



BUFFALOENGINEER

SPRING 2013

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The Davises



Li

Distinguished Alum



McCombs receives medal

I extend my thanks to all who have granted me the honor of leading this formidable institution.

The breadth and excellence of the School of Engineering and Applied Sciences' (SEAS) activities continue to amaze me, and to attract external recognition to our great school.



Dean Liesl Folks

In alignment with the direction set by the UB2020 Strategic Plan, SEAS' engagements with outside organizations are also growing robustly, leading to new opportunities for students and faculty across a spectrum of disciplines.

The enthusiasm for innovative educational and research projects undertaken by alumni, students, faculty, and our partners is contagious. Building strong and lasting partnerships is the key to our continued growth.

There is a great deal of excitement within SEAS arising from a continued high demand for our undergraduate and graduate degree programs. The 2013 academic year will see another academically strong freshman class, following the trends of the past few years, and a boost in incoming graduate student quality. The high demand for UB's degrees seems to be driven by the national conversation around anticipated demand in coming decades for the STEM-educated employees required to maintain US international competitiveness, and the publicity around the high cost of many degrees and associated high debts with which many students graduate. These two considerations are now a priority in the minds of students and families as they choose colleges and degree programs, to the advantage of UB SEAS. However, the increased numbers coming through our degree programs in SEAS pose notable resource challenges for us. We must continue to innovate in large and small ways to ensure that the quality of the educational experience is not degraded for those in our programs.

Recent endorsements of the excellent educational experience UB offers have come from national surveys by *Kiplinger's* and *Princeton Review*, which have found UB to offer a top experience that matches affordability with educational excellence. Our donors have also pledged their commitment in the form of valuable

financial support that enhances the research-work-life experience at our School. We gratefully acknowledge all of our donors for their generous support. I extend special thanks to our alums who have given gifts that enhance the education, research, and built environment at our School: to Barbara and **Jack Davis**, who have given a gift for a scholarship fund; to **Robin Li** for naming a Davis Hall Data Mining Lab; and to an **anonymous alumnus** who has named Grace Plaza, enhancing an exterior area of Davis Hall and offering funds for discretionary purposes.

Congratulations on the excellent accomplishments of our alumni, faculty, and students, especially to those who have earned top recognitions. Our distinguished alumnus, **Norman R. McCombs**, received the National Medal of Technology and Innovation from President Obama, the nation's highest technology honor. Our faculty members **Melodia** and **Scutari** in EE have earned the National Science Foundation's CAREER award, underscoring the value of their research. SUNY Distinguished Professors **Mitin** (EE) and **Govindaraju** (CSE) and MSE Co-Director, CBE's UB Distinguished Professor **Alexandridis** (CBE), have been recognized as fellows of SPIE, