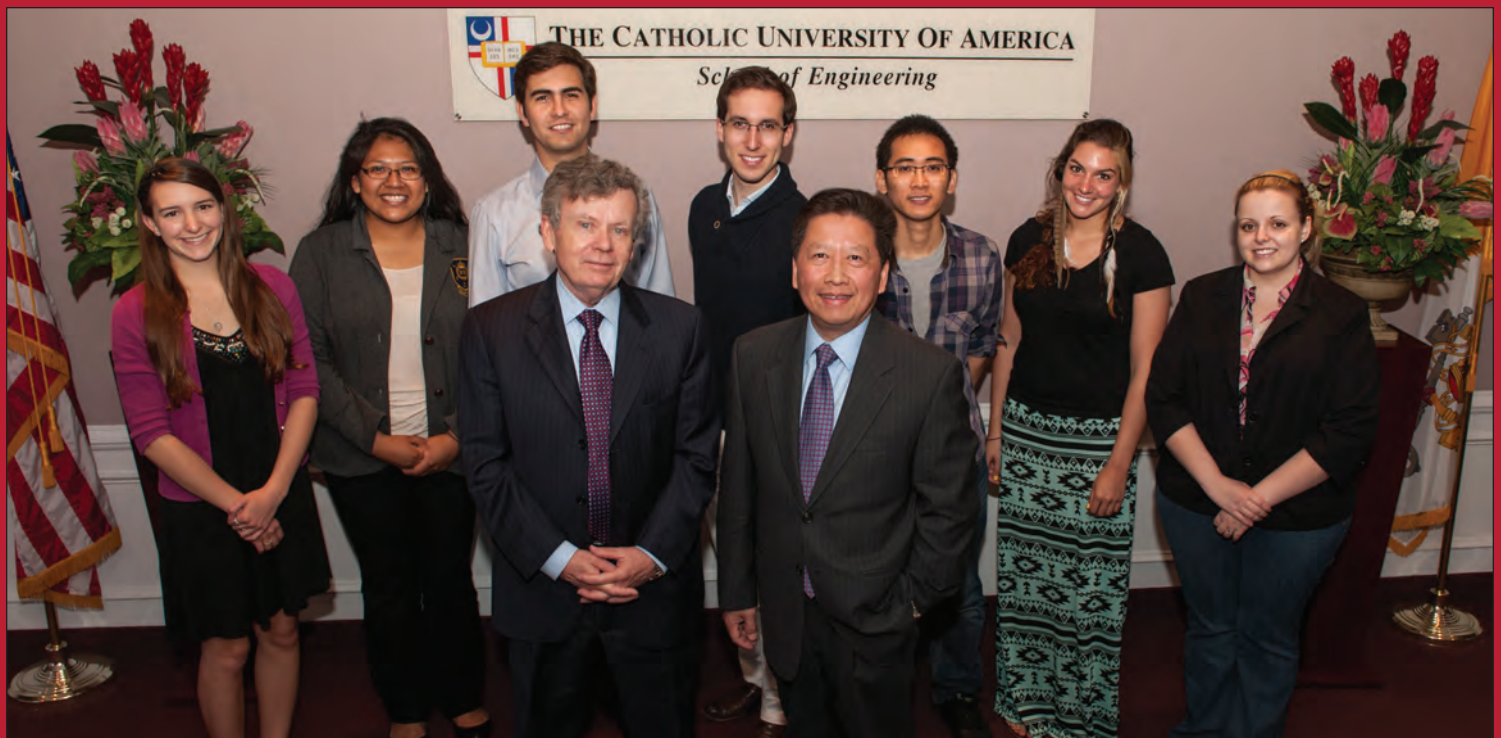
Philip Goolkasian, civil engineering, received the 2013 Benjamin T. Rome Award and the Timothy Kao Award for Excellence in Civil Engineering.

Amber McClung received the Biomedical Engineering Society Award, 2013.

Leticia Melchor Garcia received The John N. Welch Award for Excellence in Computer Science.

Lan Tran received The George McDuffie Award for Excellence in Electrical Engineering.

Christina Warner, received the 2013 H.B. Atabek Award from the biomedical engineering department for academic excellence.



Provost Brennan (front left) and Dean Nguyen with the student honorees at the annual year-end luncheon of the School of Engineering.

Faculty

Awards and Honors

- **Abot, J. L.**, Ph.D, SAGE Best Paper Award, *International Journal of Damage Mechanics*, 2012.
- **Behrmann, G.**, co-recipient of the 2013 Kaman Best Teacher Award.
- **Chang, L.-C.**, co-recipient of the 2013 Kaman Best Teacher Award.
- **Kilic, O.**, invited speaker at workshop titled *Lectures on Computational Electromagnetics: Applications on HPC Platforms*, Dec 3–6, 2012, Dipartimento di Ingegneria Biomedica, Elettronica e delle Telecomunicazioni (DIBET), Università degli Studi di Napoli Federico II, Naples, Italy.
- **Lade, P.V.**, invited keynote lectures, “Time Effects in Sand,” *18th International Symposium on Plasticity & Its Current Applications*, held at Rio Mar Beach Resort & Spa in San Juan, Puerto Rico, Jan. 3–8, 2012, and “Three-Dimensional Strength of Cross-Anisotropic Sand Deposits,” 2012 *World Congress on Advances in Civil, Environmental, and Materials Research (ACEM’12)*, Seoul, Korea, Aug. 26–29, 2012; invited lecture, “40 Years of Soil Mechanics,” presented at Ruhr-University Bochum on the occasion of the *40th Anniversary of the Faculty for Foundations, Soil and Rock Mechanics*, July 5, 2012; and invited plenary lecture, “Three-Dimensional Failure in Geomaterials: Experimentation and Modeling,” presented at the *Second International Symposium on Constitutive Modeling of Geomaterials: Advances & New Applications*, Tsinghua University, Beijing, China, Oct. 15–16, 2012.
- **Lucko, G.**, named Outstanding Reviewer for the *Journal of Construction Engineering and Management*, Construction Institute, American Society of Civil Engineers, Reston, Va., May 23, 2012, which recognizes the best 10 out of 355 total active reviewers, 2011; received the Thomas Fitch Rowland Prize (with E. M. Rojas), Construction Institute, American Society of Civil Engineers, Reston, Va., which recognizes papers published during the past twelve months describing in detail accomplished works of construction or valuable contributions to construction management and construction engineering, May 23, 2012.
- **Lucko, G.**, received the 2013 Kaman Best Teacher Award.

- **Luo, X.**, co-recipient of the 2013 Burns Fellowship for Research.
- **Nieh, S.**, Awarded Honorary Professorship, Yuan Ze University, Taiwan, July 2012.
- **Yang, Y.**, co-recipient of the 2013 Burns Fellowship for Research.

Grants

- Belay, K., **Abot, J. L.**, “Tailoring the Electrical Response of Composite Materials Using Carbon Nanotubes for Strain and Damage Sensing,” Air Force Office of Scientific Research, \$300,000 (Abot’s share: \$50,000), Jan. 1, 2011–Dec. 31, 2012.
- **Brown, J.S., Nieh, S., and Vignola, J.**, Development of STEM Workforce in Mechanical Engineering at The Catholic University of America in Support of NASA’s Strategic Goals, DC Space Grant Consortium (NASA), Aug. 26, 2012–Aug. 25, 2013, \$26,450.
- **Brown, J.S.**, Information Models and Automated Reasoning for Smart Manufacturing and Advanced Robotics, April 2, 2012–March 31, 2015, \$575,134.
- **Chang, L.-C.**, (PI), “Computer Software Programming Support for NHLBI Confocal Microscopy Imaging System and Image Processing, Visualization and Quantification Tools,” National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). May 2012–April 2013, \$36,300.
- **Chang, L.-C.**, (PI), “Computer Software Programming Support for NHLBI Cardiac Magnetic Resonance Image Processing, Visualization and Quantification Tools (renewal),” National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). September 2011–September 2012, \$12,000.
- **Chang, L.-C.**, (PI), “Enhanced Software Tools for Analysis of Diffusion MRI in TBI and PTSD,” The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., Center for Neuroscience and Regenerative Medicine (CNRM), July 2011–June 2012, \$26,692.
- **Dutta, B.**, (PI), “Development of high efficiency thermoelectric power generators from semiconductor microwires,” ZT3 Technologies, Inc., \$350,000.00 for 2013. Ongoing project: total grant as of date — \$2.36 million, 2007–2013.
- **El-Araby, E., Kilic, O., and Chang, L.C.**, “NSF-MRI: Acquisition of a High-Performance Instrument for Heterogeneous and Biologically Inspired Architectures Research at CUA,” National Science Foundation, September 2011–August 2013, \$200,000.
- **Kilic, O.**, “Hardware Accelerated Integration of Full Wave Model and Optimization of Rotman Lenses,” Army Research Office, May 2009–May 2014, \$485,836.
- **Kilic, O.**, “Acquisition of Vector Network Analyzers for Testing, Validation of Advanced RF Design and Educational Purposes,” DoD, July 2012–July 2013, \$245,620.
- **El-Araby, E., Kilic, O., Chang, L.-C.**, “Acquisition of a High-Performance Instrument for Heterogeneous and Biologically Inspired Architectures Research at CUA, National Science Foundation (NSF), Major Research Instrumentation (MRI) program,” NSF, \$140,000.
- **Lade, P.V.** (PI), “Experimental Study of Stress Rotation Effects in Cross-Anisotropic Sand,” National Science Foundation, May 2008–April 2012, \$290,982.
- **Lade, P.V.** (PI), “Experimental Determination and Constitutive Modeling of Time Effects in Sand,” National Science Foundation, Sept. 1, 2011–Aug. 31, 2014, \$331,985.
- **Lucko, G.** (PI), “Financial Analysis and Optimization for Linear Scheduling Model of Construction Projects with Integrated Singularity Functions,” National Science Foundation, Aug. 15, 2009–July 31, 2012, \$173,464 + \$99,891 tuition remission.
- **Lum, P.S.**, (PI), “Extension of the MIME robotic system for stroke rehabilitation,” VA Merit Review Award, July 2007–July 2012, \$730,400.
- **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: Heulton),” U.S. Army Medical Research and Materiel Command, September 2012–September 2014, \$160,000.
- **Lum, P.S.**, (PI of CUA subcontract), “Exploiting interlimb coupling to improve robot-supported neurorehabilitation of the upper extremities (PI: Heulton),” U.S. Army Medical Research and Materiel Command, November 2009–November 2013, \$235,919.

- **Massoudieh, A.** (PI), "Collaborative Research: Horizontal Gene Transfer in Porous Media: Experiments and Modeling," National Science Foundation, \$62,000.
- **Massoudieh, A.** (PI), "Probabilistic Parameter Estimation of Activated Sludge Processes using Markov Chain Monte Carlo," D.C. Water and Sewer Authority, \$30,625.
- **Massoudieh, A.** (PI), "Bayesian Parameter Estimation of Activated Sludge Processes in Blue Plains Waste Water Treatment Plant," Funded by D.C. Water Resources Research Institute, \$15,000.
- **Massoudieh, A.** (PI), "Development of a physically-based model for Performance Evaluation Optimization of Green Roof Systems," funded by D.C. Water Resources Research Institute, 2011, \$9,500.
- **Nieh, S.**, Co-PI, (PI: **J.S. Brown** and Co-PI: **J. Vignola**), "Development of STEM Workforce in Mechanical Engineering at The Catholic University of America in Support of NASA's Strategic Goals," DC Space Grant Consortium (NASA), August 2012–August 2013, \$25,000.
- **Nieh, S.**, PI, "Experimental Evaluation of the Effect of Polynuclear Aromatics in Reactive Flows," General Technical Services Subcontract to Support US Army RDECOM CERDEC, January 2013–June 2013, \$9,300.
- **Pan, T.**, (PI): NCHRP-157A: Development of an Intrinsically Conducting Polymer-Based Low-Cost, Heavy-Duty, and Environmentally-Friendly Coating System for Corrosion Protection of Structural Steels. NCHRP-IDEA, \$107,548. 2013–2015.
- **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 2013), \$410,000.
- **Tran, B.Q.**, and Mendoza, G., "Evaluation of Electromagnetic Compatibility of MRI and Other Sources on Safe Functioning of Medical Devices: Experimental and Computer Modeling Studies," Food and Drug Administration (#HHSF223201010027A), May 2013–September 2013, \$43,934.
- **Vignola, J. F.**, (PI) and **Judge, J. A.** (Co PI), "Synthetic Aperture Acoustic Detection of Camouflaged IEDs," Army Research Office, April 2012–March 2013, \$57,000.

- **Wilson, Jr., O.C.** (PI), "Bone Inspiration in Research and Education," National Science Foundation, March 1, 2007–Feb. 28, 2014, \$459,000.

Presentations and Publications

- **Abot, J. L.**, "Tailoring the Electrical Response of Composite Materials Using Carbon Nanotubes for Strain and Damage Sensing," AFOSR Structural Mechanics Grantee Meeting, Washington, D.C., July 24, 2012.
- **Abot, J. L.**, "Overview of CUA School of Engineering," Instituto Nacional de Pesquisas Espaciais, São José dos Campos, Brazil, May 18, 2012.
- **Abot, J. L.**, "Overview of CUA School of Engineering," Universidade de Brasília, Brasília, Brazil, May 21, 2012.
- **Abot, J. L.**, Belay, K., Wynter, K., Alesh, T., Nesbeth, B. and Smith, L., "Damage Detection in Self-Sensing Laminated Composites and Nanocomposites," 27th American Society for Composites Conference, Arlington, Texas (2012).
- **Abot, J. L.**, Wynter, K., Alesh, T., Lamos, M. D., Campos, A., Mitchell, E. and Belay, K., "Mode II delamination detection in laminated composite materials using carbon nanotube thread: state-of-the-art and challenges," 28th American Society for Composites Conference, State College, Pa., 2013.
- **Abot, J. L.**, Wynter, K., Alesh, T. and Belay, K., "Strain and damage monitoring using carbon nanotube thread sensors," Proceedings of 19th International Conference of Composite Materials, Montreal, Canada, 2013.
- **Abot, J. L.**, Belay, K., Wynter, K., Alesh, T., Nesbeth, B. and Smith, L., "Damage Detection in Self-Sensing Laminated Composites and Nanocomposites," 27th American Society for Composites Conference, Arlington, Texas, 2012.
- Daniel, I. M., **Abot, J. L.**, Schubel, P. M. and Luo, J.-J., "Response and damage tolerance of composite sandwich structures under low velocity impact," *Exper. Mech.* 52 (1):37-47, 2012.
- **Abot, J. L.**, and Song, Y., "Novel nanoreinforced laminated composite material: concept and recent progress," *ASC Series on Advances in composite materials: Nanocomposites*, 2012.
- Cavallini, A., Zilio, C., **Brown, J.S.**, "Thermophysical Properties, Heat transfer, and Pressure Drop of HFOs," Fourth ASHRAE/NIST Refrigerants Conference, October 2012.
- **Brown, J.S.**, "Introduction to Alternatives to High-GWP HFC Refrigerants," Fourth ASHRAE/NIST Refrigerants Conference, October 2012.
- McLinden, M., Domanski, P.A., Kazakov, A., Heo, J.H., **Brown, J.S.**, "Possibilities, Limits, and Tradeoffs for Refrigerants in the Vapor Compression Cycle," Fourth ASHRAE/NIST Refrigerants Conference, October 2012.
- **Brown, J.S.**, Di Nicola, G., Fedele, L., Bobbo, S., Zilio, C., "Saturated Pressure Measurements of 3,3,3-Trifluoroprop-1-ene (R1243zf) for Reduced Temperatures Ranging from 0.62 to 0.98," 18th Symposium on Thermophysical Properties, June 2012.
- **Brown, J.S.**, "Prospective of low-GWP refrigerants: Particular Focus on Fluorinated Propene Isomers and Their Blends," ASHRAE Summer Meeting, June 2012.
- Cavallini, A., Zilio, C., **Brown, J.S.**, "Sustainability with Prospective Refrigerants," accepted for publication in *International Journal of Energy Research*.
- **Brown, J.S.**, Zilio, C., Brignoli, R., Cavallini, A., "Flow Boiling Performance of Refrigerants Considering Penalization Terms (Exergy Losses) for Heat Transfer and Pressure Drop," *International Journal of Energy Research*, dx.doi.org/10.1002/er.2989.
- **Brown, J.S.**, Di Nicola, G., Fedele, L., Bobbo, S., Zilio, C., "Saturated pressure measurements of 3,3,3-trifluoroprop-1-ene (R1243zf) for reduced temperatures ranging from 0.62 to 0.98," *Fluid Phase Equilibria*, dx.doi.org/10.1016/j.fluid.2012.09.036.
- Cavallini, A., Zilio, C., **Brown, J.S.**, "Thermophysical Properties, Heat transfer, and Pressure Drop of HFOs," Proceedings of the Fourth ASHRAE/NIST Refrigerants Conference, October 2012.
- **Brown, J.S.**, "Introduction to Alternatives to High-GWP HFC Refrigerants," Proceedings of the Fourth ASHRAE/NIST Refrigerants Conference, October 2012.
- McLinden, M., Domanski, P.A., Kazakov, A., Heo, J.H., **Brown, J.S.**, "Possibilities, Limits, and Tradeoffs for Refrigerants in the Vapor Compression Cycle," Proceedings of the Fourth ASHRAE/NIST Refrigerants Conference, October 2012.

- **Brown, J.S.**, Di Nicola, G., Fedele, L., Bobbo, S., Zilio, C., “Saturated Pressure Measurements of 3,3,3-Trifluoroprop-1-ene (R1243zf) for Reduced Temperatures Ranging from 0.62 to 0.98,” Proceedings of the 18th Symposium on Thermophysical Properties, June 2012.
- **Chang, L. C.**, Walker, L., and Pierpaoli, C., “Informed RESTORE: a method for robust estimation of diffusion tensor from low redundancy datasets in the presence of physiological noise artifacts.” *Magnetic Resonance in Medicine* 68, no. 5 (2012): 1654-1663.
- Jacobs, M., **Chang, L.-C.**, Pulkkinen, A., “Automatic Segmentation and Classification of Multiple Coronal Mass Ejections from Coronagraph Images,” The 2013 International Conference on Image Processing, Computer Vision, and Pattern Recognition (IPCV), WORLDCOMP '13 (accepted).
- Dang, V., **El-Araby, E.**, Dao, L. H., **Chang, L.-C.**, “Accelerating Nonlinear Diffusion Tensor Estimation For Medical Image Processing Using High Performance GPU Clusters,” The 24th IEEE* International Conference on Application-specific Systems, Architectures and Processors (ASAP13) (accepted).
- Wei, J., Messenger, J., Curtis J. P., **Chang, L.-C.**, “A Hospital Outcome Prediction Model in Percutaneous Coronary Intervention: Volume-Specific Analysis Based on Adverse Outcome Ratios and Risk Adjusted Mortality,” The 127th Annual Meeting of the American Historical Association (AHA), November 2012.
- Oliveira, L. S., Borges, F. B., and Vidal, F. B., **Chang, L.-C.**, “A Fast Eye Localization and Verification Method to Improve Face Matching in Surveillance Videos.” In Systems, Man, and Cybernetics (SMC), 2012 IEEE International Conference on, pp. 840–845. IEEE, October 2012.
- Jacobs, M., Pulkkinen, A., **Chang, L.-C.**, “Improving Coronal Mass Ejection Segmentation Using Pattern Recognition Techniques,” The 2012 International Conference on Image Processing, Computer Vision, and Pattern Recognition (IPCV), WORLDCOMP'12, July 2012.
- Rashidian, S., **Chang, L.-C.**, “Peak Shear Displacement of Rock Fractures,” the 46th US Rock Mechanics Geomechanics Symposium, June 2012.
- **Chang, L.-C.**, Pierpaoli C., “A Robust and Automated Method for Estimating the Expected Signal Standard Deviation in DWI Datasets,” the 20th Annual International Society for Magnetic Resonance in Medicine Scientific Meeting (ISMRM), May 2012.
- Bhatta, R.P., Annamalai, S., Dames, C., Brandys, M. and Pegg, I. L., **Dutta, B.**, “Thermal conductivity of lead telluride micro wires at 725 K by 3 ω method,” *International Journal of Thermal Science*, 2013.
- Annamalai, S., Bhatta, R.P., Pegg, I.L., **Dutta, B.**, “Majority charge carrier reversal and its effect on thermal and electron transport in xV2O5 — (1-x) As2O3 glasses,” *Journal of Non-Crystalline Solids*, 358, 1019-1027, (2012).
- Annamalai, S., Bhatta, R.P., Pegg, I.L., **Dutta, B.**, “Mixed Transition-ion Effect in the glass system: Fe2O3-MnO-TeO2,” *Journal of Non-Crystalline Solids*, 358, 1380-1386 (2012).
- Bhatta, R.P., Annamalai, S., Dames, C., Mohr, R.M., Brandys, M., Pegg, I.L., **Dutta, B.**, “Thermoelectric properties of PbTe microwires,” submitted to *J. App. Physics*, 2013.
- Annamalai, S., Bhatta, R.P., McKeown, D.A., Pegg, I.L., **Dutta, B.**, “Structure and transport properties of xCuO (1-x) Li2B4O7 glasses,” *Phys. Chem. Glasses: Eur. J. Glass Sci. Technol. B*, 52 (1), 16-24 (2013).
- **Dutta, B.** and Pegg, I.L., 12 presentations to the Board of Directors of ZT3 Technologies, Inc.
- Tran, L., **El-Araby, E.**, and **Namazi, N.**, “Prototyping FM Data Demodulation in Free-Space Optical Communication Systems using Discrete Wavelet Transformation,” *Proceedings of the SPIE Optical Engineering + Applications*, vol. 8874, San Diego, August 2013.
- Dang, V., **El-Araby, E.**, Dao, L.H. and **Chang, L.-C.**, “Accelerating Nonlinear Diffusion Tensor Estimation For Medical Image Processing Using High Performance GPU Clusters,” *The 24th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2013)*, Washington, D.C., USA, June 2013.
- Dang, V., Nguyen, Q., and **Kilic, O., El-Araby, E.**, “Single Level Fast Multipole Method on GPU Cluster for Electromagnetic Problems,” *U.S. National Committee on International Union of Radio Science (USNC-URSI)*, Boulder, Colo., January 2013.
- Dang, V., Nguyen, Q., and **Kilic, O., El-Araby, E.**, “Fast Multipole Method for Large-Scale Electromagnetic Scattering Problems using High Performance Computers,” *The Applied Computational Electromagnetics Society (ACES 2013)*, Monterey, Calif., March 2013.
- **El-Araby, E., Kilic, O.**, and Dang, V., “Imaging Through Cluttered Media Using Electromagnetic Interferometry on a Hardware-Accelerated High-Performance Cluster,” *The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC12)*, Salt Lake City, Nov. 10–16, 2012.
- **O. Kilic, E. El-Araby, Q. Nguyen, and V. Dang**, “Bio-Inspired Optimization for Electromagnetic Structure Design Using Full-Wave Techniques on GPUs,” *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields (JNM)*, 2012.
- **E. El-Araby, O. Kilic, and V. Dang**, “Exploiting FPGAs and GPUs for Electromagnetics Applications: Interferometric Imaging in Random Media Case Study”, *The Applied Computational Electromagnetics Society (ACES) Journal*, vol. 27, No. 2, February 2012. ISSN 1054-4887.
- Kizhner, S., Blank, K. B., Sichler, J. A., Moigne, J. L., **El-Araby, E.**, and Dang, V., “On Development of Hilbert-Huang Transform Data Processing Real Time System With 2-D Capabilities,” *NASA/ESA Conference on Adaptive Hardware and Systems (AHS 2012)*, Nuremberg, Germany, June 2012.
- **Kilic, O.**, Smith, A., **El-Araby, E.**, and Dang, V., “Investigating Interferometric Imaging in Random Media using CUDA and Jacket Environments for GPUs,” *The 9th International Applied Computational Electromagnetics Society Conference (ACES 2012)*, Columbus, Ohio, April 2012.
- Dang, V., Nguyen, Q., and **Kilic, O., El-Araby, E.**, “Parallelizing Fast Multipole Method for Large-Scale Electromagnetic Problems using GPU Clusters,” *IEEE Antennas and Wireless Propagation Letters (AWPL)*, 2013.
- **E. El-Araby, I. Gonzalez, S. Lopez-Buedo, and T. El-Ghazawi**, “A Convolve-And-MERge Approach for Exact Computations on High-Performance Reconfigurable Computers,” *International Journal for Reconfigurable Computing (IJRC)*, vol. 2012, Article ID 925864, 2012. doi:10.1155/2012/925864.
- **E. El-Araby, S. G. Merchant, and T. El-Ghazawi**, “Assessing Productivity of High-Level Design Methodologies for High-Performance Reconfigurable Computers,” a book chapter in tools section of the *High-Performance Computing Using FPGAs*, 2012.

(www.dcs.gla.ac.uk/~wim/fpga_book.shtml).

- Nguyen, B., Bui, L., Silva, R., **Wilson, O.C.**, Mehl PM, **Frenkel, V.**, "3D biological scaffolds for evaluating therapeutic ultrasound exposures." *Biomedical Engineering Society Annual Meeting*. Atlanta, Ga. 2012.
- Nguyen, T., Bui, L., Tran, N., **Frenkel, V.**, "Correcting for acoustic cavitation and acoustic streaming in ultrasound calibration." *Annual Meeting of the American Institute of Ultrasound in Medicine*. New York, NY. 2013.
- Burks, S.R., Ziadloo, A., Kim, S.J., Tebebi, P.A., **Frenkel, V.**, Frank, J.A., "Pulsed focused ultrasound (pFUS) induces targeted homing of therapeutic mesenchymal stem cells to kidneys during acute tubular necrosis and leads to improved renal function." *3rd International Symposium of the Focused Ultrasound Surgery Foundation*. Bethesda, Md., 2012.
- Tebebi, P.A., Burks, S.R., Ziadloo, A., Turtzo, C.L., **Frenkel, V.**, Frank, J.A., "Temporal characterization of the dynamic molecular changes in chemoattractants following pulse focused ultrasound (pFUS) in muscle: implications for cell therapy." *3rd International Symposium of the Focused Ultrasound Surgery Foundation*. Bethesda, Md., 2012.
- Frank, J.A., Ziadloo, A., Burks, S.R., Lewis, B.K., **Frenkel, V.**, "Non-invasive pulsed focused ultrasound for targeted homing of bone marrow stromal cells in a mouse kidney model." *World Molecular Imaging Congress*, San Diego, Calif., 2012.
- Ziadloo, A., Xie, J., **Frenkel, V.**, Pulsed focused exposures enhance locally administered gene therapy in a murine solid tumor model. *Journal of the Acoustical Society* 2012;133:1827–34.
- Wang, S., Shin, I.S., Hancock, H., Jang, B.S., Kim, H.S., Lee, S.M., Zderic, V., **Frenkel, V.**, Pastan, I., Paik, C.H., Dreher, M.R. Pulsed high intensity focused ultrasound increases penetration and therapeutic efficacy of monoclonal antibodies in murine xenograft tumors. *Journal of Controlled Release* 2012;162(1):218–24.
- Abi-Jaoudeh, N., Pritchard, W.F., Amalou, H., Linguraru, M., Chiesa, O.A., Adams, J.D., Gacchina, C., Wesley, R., Maruvada, S., McDowell, B., **Frenkel, V.**, Karanian, J.W., Wood, B.J., Pulsed high intensity focused US and tissue plasminogen activator (TPA) versus TPA alone for thrombolysis of occluded bypass graft in swine. *Journal of Vascular Interventional Radiology* 2012;23(7):953–61.
- Ziadloo, A., Burks, S.R., Gold, E.M., Lewis, B.K., Chaudhry, A., Merino, M.J., **Frenkel, V.**, Frank, J.A., Enhanced homing permeability and retention of bone marrow stromal cells (BMSC) by non-invasive pulsed focused ultrasound. *Stem Cells* 2012;30(6):1216–27.
- Hancock, H., **Frenkel, V.**, Ultrasound mediated drug and gene delivery for the treatment of solid tumors. In "Molecular Imaging Probes for Cancer Research." Ed. Xiaoyuan Chen. World Scientific, Hackensack, NJ, 2012.
- **Vignola, J. F., Judge, J.A.**, Glean, A., Ryan, T., "Mass Sensing Using A Functionalized Subordinate Oscillator Array," 163rd Meeting of the Acoustical Society of America, Hong Kong, China, May 2012.
- Hall, H. S., **Vignola, J., Judge, J.A.**, Glean, A., and Ryan, T. "Effects of acousto-optic diffraction in the acoustic frequency range on the laser doppler vibrometry method in air," 164th meeting of the Acoustical Society of America, Kansas City, Missouri, Oct. 22–26, 2012.
- O'Malley, P., and **Vignola, J., Judge, J.A.**, "Generalized LDV Noise Maps" Tenth International Conference on Vibration Measurements by Laser Techniques: Advances and Applications, Ancona, Italy, June 26–29, 2012.
- **Judge, J.A., Vignola, J. F.**, Glean, A. A. J., Ryan, T. J., Good, C. E., Gugino, P. M., Bishop, S. S., and Soumekh, M. "Detection Of Non-Metallic Cords Using Synthetic Aperture Acoustic Imaging," in Proceedings of the ASME 2012 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Chicago, Ill., August 2012.
- **Vignola, J. F., Judge, J.A.**, Good, C., Bishop, S., Gugino, P., and Soumekh., "Synthetic aperture imaging of surface laid targets by sound," *Sensing and Imaging*, 13(2): 55–65, 2012.
- Ryan, T., O'Malley, P., Glean, A., and **Vignola, J., Judge, J.A.**, "Conformal scanning laser Doppler vibrometer measurement of tenor steelpan response to impulse excitation," *Journal of the Acoustical Society of America*, 132(5): 3494–3501, 2012.
- Ryan, T. J., **Judge, J.A., Vignola, J. F.**, and Glean, A. A., "Noise sensitivity of a mass detection method using vibration modes of coupled microcantilever arrays," *Applied Physics Letters*, 101(4): 043104, 2012.
- Fakadu, N., **Kilic, O.**, and Zaghoul, A., "Minimization of Peak Sidelobe Levels for Sparse and Filled Antenna Arrays Using PSO and CONFI Method of Optimization," The 29th International Review of Progress in Applied Computational Electromagnetics (ACES 2013), Monterey, Calif., 24–28 March 2013.
- Garcia-Rubia, J.M., **Kilic, O.**, and Tran, N., "Propagation Effects on Micro-Doppler Radar Signature for Human Discrimination in Forests," URSI Commission F Triennial Open Symposium On Radiowave Propagation & Remote Sensing, Ottawa, Canada, April 2013.
- Nguyen, Q., and Dang, V., **Kilic, O.**, "Graphics Processing Unit Accelerated Fast Multipole Method — Fast Fourier Transform," IEEE Antennas and Propagation Society International Symposium (APSURSI 2013), Lake Buena Vista, Fla., 2013.
- Miller, T., **Kilic, O.**, Mirotnik, M., "Antenna Cross-Polarization Isolation Impact on the Measurement of Weakly Cross-Polarized Sea Clutter," Proc. IEEE AP-S/URSI Intl Conference, Chicago, July 2012.
- **Lade, P.V.**, "Static Liquefaction and 'Reverse' Behavior of Silty Sand," Presented at *Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, ASCE*, held in Oakland, Calif., March 25–29, 2012.
- **Lade, P.V.**, "Analysis of Submarine Flow Slides in Fine Silty Sand," Presented at *Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, ASCE*, held in Oakland, California, March 25–29, 2012.
- **Lade, P.V.**, "Time Effects Relate to Particle Crushing in Granular Materials," Proceedings of the *Second International Symposium on Constitutive Modeling of Geomaterials: Advances & New Applications*, Edited by Q. Yang, J.M. Zhang, H. Zheng and Y. Yao, held at Tsinghua University, Beijing, Oct. 15–16, 2012, pp. 265–269.
- Anantanasakul, P., Yamamuro, J. A., and **Lade, P. V.**, "Three-Dimensional Drained Behavior of Normally Consolidated Anisotropic Kaolin Clay," *Soils and Foundations*, 52(1), 146–159, 2012.
- **Lade, P.V.**, "Reply to the Discussion by Jefferies, Been and Olivera on 'Evaluation of static liquefaction potential of silty sand slopes,'" *Canadian Geotechnical Journal*, 49(6), 751–752, 2012.
- **Lade, P.V.**, and Wang, Q. "Method for Uniform Strain Extension Tests on Sand," *Geotechnical Testing Journal*, ASTM, 35(4), 607–617, 2012.

- **Lade, P.V.**, and Wang, Q. "Effects of Stiff and Flexible Boundary Conditions in Triaxial Extension Tests on Cross-Anisotropic Sand Behavior," *Geotechnical Testing Journal*, ASTM, 35(5), 715–727, 2012.
- Yamamuro, J.A., Liu, Y., and **Lade, P.V.**, "Performance and Suitability of Radial Drainage Materials in Axisymmetric Testing of Clayey Soils at High Confining Pressures," *Geotechnical Testing Journal*, ASTM, 35(6), 901–910, 2012.
- **Lee, S.W.**, and Park, H.S., "Biomimetic approach enables functional movements of hand post-stroke: a pilot study," *Annual conference of Gait and Clinical Movement Analysis Society*, Grand Rapids, Mich., 2012.
- **Liu, H.**, De Foy, X., and Zhang, D., "A Multi-Level DHT Routing Framework with Aggregation," in *Proc. ACM SIGCOMM ICN'12*, Helsinki, 2012.
- **Liu, H.**, and Zhang, D., "A TLV-Structured Data Naming Scheme for Content-Oriented Networking," in *Proc. IEEE FutureNet V*, Ottawa, 2012.
- Halloush, R., **Liu, H.**, Dong, L., Wu, M., and Radha, H., "HopCaster: A Network Coding-Based Hop-by-Hop Reliable Multicast Protocol," in *Proc. IEEE GlobeCom'12*, Anaheim, Calif., 2012.
- **Lucko, G.**, Thompson, R. C. "Financial analysis and optimization for linear scheduling model of construction projects with integrated singularity functions." Poster presentation, *NSF CMMI Research and Innovation Conference*, Boston, July 10, 2012.
- **Lucko, G.**, "Introducing criticality analysis with singularity functions." Invited lecture, Hole School of Construction, Department of Civil and Environmental Engineering, University of Alberta, Edmonton, Alberta, Canada, Oct. 12, 2012.
- **Lucko, G.**, Thompson, R. C. "Modeling accurate interest in cash flows of construction projects toward improved forecasting of cost of capital." *Proceedings of the 2013 5th International Conference on Construction Engineering and Project Management*, Anaheim, Calif., Jan. 9–11, 2013, 8 pp.
- Thompson, R. C., **Lucko, G.**, "Modeling measures of risk correlation for quantitative float management of construction projects." *Proceedings of the 2013 5th International Conference on Construction Engineering and Project Management*, Anaheim, Calif., Jan. 9–11, 2013, 8 pp.
- Thompson, R. C., **Lucko, G.**, "Modeling measures of float monetization for quantitative risk management of construction projects." *Proceedings of the 2012 Construction Research Congress*, West Lafayette, Ind., May 21–23, 2012, pp. 485–494.
- Terry, S. B., **Lucko, G.**, "Algorithm for time-cost tradeoff analysis in construction projects by Aggregating Activity-Level Singularity Functions." *Proceedings of the 2012 Construction Research Congress*, West Lafayette, Ind., May 21–23, 2012, pp. 226–235.
- Thompson, R. C., **Lucko, G.**, "Toward mitigating risk in network schedules by allocating and valuating project float." Presented at *2012 9th Project Management Institute — Scheduling Community of Practice Annual Conference*, New York City, May 6–9, 2012, 10 pp.
- **Lucko, G.**, "Supporting financial decision-making based on time value of money with singularity functions in cash flow models." *Construction Management and Economics*, in print, accepted November 2012.
- **Lucko, G.**, "Temporal constraints in linear scheduling with singularity functions: The case of calendarization." *Journal of Computing in Civil Engineering*, in print, accepted November 2012.
- **Lucko, G.**, "Discussion of Fonte, G. A. "Energy management reduces Great Pyramid build effort by more than 98%." *Journal of Construction Engineering and Management* 137(12): 1195–1204." *Journal of Construction Engineering and Management*, vol. 139, no. 2, pp. 247–249, 2011.
- Breceda Tinoco, B., E.Y., Dromerick, A.W., Chan, E., Friedhelm, S., Mohapatra, S., **Lum, P.S.**, Silva, R., Harris-Love, M.L., "Behavioral and neurophysiologic effects of chronic unilateral arm amputation: a preliminary analysis," *2013 MedStar Health Research Symposium*, Columbia, Md., March 4, 2013.
- Holley, R.J., Brokaw, E.B., Nichols, D., **Lum, P.S.**, "Use of a Novel Upper Extremity Robotic Exoskeleton for the Chronic Stroke Survivor: Preliminary Data from a Pilot Study," *AOTA 2013 Annual Conference & Expo*, San Diego Calif., April 24–28, 2013.
- Metzger, A.J., Dromerick, A.W., Holley, R.J., **Lum, P.S.**, "Characterization of compensatory trunk movements during prosthetic upper limb reaching tasks," *Arch Phys Med Rehabil*, Vol. 93(11), pp. 2029–34, 2012.
- **Lum, P.S.**, Godfrey, S.B., Brokaw, E.B., Holley, R.J., Nichols, D., "Robotic approaches for rehabilitation of hand function after stroke," *Am J Phys Med Rehabil*, Vol. 91(11 Suppl 3), pp. S242–54, 2012.
- Godfrey, S.B., **Lum, P.S.**, Chan, E., Harris-Love, M.L., "Cortical effects of repetitive finger flexion- vs. extension-resisted tracking movements: a TMS study," *J Neurophysiol*, Vol. 109(4), pp. 1009–16, 2013.
- Patten, C., Condliffe, E.G., Dairaghi, C.A., **Lum, P.S.**, "Concurrent neuromechanical and functional gains following upper-extremity power training post-stroke," *J Neuroeng Rehabil*, Vol. 10(1), pp. 1, 2013.
- Nguyen, H.B., **Lum, P.S.**, "Compensation for the intrinsic dynamics of the InMotion2 robot," *J Neurosci Methods*, Vol. 214(1), pp. 15–20, 2013.
- Brokaw, E., Holley, R., **Lum, P.S.**, "Comparison of joint space and end point space robotic training modalities for rehabilitation of inter-joint coordination in individuals with moderate to severe impairment from chronic stroke," *IEEE Trans Neural Syst Rehabil Eng*, 2013 Jan 9. [Epub ahead of print]
- **Luo, X. L.**, Wu, H. C., Tsao, C. Y., Rubloff, G. W., and Bentley, W. E., "Active interception and elimination of bacterial signaling with engineered cell communities: towards in vitro models of intestinal flora," *2012 BMES Annual Meeting*, Atlanta, Ga., 2012.
- **Luo, X. L.**, Wu, H. C., Tsao, C. Y., Rubloff, G. W., and Bentley, W. E., "In-Situ Biofabrication of Spatially Programmed Biofilm Mimics for Direct Observation of Bacterial Signaling," *2012 AIChE Annual Meeting*, Pittsburgh, Pa., 2012.
- Betz, J. F., Cheng, Y., Tsao, C. Y., Zargar, A., Wu, H. C., **Luo, X. L.**, Payne, G. F., Bentley, W. E., and Rubloff, G. W., "Optically clear alginate hydrogels for spatially controlled cell entrapment and culture at microfluidic electrode surfaces," *Lab on a Chip*, 13, DOI: 10.1039/C3LC50079A, April 2013.
- **Luo, X. L.**, Wu, H. C., Tsao, C. Y., Cheng, Y., Betz, J., Payne, G. F., Rubloff, G. W., and Bentley, W. E., "Biofabrication of stratified biofilm mimics for observation and control of bacterial signaling," *Biomaterials*, 2012, 33, 5136–5143, July 2012.
- Gordonov, T., Liba, B., Terrell, J. L., Cheng, Y., **Luo, X. L.**, Payne, G. F., and Bentley, W. E., "Bridging the Bio-Electronic Interface with Biofabrication," *Journal of Visualized Experiments*, 2012, 64, e4231, June 2012.

- Cheng, Y., **Luo, X. L.**, Payne, G. F., and Rubloff, G. W., "Biofabrication: Programmable Assembly of Hydrogels in Microfluidics as Scaffolds for Biology," *Journal of Materials Chemistry*, 2012, 22, 7659–7666, May 2012.
- Bevard, T., **Massoudieh, A.**, Lu, N., Nguyen, T. H., Kamai, T., and Ginn, T. R., "Process-identification in Bacteria Transport in porous media using statistical inverse modeling," poster presented at AGU Fall meeting, San Francisco, 2012.
- **Massoudieh, A.**, Sharifi, S., and Solomon, K., "Uncertainty Analysis in Groundwater Dating with Environmental Tracers using Markov Chain Monte Carlo Method," poster presented at AGU Fall meeting, San Francisco, 2012.
- **Massoudieh, A.**, Sharifi, S., and Solomon, K., "Uncertainty Analysis in Groundwater Dating with Environmental Tracers using Markov Chain Monte Carlo Method," GDAT-2012, Rennes, France, 2012.
- **Massoudieh, A.**, Sharifi, S., and Solomon, K. D., "Uncertainty Analysis in Groundwater Dating with Environmental Tracers using Markov Chain Monte Carlo Method," CMWR 2012 conference, Urbana Champaign, Ill., 2012.
- Bevard, T., Ju, N., **Massoudieh, A.**, Kamai, T., Nguyen, T., Ginn, T., "Evaluating the impact of ionic strength on the surface interaction dynamics of flagellated and non-flagellated bacteria using column studies and inverse modeling," Colloids 2012, Johns Hopkins University, Baltimore, Md., 2012.
- **Massoudieh, A.**, Sharifi, S., and Solomon, D. K., "Bayesian Evaluation of Groundwater Age Distribution using a Radio-Active Tracers and Anthropogenic Chemicals," *Water Resources Research*, 48, W09529, doi:10.1029/2012WR011815, 2012.
- **Massoudieh, A.**, and Kayhanian, M., "Surface water contaminant source apportionment using Chemical Mass Balance method and Bayesian Inference," *Journal of Environmental Engineering*, 139(2), 250–260, 2013.
- **Massoudieh, A.**, Gellis, A., Bank, W.S., and Wiczorek, M., "Suspended Sediment Source Apportionment in Chesapeake Bay Watershed Using Bayesian Chemical Mass Balance Receptor Modeling," *Hydrological Processes*, In Press, 2012.
- Sharifi, S., and **Massoudieh, A.**, "A Novel Hybrid Mechanistic-Data-Driven Model Identification Framework Using NSGA-II," *Hydroinformatics*, 14(3) 697–715, 2012.
- Loboschefskey E., Benigno, G., Sommer, T., Rose, K., Ginn, T., **Massoudieh, A.**, Loge, F., "Individual-level and population-level historical prey demand of San Francisco Estuary Striped Bass Using a Bioenergetics model," *San Francisco Estuary* 10(1), 1–22, 2012.
- Charipar, N.A., Kim, H., **Mathews, S.**, Auyeung, R.C.Y., and Piqué, A., "Non-Lithographic Processing of Metamaterials," *Proc. of the Society for the Advancement of Material and Process Engineering (SAMPE)*, in press, May 2012.
- Piqué, A., Charipar, N.A., Kim, H., Kirleis, M.A., Auyeung, R.C.Y., Smith, A.T., and Metkus, K.M., **Mathews, S.**, "Realization of Metamaterial Structures by Non-Lithographic Processes," *Proc. of SPIE*, Vol. 8455, August 2012.
- **Mathews, S.**, Luu, L., and **Ramella-Roman, J.**, "Fabrication of microfluidic vascular phantoms by laser micromachining," *Proc. of SPIE, Defense, Security, & Sensing*, Vol. 8367, June 2012.
- Piqué, A., **Mathews, S.**, Charipar, N.A., and Birnbaum, A.J., "Laser origami: a new technique for assembling 3D microstructures," *Proc. SPIE 8244, Laser-based Micro- and Nanopackaging and Assembly VI*, 82440B, Feb. 9, 2012.
- **Mathews, S.**, Auyeung, R.C.Y. and Piqué, A., "Analysis and characterization of the laser decal transfer process," *Proc. SPIE 8244, Laser-based Micro- and Nanopackaging and Assembly VI*, 82440A, Feb. 9, 2012.
- Liu, X., Huang, Y., **Ramella-Roman, J.C.**, **Mathews, S.**, and Kang, J.U., "Microfluidics based phantoms of superficial vascular network," *Biomedical Optics Express*, Vol.3 No. 6, pp 1350–1364, June 2012.
- Liu, X., Huang, Y., **Ramella-Roman, J.C.**, **Mathews, S.**, and Kang, J.U., "Quantitative transverse flow measurement using optical coherence tomography speckle decorrelation analysis," *Optics Letters*, Vol.38 No. 5, pp 805–807, March 2013.
- **Namazi, N. M.**, Burris, R., Gilbreath, G., Suite, M., Grant, K., "Demodulation of FM Data in Free-Space Optical Communication Systems using Discrete Wavelet Transformation," Discrete Wavelet transformation — A Compendium of New Approaches and Recent Applications, INTERTECH, (Book Chapter), Edited by Awad Kh. Al-Asmari, ISBN 978-953-51-0940-2, InTech, February 2013.
- **Namazi, N. M.**, Sharp, W. S., Obermark, J., Caron, J.N., "Global Registration and Stabilization of Jittered and Noisy Airborne Image Sequences," *Proceedings of IS&T/SPIE*, San Francisco, Calif., January 2012.
- Tran, L., **El-Araby, E.**, **Namazi, N. M.**, "Prototyping FM Data Demodulation in Free-Space Optical Communication Systems using Discrete Wavelet Transformation," *Proceedings of SPIE*, San Diego, Calif., August 2013.
- Banerjee, P.P., **Nehmetallah, G.**, Abeywickrema, U.A., Lyuksyutov, S. F., Kukhtarev, N. V. "Non-Bragg diffraction orders in lithium niobate and its application to one-shot phase-shifting holographic interferometry," *Proc. SPIE 8644–1*, Photonics West, Feb. (2013).
- **Nehmetallah, G.**, Aylo, R., Banerjee, P.P., "Application of the Complex Poynting Theorem to Metamaterial Multilayered nanostructures," in *Proc. SPIE Optics and Photonics*, San Diego, 2012, pp. 8465–13.
- Dapore, B., Banerjee, P.P., **Nehmetallah, G.**, McManamon, P.F., Miller, N.J., Powers, P.E., Haus, J.W., "Instantaneously Captured Images Using Dual-wavelength, Digital holography," in *Proc. SPIE Optics and Photonics*, San Diego, 2012, pp. 8493–34.
- Li, H, Aylo, R., Banerjee, P. P., **Nehmetallah, G.**, "Application of the transfer matrix method to reflection gratings in positive and negative index materials," in *Proc. SPIE Optics and Photonics*, San Diego, 2012, pp. 8497–14.
- Williams, L., **Nehmetallah, G.**, and Banerjee, P. P., "Tomographic Compressive Holographic Reconstruction of 3D Objects In Transmissive and Reflective Geometries," *Appl. Opt.* Vol. 52, pp. 1702–1710, 2013.
- **Nehmetallah, G.**, Banerjee, P. P., "Applications of Digital and Analog Holography in 3D Imaging," *Advances in Optics and Photonics*, Vol. 4, pp. 472–553, 2012.
- **Nehmetallah G.**, Williams, L., and Banerjes, P.P., "Tomographic Compressive Holographic Reconstruction of 3D Objects," *SPIE Optics and Photonics*, San Diego, 2012
- DuBois, and T., **Nieh, S.**, "JP-8 Fuel Reforming Using Oxygen-Enriched Air" *Interagency Advanced Power Group (IAPG) Mechanical Working Group Meeting*, Paper No. TE-03, Exe. Conf. Center, Arlington, Va., May 1–3, 2012.
- **Nieh, S.**, "Persecution and Implications of Falun Gong in China," *The 18th Annual Commemoration of Vietnam Human Rights Day*, 216 Hart Senate Office Building, U.S. Capitol, Washington, D.C., May 10, 2012.

- **Nieh, S.**, “Massive Peaceful Tuidang Movement: People’s Awakening and Choice in China,” *Vote for Freedom Rally*, Falls Church, Va., Sept. 29, 2012.
- **Nieh, S.**, “Oxygen-Enriched Reforming and Combustion of Heavy Hydrocarbon Fuels,” *The 3rd Asia Conference on Innovative Energy and Environmental Chemical Engineering*, Hualian, Taiwan, Nov. 11–14, 2012.
- Seibert, M., and **Nieh, S.**, “Simulation of Dual Firing of Hydrogen and JP-8 in a Swirling Combustor,” *Proceeding of 45th Power Sources Conference*, Las Vegas, June 11–14, 2012, pp. 339–342.
- DuBois, T., and **Nieh, S.**, “Experimental Investigation of Oxygen Enriched Air/JP-8 Fuel Reforming using Polymer Membranes for Oxygen Enrichment,” *Proceeding of 45th Power Sources Conference*, Las Vegas, June 11–14, 2012, pp. 467–470.
- **Nieh, S.**, Coombe, S., and DuBois, T., “Oxygen Enriched Combustion and Autothermal Reforming of Jet Fuels,” *Proceeding of 3rd Asia Conference on Innovative Energy and Environmental Chemical Engineering*, Hualian, Taiwan, Nov. 11–14, 2012, pp. 356–362.
- Scenna, R., and DuBois, T., **Nieh, S.**, “Autothermal Reforming Synthetic JP-8 Derived from a Coal Syngas Stream,” accepted for publication in *Journal of Fuels*, 2012.
- Wolfe, A.K., and **Nieh, S.**, “A Conceptual Model for Understanding Convective Heat Transfer,” accepted for publication in *International Journal of Mechanical Engineering Education*, 2012.
- Seibert, M., and **Nieh, S.**, “Simulation of Dual Firing of Hydrogen-Rich Reformate and JP-8 Surrogate in a Swirling Combustor,” accepted for publication in *International Journal of Hydrogen Energy*, 2012.
- **Okutsu, M.**, Yam, C.H., Longuski, J.M., and Strange, N.J., “Cassini Saturn-escape trajectories to Jupiter, Uranus, and Neptune,” *Acta Astronautica*, Vol. 79, pp. 157–167, October–November 2012.
- Chen, K.J., Rogers, B.A., **Okutsu, M.**, Landau, D.F., and Longuski, J.M., “Low-thrust Aldrin Cycler with reduced encounter velocities,” *Journal of Spacecraft and Rockets*, Vol. 49, pp. 955–961, September–October 2012.
- **Okutsu, M.**, DeLaurentis, D.A., Brophy, S.P., and Lambert, J.B., “Teaching aerospace engineering design course via virtual world: comparative assessment of learning outcomes,” *Computers and Education*, Vol. 60, pp. 288–298, January 2013.
- **Pan, T.**, “Coniferyl-Alcohol Lignin as an Antioxidant of Petroleum Asphalt: A Quantum Chemistry Based Atomistic Study,” Transportation Research Board (TRB) 2013 CD-ROM, Washington, D.C., January 2013.
- **Pan, T.**, “Passivation of Steel Surface in the Typical Concrete Environment: A Critical Issue in Understanding Reinforcement Corrosion,” Transportation Research Board, 2012 CD-ROM, Washington, D.C., January 2012.
- **Pan, T.**, “Delamination of Organic Coating on Carbon Steel Studied by Scanning Kelvin Probe Force Microscopy,” *Surface and Interface Analysis*, (DOI: 10.1002/sia.5194). Vol. 45, pp. 978–984. 2013.
- **Pan, T.**, “Corrosion Behavior of a Duplex Stainless Steel under Cyclic Loading: A Scanning Kelvin Probe Force Microscopy (SKPFM) Based Microscopic Study,” *Journal of Applied Electrochemistry*, Volume 42, Issue 12, pp. 1049–1056. 2012.
- **Pan, T.**, “Stressed Corrosion of an Austenitic Stainless Steel Studied by Scanning Kelvin Probe Force Microscopy,” *Analytical Letters*, Vol. 45 (17), pp. 2580–2588. 2012.
- **Pan, T.**, Lu, Y. and Wang, Z., “Development of an Atomistic-Based Chemophysical Environment for Modeling Asphalt Oxidation,” *Polymer Degradation and Stability*, Vol. 97(11), pp. 2331–2339. 2012.
- **Pan, T.**, and Xia, K., “Micromechanical Evaluation of the Damping Behavior of a Modified Silica Fume Admixed Concrete,” *ASCE Journal of Engineering Mechanics*, Vol. 138(12), pp. 1411–1419. 2012.
- **Plaku, E.**, “Path Planning with Probabilistic Roadmaps and Linear Temporal Logic,” *IEEE International Conference on Intelligent Robots and Systems, Algarve*, Portugal, 2012.
- **Plaku, E.**, “Planning in Discrete and Continuous Spaces: From LTL Tasks to Robot Motions,” *Toward Autonomous Robotics*, Bristol, U.K., 2012.
- **Plaku, E.**, “Motion Planning with Differential Constraints as Guided Search over Continuous and Discrete Spaces,” *International Symposium on Combinatorial Search*, Toronto, Canada.
- **Plaku, E.**, “Planning Robot Motions to Satisfy Linear Temporal Logic, Geometric, and Differential Constraints” *International Conference on Automated Planning and Scheduling*, Sao Paulo, Brazil, 2012.
- **Plaku, E.**, “Path Planning with Probabilistic Roadmaps and Linear Temporal Logic,” in *Proc. IEEE International Conference on Intelligent Robots and Systems, Algarve, Portugal*, 2012, pp. 2269–2275.
- **Plaku, E.**, “Guiding Sampling-based Motion Planning by Forward and Backward Discrete Search,” *Lecture Notes in Computer Science*, Vol. 7508, pp. 289–298, 2012.
- **Plaku, E.**, “Planning in Discrete and Continuous Spaces: From LTL Tasks to Robot Motions,” *Lecture Notes in Computer Science*, Vol. 7429, pp. 331–342, 2012.
- **Plaku, E.**, “Motion Planning with Discrete Abstractions and Physics-Based Game Engines,” *Lecture Notes in Computer Science*, Vol., 7660, pp. 290–301.
- **Plaku, E.**, “Motion Planning with Differential Constraints as Guided Search over Continuous and Discrete Spaces,” *International Symposium on Combinatorial Search*, Toronto, Canada, pp. 171–172.
- **Plaku, E.**, Kavrakli, L.E., and Vardi, M.Y., “Falsification of LTL Safety Properties in Hybrid Systems,” *International Journal on Software Tools and Technology Transfer*, Vol. 1, pp. 1–12, May 2012.
- **Ramella-Roman, J.C.**, “A novel spectral imaging system for quantitative analysis of hypertrophic scar,” *SPIE BIOS San Francisco*, 2013.
- **Ramella-Roman, J.C.**, “Spectral variations in narrow band imaging depth-selectivity: mucosal scattering vs. hemoglobin absorption,” *SPIE BIOS San Francisco*, 2013.
- **Ramella-Roman, J.C.**, “Skin microvascular and metabolic response to pressure relief maneuvers in people with spinal cord injury,” *SPIE BIOS San Francisco*, 2013.
- **Ramella-Roman, J.C.**, “Monitoring the impact of pressure on the assessment of skin perfusion and oxygenation using a novel pressure device,” *SPIE BIOS San Francisco*, 2013.
- Ghassemi, P., Shupp, J.W., Moffatt, L.T., **Ramella-Roman, J.C.**, “A novel spectral imaging system for quantitative analysis of hypertrophic scar,” *Proc. SPIE 8565: Photonic Therapeutics and Diagnostics IX*, 2013.
- Wang, Q., **Ramella-Roman, J.C.**, Pfefer, J., “Spectral variations in narrow band imaging depth-selectivity: mucosal scattering vs. hemoglobin absorption,” *Proc. SPIE 8573*:

Design and Quality for Biomedical Technologies VI, 2013.

- **Ramella-Roman, J.C.**, Le, D.V.N., Ghassemi, P., Nguyen, T., Lichy, A., Groah, S., "Skin microvascular and metabolic response to pressure relief maneuvers in people with spinal cord injury," Proc. SPIE 8579: Optical Interactions with Tissue and Cells XXIV, 2013.
- **Ramella-Roman, J.C.**, Ho, T., Le, D., Ghassemi, P., Nguyen, T., Lichy, A., Groah, S., "Monitoring the impact of pressure on the assessment of skin perfusion and oxygenation using a novel pressure device," Proc. SPIE 8576, Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XIII, 85760N (March 20, 2013); doi:10.1117/12.2006256.
- Liu, X., Huang, Y., **Ramella-Roman, J.C.**, and Kang, J., "Quantitative transverse flow assessment using OCT speckle decorrelation analysis," SPIE BIOS 2013.
- Hwang, J., **Ramella-Roman, J.C.**, and Nordstrom, R., "Introduction: Feature Issue on Phantoms for the Performance Evaluation and Validation of Optical Medical Imaging Devices," *Biomedical Optics Express*, 3(6), 1399–1403 (2012).
- Ghassemi, P., Lemaillet, P., Germer, T.A., Shupp, J.W., Venna, S.S., Boisvert, M.E., Flanagan, K.E., Jordan, M. H., and **Ramella-Roman, J.C.**, "Out-of-plane Stokes imaging polarimeter for early skin cancer diagnosis," *J. Biomed. Opt.* 17, 076014 (2012), DOI:10.1117/1.JBO.17.7.076014.
- Nguyen, Thu T. A., **Ramella-Roman, J.C.**, Moffatt, L.T., Ortiz, R.T., Jordan, M.H., Shupp, J. W., "Novel Application of a Spatial Frequency Domain Imaging System to Determine Signature Spectral Differences Between Infected and Noninfected Burn Wounds," *Journal of Burn Care & Research*, 34 – 1 44–50 (2013) (2012 Burke/Yannas Bioengineering Award).
- Le, D.V.N., Wang, Q., **Ramella-Roman, J.C.**, Pfefer, T.J., "Monte Carlo modeling of light-tissue interactions in narrow band imaging," *J. Biomed. Opt.* 18 (1), 010504 (2012); doi: 10.1117/1.JBO.18.1.010504.
- Liu, X., **Ramella-Roman, J.C.**, Kang, J., "Robust spectral-domain optical coherence tomography speckle model and its cross-correlation coefficient analysis," *JOSA A* 30, 1, 51–59 (2013).
- Liu, X., Huang, Y., **Ramella-Roman, J.C.**, **Mathews, S.A.**, and Kang, J.U., "Quantitative transverse flow measurement using optical coherence tomography speckle decorrelation analysis," *Opt. Lett.* 38, 805–807 (2013).
- **Sun, L.**, and You, K., "Reliability Analysis of Vehicle Stability on Combined Horizontal and Vertical Alignments: A Driving Safety Perspective," *Journal of Transportation Engineering*, ASCE, TEENG-1389, accepted, 2013.
- Zhu, H., **Sun, L.**, and Zhu, Y., "A viscoelastic-viscoplastic damage constitutive model based on thermodynamics theory for asphalt mixtures," *Chinese Journal of Highway Engineering*, (in Chinese), in press, 2013.
- Zhu, H.R., and **Sun, L.**, "A mechanistic predictive model of rutting based on a two-stage serial viscoelastic-viscoplastic damage constitutive model for asphalt mixtures," *Journal of Engineering Mechanics*, ASCE, in press, 2013.
- **Sun, L.**, Pan, Yiyong and Gu, W., "High order thin layer method for viscoelastic wave propagation in stratified media," *Computer Methods in Applied Mechanics and Engineering*, February 2013, dx.doi.org/10.1016/j.cma.2013.01.004.
- **Sun, L.**, Zhu, H., Wang, H., and Gu, W., "Preparation of nano-modified asphalt and its road performance evaluation," *China Journal of Highway and Transport*, (in Chinese), Vol. 26, No. 1, pp. 1–8, 2013.
- **Sun, L.**, Zhu, H., Zhu, Y. "A two-stage viscoelastic-viscoplastic damage constitutive model of asphalt mixtures," *Journal of Materials in Civil Engineering*, ASCE, 2013, doi: 10.1061/(ASCE)MT.1943-5533.0000646).
- Zhu, H., and **Sun, L.**, "A viscoelastic-viscoplastic damage constitutive model for asphalt mixture based on thermodynamics," *International Journal of Plasticity*, Vol. 40, pp. 81–100, 2013.
- **Sun, L.**, and Zhu, Y.T., "A two-stage serial viscoelastic-viscoplastic constitutive model for characterizing nonlinear time-dependent deformation behavior of asphalt mixtures," *Construction & Building Materials*, Vol. 40, pp. 584–595, 2013.
- **Sun, L.**, Xin X., Wang, H., and Gu, W., "Performance of Nanomaterial Modified Asphalt as Paving Materials," *Journal of the Chinese Ceramic Society*, Vol. 40, No. 8, pp. 1095–1101, 2012.
- **Sun, L.**, Xin X., Wang, H., and Gu, W., "Microscopic Mechanism of Modified Asphalt by Multi-Dimensional and Multi-Scale Nanomaterial," *Journal of the Chinese Ceramic Society*, Vol. 40, No. 10, pp. 1437–1447, 2012.
- **Sun, L.**, Xin, Xiantao, Gu, W. "Comprehensive comparison of nano-materials for asphalt modification," *Journal of Transportation Engineering and Information*, (in Chinese), Vol. 10, No. 2, pp. 1–11, 2012.
- **Sun, L.**, and Wang, D., "Nondestructive Testing and Evaluation of Subgrade Compaction by Portable Falling Deflectometer," *Journal of Highway and Transportation Research and Development*, Vol. 29, No. 2, pp. 41–47, 2012.
- **Sun, L.**, Wang, D., and Zhang, H., "Predictive models of subgrade deflection using data from portable falling weight deflectometer," *Journal of Southeast University*, (in Chinese), Vol. 42, No. 5, pp. 970–975, 2012.
- **Pan, T.**, and **Sun, L.**, "Sub-microscopic phenomena of metallic corrosion studied by a combined photoelectron spectroscopy in air (PESA) and scanning Kelvin probe force microscopy (SKPFM) approach," *International Journal of Electrochemical Science*, Vol. 7, 2012.
- **Pan, T.**, **Sun, L.**, and Yu, Q., "An atomistic-based chemophysical environment for valuating asphalt oxidation and antioxidants," *Journal of Molecular Modeling*, DOI 10.1007/s00894-012-1512-2, 2012.
- Pan, Y., and **Sun, L.**, "Characterizing Heterogeneity in Vehicular Traffic Speed Using Two-step Cluster Analysis," *Journal of Southeast University*, (English Edition), Vol. 28, No. 6, 2012.
- **Sun, L.**, Jin, J., Zhou, Z., Li, M., and Xiao, F., "Research on information monitoring for freeway operation safety," *China Safety Science Journal*, (in Chinese), Vol. 22, No. 10, pp. 1–7, 2012.
- You, K., **Sun, L.**, and Gu, W., "Reliability-based risk analysis of roadway horizontal curve," *Journal of Transportation Engineering*, ASCE, Vol. 138, No. 8, pp. 1071–1081, 2012.
- Ardakani, K.M., and **Sun, L.**, "Incremental algorithm for adaptive routing incorporating traveler information," *Computers & Operations Research*, Vol. 39, No. 12, 2012.
- **Sun, L.**, "A Min-max optimization approach for weight determination in analytical hierarchy process," *Journal of Southeast University*, (English Edition), Vol. 28, No. 2, pp. 245–250, 2012.
- You, K., **Sun, L.**, and Gu W., "Risk analysis-based identification of road hazard locations using vehicle dynamic simulation," *Journal*

- of Southeast University, (in Chinese), Vol. 42, No. 1, pp. 150–155, 2012.
- Szu, H., Hsu, C., Moon, G., Yamakawa, T., **Tran, B.Q.**, “Smartphone household wireless electroencephalogram hat,” *Applied Comput. Intelligence & Soft Computing*, Vol. 2013, Article ID: 241489 (dx.doi.org/10.1155/2013/241489).
 - Good, Chelsea, Glean, A. A. J., **Vignola, J. F.**, **Judge, J. A.**, Ryan, T. J., Bull, N., and Turo, D., “Design of an impedance tube for teaching acoustic material properties and laboratory techniques,” in *Proc. of the 21st International Congress Acoustics*, Montreal, Canada, 2013.
 - Glean, A. A. J., **Vignola, J. F.**, **Judge, J. A.**, Ryan, T.J., “Impact of Mass Ratio and Bandwidth on Apparent Damping of a Harmonic Oscillator with Subordinate Oscillator Array,” in *Proc. 21st of the International Congress Acoustics*, Montreal, Canada, 2013.
 - Ryan, Teresa J., **Judge, John A.**, Nguyen, Hong, Glean and Aldo A. J., **Vignola, J. F.**, “Experimental Demonstration of Mass Detection Using Vibration Modes of Coupled Cantilever Arrays,” in *Proc. of the ASME 2013 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, Portland, Ore., 2013.
 - Glean, A. A. J., **Vignola, J. F.**, **Judge, J. A.** and Ryan, T. J., “Mass Sensing Using the Time-Domain Response of a MEMS Structure with a Functionalized Subordinate Oscillator Array,” in *Proc. of the ASME 2013 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, Portland, Ore., 2013.
 - O’Malley, P. F., **Vignola, J. F.**, and **Judge, J. A.**, “Generalized Laser Doppler Vibrometer noise maps,” in *Proc. of the 10th International Conference on Vibration Measurements by laser and Noncontact Techniques – AIVELA*, Ancona, Italy, 2012.
 - Ryan, T. J., O’Malley, P. F., Glean, A. A. J., **Vignola, J. F.**, and **Judge, J. A.**, “Conformal scanning laser doppler vibrometer measurement of tenor steelpan response to impulse excitation,” *The Journal of the Acoustical Society of America*, 132(5):3494–3501, 2012.
 - Ryan, T. J., **Judge, J. A.**, and Glean, A. A. J., **Vignola, J. F.**, “Noise sensitivity of a mass detection method using vibration modes of coupled microcantilever arrays,” *Appl. Phys. Lett.*, 101(4):043104–1–4, July 2012.
 - **Pan, T.**, and **Wang, Z.**, “Investigation of coating delamination on steels by surface topography and Volta potential difference,” *Journal of Solid State Electrochemistry*, Vol. 17, No. 4, pp. 1109–1115, April 2013.
 - **Pan, T.**, Lu, Y., and **Wang, Z.**, “Development of an atomistic-based chemophysical environment for modelling asphalt oxidation,” *Polymer Degradation and Stability*, Vol. 97, No. 11, pp. 2331–2339, November 2012.
 - Ma, J., **Wang, Z.**, and Vo, M., “Hybrid two-dimensional continuous wavelet transform for analysis of phase-shifted interferograms,” *Optics Communications*, Vol. 285, No. 19, 3917–3920, September 2012.
 - **Wang, Z.**, Ma, J., and Vo, M., “Recent progress in two-dimensional continuous wavelet transform technique for fringe pattern analysis,” *Optics and Lasers in Engineering*, Vol. 50, No. 8, pp. 1052–1058, August 2012.
 - Vo, M., **Wang, Z.**, Pan, B., and **Pan, T.**, “Hyper-accurate flexible calibration technique for fringe-projection-based three-dimensional imaging,” *Optics Express*, Vol. 20, No. 15, pp. 16926–16941, July 2012.
 - Ma, J., **Wang, Z.**, Vo, M., and Pan, B., “Wavelet selection in two-dimensional continuous wavelet transform technique for optical fringe pattern analysis,” *Journal of Optics*, Vol. 14, No. 6, 065403, June 2012.
 - Nguyen, T., Nguyen, H., Vo, M., **Wang, Z.**, Luu, L., and **Ramella-Roman, J.**, “Three-dimensional phantoms for curvature correction in spatial frequency domain imaging,” *Biomedical Optics Express*, Vol. 3, No. 6, pp. 1200–1214, June 2012.
 - Nguyen, B., Bui, L., Silva, R., **Wilson, Jr., O.C.**, Mehl, P., **Frenkel, V.**, “3D Biological Scaffolds for Evaluating Therapeutic Ultrasound Exposures,” poster presented at the BMES Annual Meeting, Atlanta, Ga., Oct. 24–27, 2012.
 - Bui, L., Mehl, P., Silva, R., **Wilson, Jr., O.C.**, “Freeze-Dried Chitosan Hydroxyapatite 3D Scaffolds with Agar or Gelatin as Support Matrix,” poster presented at the BMES Annual Meeting, Atlanta, Ga., Oct. 24–27, 2012.
 - **Wilson, Jr., O.C.**, “Healing for the Heart,” presented for the Harford County Public Library, Science Club, Aberdeen, Md., Jan. 23, 2013.
 - Gebregeorgis, A., Bhan, C., **Wilson, Jr., O. C.**, Raghavan, D., “Characterization of Silver/Bovine Serum Albumin (Ag/BSA) nanoparticles structure: Morphological, compositional, and interaction studies,” *Journal of Colloid and Interface Science*, 389, 31–41 (2013).
 - **Yang, Y.**, “Sensor Source Location Privacy based on Random Perturbations,” 8th IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing, Pittsburgh, Pa., October 2012.
 - Natarajan, V., **Yang, Y.**, Zhu, S., “Secure Trust Metadata Management For Mobile Ad-Hoc Networks,” in *Proc. Eighth International Conference on Information Systems Security (ICISS 2012)*, IIT Guwahati, India, December 2012.
 - Srimongkolpitak, U., and **Yang, Y.**, “Sensor Source Location Privacy based on Random Perturbations,” in *Proc. Eighth IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom 2012)*, Pittsburgh, Pa., October 2012.
 - Cui, J., Lai, M., **Yang, Y.**, Chen, C., and Wu, L., “Application Layer Multicast Streaming Media Live System Based on Scribe,” *IJACT: International Journal of Advancements in Computing Technology*, Vol. 4, No. 21, pp. 517–525, 2012.
 - **Yavuz, A.K.**, Senalp, A.D., Turkmen, H.S., Phoenix, S.L., “Fast and Accurate Analysis of Interacting Fatigue Crack Growth with Boundary Cracklet Method,” *Frontiers in Aerospace Engineering*, Vol. 2, No. 1, pp. 73–77, February 2013.

Activities

- **Abot, J. L.**, Ph.D., developed the Intelligent Materials lab for fabrication and electro-mechanical characterization of composite materials and their structural health monitoring including carbon nanotube sensors research; trained three graduate students and seven undergraduate students on experimental mechanics and materials research, served in the Editorial Board of the Journal of Multifunctional Composites; reviewed manuscripts for more than half a dozen journals; led development of academic collaborations with universities in Mexico, Brazil, and other Latin American countries to set the foundations for future recruitment of engineering students and assisted on similar efforts with India and other countries; academic director of the Society of Hispanic Professional Engineers (profes-

sional chapter) in the Washington, D.C., metropolitan region; advised and mentored 22 undergraduate mechanical engineering students; advised and mentored 23 students in the Brazilian Science without Borders engineering program; assisted with recruitment efforts in the school and the mechanical engineering department; advised the Society of Hispanic Professional Engineers student chapter; reached out to the local community through visits with students to the National Building Museum and Smithsonian Institution museums in both D.C. and Virginia.

- **Chang, L.-C.**, D.Sc., academic advisory board, the DC Association for Computing Machinery (ACM), 2008–present; reviewer for *NeuroImage*.
- **Dutta, B.**, Ph.D., filed patents on the preparation and properties of high temperature p-type semiconductor—K2O-doped PbTe and preparation and properties of Zn-doped lead telluride; advised two postdoctoral research associates, two M.S.E. graduate student research associates, three physics graduate student research associates, and one graduate student intern from France.
- **El-Araby, E.**, Ph.D., publications chair, The 24th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2013), June 2013; panelist and reviewer for submissions of Major Research Instrumentation proposals Directorate for Computer and Information Science and Engineering, National Science Foundation, 2012; guest editor for International Journal of Reconfigurable Computing (Hindawi-IJRC); program committee member in the IEEE Transactions on Computers (IEEE-TC), for embedded hardware design in the Journal of Microprocessors and Microsystems (Elsevier-MICPRO), Journal of Parallel Computing Systems and Applications (Elsevier-PARCO), Journal of System Architecture, JSA (Elsevier — The EUROMICRO Journal), International Workshop on Dynamic Reconfigurable Network-on-Chip (DRNoC 2012) supervised senior design projects for six electrical engineering seniors.
- **Frenkel, V.**, Ph.D., permanent member of the Institutional Animal Care and Use Committee (IACUC), Catholic University of America, Washington, D.C., 2013; on the Technical Program Committee for the IEEE — Engineering in Medicine and Biology Society (EMBS), Osaka, Japan, July 3–7, 2013; faculty adviser for the CUA Men's Hockey Club; reviewed grants for Focused Ultrasound Foundation and the Israeli Science

Foundation; reviewed manuscripts for *Medical Physics*, *International Journal of Heat and Mass Transfer*, and *Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*; consultant on the funded project “Delivery of silencing agents for improving aquaculture production efficiencies,” U.S.–Israel Bi-national Agricultural Research and Development (BARD) Fund; and member of the American Institute of Ultrasound in Medicine AIUM).

- **Kilic, O.**, Ph.D., elected member-at-large of the United States National Committee (USNC) for the International Union of Radio Science (URSI), 2012–2014; United States National Committee (USNC) Chair of “Commission A: Electromagnetic Metrology” for the International Union of Radio Science (URSI), 2007–2011; membership and publicity chair, Applied Computational Electromagnetics Society, 2008–present; education committee member, Student Design Contest chair, and member of the Technical Program Committee, IEEE Antennas and Propagation Society; invited lecturer, *Lectures on Computational Electromagnetics: Applications on HPC Platforms*, Dec. 3–6, 2012, Dipartimento di Ingegneria Biomedica, Elettronica e delle Telecomunicazioni (DIBET), Università degli Studi di Napoli Federico II, Naples, Italy.
- **Lade, P.V.**, Ph.D., editor in chief (for the Americas), *Geomechanics and Engineering, An International Journal*, published by Techno-Press, Korea, 2009–present; member: 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; Editorial Board, *Computers and Geotechnics*, published by Elsevier Applied Science Publishers, Ltd., London, England, 1984–present; reviewed 45 manuscripts in 2013 submitted to the above journals as well as many other journals.
- **Liu, H.**, Ph.D., program committee member of the 9th Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), Seoul, 2012.

- **Lucko, G.**, Ph.D., chair, Construction Research Council, Construction Institute, American Society of Civil Engineers, Reston, Va., 2012–2013; member of the Board of Governors, Construction Institute, American Society of Civil Engineers, Reston, Va., 2013; member of the Board of Directors, ACE Mentor Program of Greater Washington (Career Directions for Students in Architecture, Construction, and Engineering), Herndon, Va., 2012–2013. promoted to senior specialty editor for the *Journal of Construction Engineering and Management*, 2013; reviewer for *Journal of Computing in Civil Engineering*, *Automation in Construction*, *Journal of Construction Engineering and Management*, *KSCE Journal of Civil Engineering*, and *Computer-Aided Civil and Infrastructure Engineering*, 2012–2013.
- **Lum, P.S.**, Ph.D., Review Panel for the NIH/NIBIB SBIR RFA entitled “Development and Translation of Medical Technologies that Reduce Health Disparities,” January 2013; Review Panel for the U.S. Department of Education entitled *NIDRR SBIR —Phase I*, Washington, D.C., April 2013; reviewer for the International Conference on Rehabilitation Robotics, February 2013.
- **Luo, X. L.**, Ph.D., proposal reviewer for *Canada Foundation for Innovation, Leaders Opportunity Fund — February 2013 Competition*; editorial board member for *Journal of Bioengineering & Biomedical Science*, 2012–present; routine journal reviewer for *Analyst*, *Angewandte Chemie International Edition*, *Biofabrication*, *Biomedical Microdevices*, *Journal of Materials Chemistry B*, *Lab on a Chip*, *Nanotechnology*, *PhyChemPhy*, *Small*, and *Soft Matter*.
- **Massoudieh, A.**, Ph.D., associate editor of the *JWRAP Journal on Water Resources and Protection*, 2012; reviewed articles for *Water Resources Research*, *Journal of Hydrology*, *Journal of Environmental Radioactivity*, *Hydrogeology Journal*, and *ASCE Journal of Hydrology*.
- **Mathews, S.**, Ph.D., Executive Committee chair and conference co-chair, 13th International Symposium on Laser Precision Microfabrication, Washington, D.C., June 2012.
- **Nieh, S.**, D.Sc., invited lecturer, “Environmental Protection of Renewable Energy Systems,” Department of Bioenvironmental Engineering Seminar, Chung Yuan Christian University, Taiwan, July 24, 2012; presenter to Give a One-day Academic Workshop on “Advanced Vortex Combustion and Gerontechnology,” School of Engineering, Yuan Ze University,

Taiwan, July 26, 2012; co-organizer of Congressional Preview Screening of “Free China — the Courage to Believe,” and as moderator of panel discussion “How Our Next Government’s China-U.S. Policies Shapes Our Future,” Congressional Auditorium, U.S. Capitol, Washington, D.C., Sept. 20, 2012; chaired a Technical Session on Catalytic Conversion, and gave an invited talk on “Combustion and Fuel Reforming,” 3rd Asia Conference on Innovative Energy and Environmental Chemical Engineering, Taiwan, Nov. 13, 2012; invited lecturer, “Vortex Combustion for Coal Boilers and Jet Fuel Reform for Fuel Cells,” Engineering Seminar, Institute of Aeronautics and Astronautics, National Cheng Kung University, Taiwan, Nov. 16, 2012.

- **Nguyen, C. C.**, D.Sc., taught a course in Technology Management to Fu Jen Catholic University students, June 25–July 09, 2012; attended the 16th Annual Youth Excellence Recognition Luncheon organized by the Vietnamese Culture and Science Association (VCSA) in Houston, Texas, as its advisory board member, Aug. 5, 2012; traveled with Provost Brennan and Director Pao to India to visit Christ University in Bangalore, Rajagiri School of Engineering and Technology in Cochin, and St. Francis Institute of Technology in Mumbai, Oct. 14–22, 2012; attended a meeting of the Board of Directors of the Asian Division Friends Society, Library of Congress as a board member, Dec. 17, 2012; traveled to New Orleans and visited Maria Calzada, Ph.D., dean of humanities and natural sciences at Loyola University to explore establishing 3+2 programs and research programs with Catholic University, March 15, 2013; traveled to visit Peter Kilpatrick, Ph.D., dean of the College of

Engineering at the University of Notre Dame, also meeting there with several faculty members and officials in development and discussed about strategies for hiring Catholic faculty, March 27, 2013; attended the 2013 National Meeting of Engineering Deans and Directors from Catholic Colleges and Universities (EDCU) organized by Seattle University, Seattle, Wash., April 28–30, 2013.

- **Pan, T.**, Ph.D., member, Transportation Research Board; committee member AHD40: Polymer Concretes, Adhesives, and Sealers, AFN20: Properties of Concrete, AHD45: Corrosion, AFP60: Engineering Properties of Unsaturated Soils, Geo-Institute Pavements Committee, T&DI Highway Pavement Committee; member, American Society of Civil Engineers (ASCE) — (GI, T&DI); adviser to the civil engineering/ architecture dual-degree program; adviser to dual-degree student Philip Goolkasian, who received the 2013 School of Engineering Rome Award.
- **Plaku, E.**, Ph.D., associate editor of the *IEEE/RSJ Intelligent Robots and Systems*, 2012 and 2013; program committee member of the *IEEE International Conference on Robotics and Automation*, St. Paul, Minn., 2012; *Towards Autonomous Robotics*, Bristol, U.K., 2012; *International Conference on Intelligent Robots and Applications*, Toronto, Canada, 2012; *AAAI International Conference on Artificial Intelligence*, Bellevue, Wash., 2013; and *Robotics: Science and Systems*, Berlin, Germany, 2013; organized the *CUA EECS Robotics Exhibition* at the *DC FIRST Robotics High-School Competition*, Washington, D.C., March 2013.

- **Tran, B.Q.**, Ph.D., biomedical engineering, served as journal reviewer for the *IEEE Transactions on Information Technology in Biomedicine*, *Sensors and IEEE Transactions on Biomedical Engineering*.
- **Tran, B.Q.**, Ph.D., NIH grant review panels *AIDS Clinical Studies and Epidemiology Study Section* (November 2012; Mar 2013; July 2013) and NIBIB’s 2012/10 Council ZRG1 SBIB-Q 80 (July 2012; October 2012; March 2013; July 2013); co-director with **Wilson, Jr., O.C.**, of the Sloan Foundation Minority Doctoral Program at CUA.
- **Yang, Y.**, Ph.D., Editorial Board member of *International Journal of Security (IJS)*, 2012; Technical Program Committee member of the *Second International Conference on Advanced Collaborative Networks, Systems and Applications (COLLA 2012)*, Venice, Italy, June 2012, of the *Eighth IEEE International Conference on Collaborative Computing: Networking, Applications and worksharing (CollaborateCom 2012)*, Pittsburgh, Pa., October 2012; reviewer for the journals of *Security and Communication Networks*, *ACM Transactions on Sensor Networks*, *Computer and Electrical Engineering*, *IEEE Transactions on Parallel and Distributed Systems*, *The Computer Journal*, *ACM Transactions on Information and System Security*, *International Journal of Ad Hoc and Ubiquitous Computing*, *Wireless Networks*, and *Wireless Communications and Mobile Computing*.

School Honors Faculty and Staff for Excellence



Chang



Behrmann



Lucko

Each year, the School 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.

For 2012, the Kaman Award for Excellence in Teaching was shared by two recipients, Lin-Ching Chang and Greg Behrmann. Chang, assistant professor of electrical engineering and computer science, was honored for her outstanding teaching evaluations and her vital role in revising the computer science curriculum. Behrmann, clinical assistant professor in the Department of Biomedical Engineering, received the teaching award for his revamping the course ENGR 106 and his dedication to teaching.

The 2012 Kaman Award for Excellence in Research was given to Gunnar Lucko, associate professor of civil engineering, for his preparation and submission of four major grant proposals including two to the National Science Foundation (NSF) for which he was the PI. He published five journal papers

and five peer-reviewed conference papers during the academic year.

Two faculty members were named Burns Faculty Fellows. Xiaolong Luo, assistant professor of mechanical engineering, proposed a research plan focusing on the establishment of a consortium of bacterial cells and the interactions among the multiple cell species with the goal of developing a gut-on-a-chip in vitro model. Yi Yang, assistant professor of electrical engineering and computer science, in her proposed research plan, will address the issue of worm attacks in wireless sensor networks and the development of worm detection and prevention. She plans to submit the results of her study in a proposal to NSF.

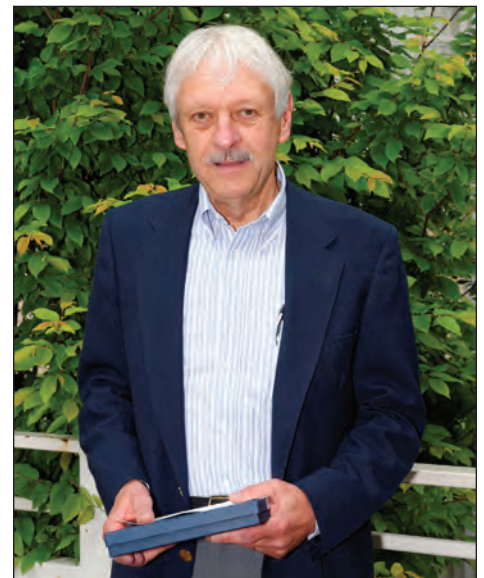
The 2012 School of Engineering Staff Excellence Award was given to Donald Smolley, machinist in Department of Mechanical Engineering (ME), for his outstanding service to faculty, staff and students of the ME department.



Luo



Yang



Smolley

2012-2013 Honor Roll of Donors

The School of Engineering gratefully acknowledges the following alumni and friends for their generosity. This list includes donors who made gifts between May 1, 2012, and April 30, 2013. We have strived to recognize everyone correctly. If you find an error or omission, please contact the Office of Institutional Advancement at 202-319-6910.

- Mr. Elias G. Abebe '03
 Mr. Morris Ackerman '43
 Mr. Adeyemi Adesina '05
 Mr. Michael E. Agudo '89
 Ms. Aminata Bintu Wahab Alharazim '03
 Capt. Max H. Allen, USN (Ret.), '53
 American Institute of Steel Construction
 Lt. Col. Thomas J. Anessi, USAF (Ret.), '56 and
 Claudia J. Anessi
 Mr. Guy S. Angouma '99
 Dr. David F. Antezana '90
 Mr. Gary P. Antonides '71
 Mr. C. Joseph App '51
 Mr. James M. Arentz '96
 Mr. Eugene L. Aronne '51
 John Roger Axe, Ph.D., '72 and Jacqueline P. Axe
 Mrs. Bruce Patrick Badalaty '77 and
 Karen Badalaty '80
 Mr. Ehab A. Badawood '13
 Mr. Cornelius E. Bailey '75
 Mr. Richard L. Balluff '58
 Mrs. Ann F. Banning '87
 Mr. Denio A. Basile '65 and Ann C. Basile '67
 Mr. Stanley John Bazydola '56
 Mr. Gregory P. Beben and Kyle Beben
 Mr. Rudolph H. Becker Jr., P.E., '67, '87 and
 Elizabeth S. Becker
 Mr. Thomas H. Beckett '81 and
 Linda Smith Beckett
 Mr. Howard H. Benson Jr., USN (Ret.), '49
 Mr. Michael C. Blake, P.E., '89
 Mr. Timothy E. Boland '52
 Mrs. James Anthony Bonomo '81 and
 Mary Jean Bonomo '80
 Mr. Ali Borzoo '90
 Mr. Rupert J. Brady '53 and Maureen M. Brady
 Mr. John Emmett Brennan IV '81
 Mr. David L. Brott '69 and Dorothy C. Brott
 Mr. Nicholas D. Brown '65
 Mr. Robert C. Burns '51 and Elizabeth M. Burns
 Mr. Richard S. Burns '59 and
 Margaret Devany-Burns*
 John E. Burns '85 and Marcie Burns
 Mr. Matthew J. Burns '80 and Teresa E. Burns
 Mr. Mark F. Burns '82
 Burns Engineering, Inc.
 Mr. Ronald Burrell
 Mrs. Glenn N. Byrd '90 and Laura J. Byrd '86
 Mr. Eugene G. Cambeilh Jr. '67
 Mr. Michael P. Canavan '97
 Mr. James R. Carlberg and Joan R. Carlberg '71
 Mr. Joseph L. Carlini '84 and Christine M. Carlini '86
 Mr. Andrew S. Carson '95
 Mr. Louis J. Casaregola '73
 Mr. Kevin Donald Casey '95 and
 Constance Campanella
 Dr. and Mrs. Harvey R. Chaplin Jr. '55, '64
 Mr. Charly A. Chirayath '76
 Dr. Young il Choo '67, '70
 Clark Construction Group, LLC
 Mr. David C. Clink '73
 Mr. Terence Conaty '93
 Ms. Carmel A. Conaty '88
 Mr. Edward G. Conway '50
 Mr. H. Bruce Cranford, P.E., '68 and
 Mary M. Cranford
 Dr. Giles F. Crimi '63
 Mr. John H. Daly '50
 David L. Danner, Ph.D., '82
 Mrs. Lisa M. Davie '82
 Mrs. Thais De Leon Perez '95
 Mr. John F. Delean '50 and Margaret A. Delean
 Mr. James Dever and Cheryl Dever
 Mr. Diogenes Dichoso and Joselina Dichoso
 Mrs. Catherine M. Dietz '86
 Quentin E. Dolecek, D.Sc., '70, '80 and
 Mrs. Patricia N. Dolecek
 Martin G. Drexhage, Ph.D., '78
 Mr. Trevor A. D'Souza '87 and
 Maureen Devine D'Souza, Esquire, '87, '95
 Mr. Brian W. Edwards '73 and
 Barbara Murphy Edwards '87
 John P. Eicher, Ph.D., '62, '65, '70
 Energetics Technology Center
 Mr. John A. Eney '64
 Mr. James F. Engler Sr. '81
 Brig. Gen. Brig. Gen. Michael A. Fantini '86
 Mr. John J. Farley III
 Mr. Frederick R. Favo '55 and
 Anne Finnegan Favo '57
 Mr. John J. Filicko Jr. '51
 Mr. Robert J. Fitzmyer Jr. '75
 Lt. Thomas Patrick Flaherty III '06
 Mr. James B. Floyd '75
 Mr. Steven and Cecilia Fox
 Mr. Edward A. Frankle '68
 Jude Eric Franklin, Ph.D., '65, '68, '80 and
 Mary Frances Franklin '65, '80
 Mr. Carlos H. Garcia '66 and Karen M. Garcia
 Mr. John G. Gardiner '89 and Rebecca W. Gardiner
 Mr. William L. Gates '53
 Mr. Raj S. Ghaman '73 and Martha J. Ghaman
 Mr. Jeffrey E. Giangiuli '91
 Ms. Jeanine Moore Gibbons '87
 Mr. James Giglio '82
 Dr. Angus T. Gillis, M.D., and Joanne V. Gillis
 Mr. Melvin M. Goldenberg '49
 Ms. Chelsea E. Good '13
 Mr. Joseph Linus Gramlich '63
 Albert A. Grant, PF, ASCE, '48
 Mr. Paul J. Guercio
 Mr. Vincent J. Guercio '61 and Barbara F. Guercio
 Mr. Michael J. Hackert '80 and
 Geraldine Ann Hackert
 Mr. Joseph A. Hallisey '87
 Mr. Stanley M. Halperson '56 and Janet Halperson
 Mr. Dennis E. Harmon and Janis L. Harmon
 Habeeb M. Haseem, Ph.D., '75
 Mr. Timothy D. Heaps '89 and
 Annemarie Zeien Heaps '89
 Dr. James J. Hearn '66, '71
 Mr. Leonard S. Hecht '69
 Mr. Evan A. Heisman '10
 John Ryan Heisse II, Esquire, '76 and Karin Scholz
 Cmdr. Geoffrey Marc Hendrick, USN, '98
 Mr. Peter C. Herdic '86
 Gerald L. Hoefler, Esquire, '67, '76 and
 Patricia A. Hoefler
 Mr. Scott G. Holden and Geeta M. Holden
 Mr. Charles J. Jahne, P.E., '52
 Mr. Gregory C. Jantz '99
 Mr. John M. Jennings '53
 Stuart Jessup, Ph.D., '89
 Ms. Tracey A. Johnson '99
 Ms. Veronica V. Jones '95
 Mr. Paul J. Kachurak '96
 Mr. Rudy O. Karsch '82
 Mr. Robert A. Kavetsky '75, '78, '80 and
 Carolyn Kavetsky '74
 Warren E. Keene, Ph.D., '66, '87
 Abraham Kefyalew, Ph.D., '96, '00
 Mr. Sean T. Kelly '60 and Eileen A. Kelly
 Mrs. William J. Kelnhofer, D. Engr., * '60, '66 and
 Ursula Kelnhofer
 Mr. Edward J. Kennedy '68 and
 Lorraine St. Cyr Kennedy '68
 Ms. Linda Mary Kent '05

- Mr. Denis J. King '76
 Mr. David A. King '68
 Ms. Nancy Kitchens '92
 Mrs. Cristine J. Kosnik '95
 Mr. Philip M. Kuhn '67
 Mr. David W. Lacey '71
 Mr. Chien-Hung Lai '09
 Mr. John N Laliotis '73
 Mr. Joseph W. Lattisaw Jr. and Sharon S. Lattisaw
 Mr. Thomas E. Laux '77, '79 and Joyce M. Laux
 Mrs. Diane U. Le '94
 Mr. Cesar A. Leal '86
 Mr. William A. Leasure Jr. '69 and
 Elizabeth M. Leasure
 Mr. Wah Hing Lee '73
 Soon H. Leong, Ph.D., '81
 William G. Letzing, Ph.D., '73 and
 Barbara M. Letzing
 Ms. Fragrance H. F. Wu Liu '69
 Mr. John R. Looney '56 and Kathryn Looney
 Mr. Philip A. Loreti '51
 Mr. Harry D. Ludeman '53 and Helen D. Ludeman
 Mr. Michael T. Lyons '56
 Ms. Maria Gabriela Madrigal-Haughn '94
 Mr. John Joseph Maggio '81
 Mr. Michael A. Marciante '12
 Mr. Frank P. Marciante and Julia D. Marciante
 Mr. Donald P. Marcopulos '59
 Dr. William D. Mark '56
 Mr. John E. Markowski '98 and
 Carolyn Ann Markowski
 Thomas E. Maslen, M.D., '82 and
 Carrie Y. Maslen '82
 Mr. Robert E. Matthews '50
 Mr. Allan W. McClure Jr. '70
 Michael E McCormick, Ph.D., '61
 Mr. James McCormick and Judith A. McCormick
 Frank E. McDonnell, Ph.D., '61, '63 and Ildiko
 Pulvari McDonnell '61
 Dr. Michael F. McGrath '70 and
 Sarah S. McGrath '73
 Mr. John P. McGuire Jr. '89
 Mr. John P. McGuire and Elizabeth A. McGuire
 Mr. Gerald S. McKenna '49 and Helen M. McKenna
 Mr. Gregory C. McShane '87
 Mr. Mark Meister '82, '83 and
 Carla Krivak Meister, Esquire, '82, '89
- Darrell A. Milburn, Ph.D., '78
 Mr. David P. Morgan '83 and Christine Morgan
 Mr. Roberto I. Morrell '44
 Mr. Bahram Moshiri '81
 Mr. Get Wah Moy '74
 Daniel R. Mulville Ph.D., '74
 Mr. Murali M. Rao Nadipelli '94
 Mr. Philip Newsom and Maria Alvarez-Newsom
 Dr. Charles C. Nguyen, D.Sc.
 Ms. Aisha G. Niang '02
 Barry J. Noonan, Ph.D., '63, '71
 Mr. John E. Oberright '66, '68
 Mr. Hans D. O'Brien '67
 Mr. Timothy J. O'Connor '85
 Mrs. John J. O'Donnell and Mary Beth O'Donnell
 Mr. Lawrence A. O'Neill '59
 Sister Mary George O'Toole, R.S.M., Ph.D., '61, '65
 Dr. David W. Palmer '90 and
 Sheila C. Palmer, Ph.D., '90
 Estate of Thomas W. Pangborn*
 Mr. Anthony Passarelli and Sina A. Passarelli
 Mr. Calvin T. Payne '95
 Mr. Mark A. Peacock '83 and Irene Peacock
 Mr. Ray Peloquin and Mary E. Peloquin
 Mr. Charles O. Pepe '83
 Mr. Randolph C. Perez '73
 Mr. Gary E. Pergolini '85
 Mr. Victor P. Petrolati '72
 Mr. David L. Pettit '65 and Diane Italia Pettit '69
 Mr. Soon-Neo Poh '86
 Capt. David A. Portner, USN (Ret.), '94
 Kancharla C. Prasad, Ph.D., '69, '73
 Mrs. Frances M. Prout-Rutan '61
 Lawrence R. Radanovic, Esquire, '59, '63
 Mr. Michael S. Radvansky '71
 Mr. Dean A. Rakoskie '72
 Mrs. Anne Elizabeth Reed '93
 Mr. Cesar W Rodriguez '01
 Mr. Kenneth Louis Rosette '65 and J. C. Rosette
 Mr. Richard R. Roy '77
 Mr. Nabil S. Saad, Ph.D., '72, '74 and
 Trudy Prince Saad, Esquire '74
 Mr. Salem M. Samim '06
 Ms. Suzana Saric '11
 Ms. Jaclyn A. Schade '00
 Mr. John J. Schwartz '64 and Phyllis M. Schwartz
 Mr. Ben F. Senger '06 and Jamie E. Senger '06
- Mr. Alfred A.C. Senior '85
 Mr. John C. Shanks Sr. '57
 Mr. Franklin M. Shannahan '50 and
 Mary F. Shannahan* '50
 Mr. Vincent Sica '83 and Ellen Cruciani Sica
 Richard E. Simpson, Ph.D., '69 and
 Ruby M. Simpson
 Mrs. Maureen Stover Skurek
 Russell A. Smith, Ph.D., '64, '69
 Steven J. Smith, Ph.D., '90, '91
 Mr. Timothy E. Stacy '06
 Mr. Christian J. Steele '00
 Trust of James R. Stover* '50 and
 Mary E. Keenan Stover*
 Mr. Lawrence J. Sullivan '75
 Mr. James N. Talley '61
 Ms. Cheryl A. Tallman '85
 Joseph M. Tama, Ph.D., '06
 Father Luis Alberto Tampe, S.J., '88
 Mr. William T. Taylor Jr. '64
 Dr. John T. Tozzi '82
 Mr. Paul J. Tran '86
 Mr. Man A. Tran '86
 Mr. James D. Trent Jr. '54
 Mr. Luis A. Valencia '75
 Mr. John C. Vaughan '50
 Mr. Alexander C. Vazquez '85
 Ms. Sudha Vyas '95
 Mrs. Barbara C. Wagner '80
 Mr. Joseph G. Walsh '48
 Capt. Brendan M. Walsh, USMC, '02
 Mr. Frederic Delano Weekes '59
 Mr. Robert H. Wellen and Anita Wellen '80
 Mr. Richard Weyrick and Marie Weyrick
 Mr. Carl H. Wilhoit, P.E., '73
 Robert A. Wilson, M.M.E., '71 and
 Joan B. Wilson
 Mr. Littell E. Wilson '51
 Mr. Bernard V. Wolski '50
 Ms. Carolyn R. Work '13
 Mr. Addison Yeaman
 Mr. Andrew J. Youniss '83 and Mariann A. Youniss
 Ms. Denise Zito '76
 Mr. David Nicholas Zmijewski '91, '94



CUA Engineering: *Cutting-edge Research Driving Superb Education*

Congratulations to the Class of 2013!

School of Engineering

Charles C. Nguyen, Dean
202-319-5160

Steve Brown, Associate Dean
202-319-5170

Jeffrey Giangiuli, Director
Engineering
Management Program

Peter Lum, Chair
Biomedical Engineering

Lu Sun, Chair
Civil Engineering

Ozlem Kilic, Chair
Electrical Engineering
and Computer Science

Sen Nieh, Chair
Mechanical Engineering

Biprodas Dutta, Director
Materials Science and
Engineering

Doctor of Philosophy
Jun Ma
Adulhamit Duzkale
Anthony Metzger
Teresa Ryan

**Master of Electrical
Engineering**
Rachel Mbenga

Master of Science
Mohammed Al-Jassim
Baraah Batterjee
Matthew Carnavos
Joseph Faragalli
Hiba Habeeb
Joseph Leavitt
Amir Sepantaie
Shahd Zainy
Sultan Alhazmi
Danah Aljassim
Ibrahim Aljassim
Maay Aljassim
Abdulrahman Aljefri
Waleed Alkhayyat
Mohammed Alsenani
Ali Alzahrani
Robert Bassett Jr.
David Beachy
Tara Bevard
Timothy Cork
Megan Dever
Mohammad Haghshenas
Thuan Ho
Garnthanath
Kornviratchaitorn

Khoa Nguyen
Luan Nguyen
Harshada Patani
Joseph Probst
Nicolas Quiñones
Matthew Simone
Daad Tarabzouni
Nghia Tran
Lauren Zelinski
Faisal Al-Ahdab
Ahmad Alamoudi
Khalid Alasmari
Joseph Alexander III
Mohammad Alhussain
Tareq Aloseh
Mohammad Al Saati
Âwâtêf Âlshêhri
Ehab Badawood
Samman Bakhit
Thomas Berlenbach
Mollie Cannon
Jessica Clement
Kevin Curtin
Samantha Daubman
Travis Dichoso
Nelson Ferreira
Amr Ghurab
Andrew Gravunder
Steven Hair
Christopher Hunt
Tariq Jaafar
Mohamad Kanaan
James Kimmel
Dean Kissingner
Katlin Landers
Joseph Lattisaw

Michael Marciante
Mohammad Masfooh
Hossam Milyani
Joseph McAnaney
Amber McClung
Elizabeth McCormick
Andrew Miller
Nathan Mitchell
Zeiyad Mufti
Phuong Pham
Timothy Quine
Nicolas Quiñones
Trevor Smith
Billy Vermillion II
Rachael Vizzi
Anh Vu
Daniel Weyandt
Kevin Wynter

**Bachelor of Biomedical
Engineering**
Ben Nguyen
Maissa Alshenqity
Amanda Carter
Lisa Baraniecki
Lena Brauner
Danika Coaplin
Gabrielle Crowe
Travis Dichoso
Stephanie Francois
George Jabar III
Mary Luongo
Amber McClung
Christina Warner
Jillian Woerner
Regina Zolbrod

**Bachelor of Civil
Engineering**
Kirk Kasa
Alexander King
Tri Le
Nicholas Colameco
William Crum
Peter Horgan
Eamon Hughes
Ryan Klein
Kyle Kramer
Louis Ngonzo-Biyo
Drew Papas
Sean Pearson
James Romagnoli, Jr.
Daniela Vega

**Bachelor of Civil
Engineering and
Bachelor of Science in
Architecture**
Philip Goolkasian
Matthew Kline
Samuel Mrozinski

**Bachelor of Electrical
Engineering**
Omar Alsomali
Vy Bui
Nguyen-Minh Le
Phuong Pham
Mohamed Al Sedran
Weishuo Huang
Gabriel Isaacs
Hien Kieu
Duong Le

Minh Tran
Paul McGee III
Hieu Nguyen
Thanh Nguyen
Tuan Nguyen
Tuan Phan
Hung Tran
Lan Tran

**Bachelor of Science in
Computer Science**
Evan Votta
Alyssa DeChiario
Leticia Garcia
Meagan Rachman

**Bachelor of Mechanical
Engineering**
Manrique Rivas
Diego Blasco
Christopher Gervais
Chelsea Good
Sean Holden
Ibrahim Makhadmi
Matthew McDonagh
Amanda McShane
Edward Mitchell
Joseph Passarelli
Nicholas Pavia
Brendan Place
Garitt Quigley
Mark Weyrick
Carolyn Work

Ph.D. Dissertations and Advisers

- Adulhamit Duzkale**, Dissertation: *Reducing Uncertainty in Bid Preparation of Cost Estimating for Structural Steel*, **Gunnar Lucko, Ph.D.** (adviser)
- Jun Ma**, Dissertation: *Two-dimensional Continuous Wavelet Transform in Fringe Pattern Analysis*, **Zhaoyang Wang, Ph.D.** (adviser)
- Anthony Metzger**, Dissertation: *Motor Control of Upper Extremity Prosthesis Users*, **Peter Lum, Ph.D.** (adviser)
- Teresa Jean Ryan**, Dissertation: *A Coupled Microresonator Array for Mass Detection*, **John Judge, Ph.D.** (adviser)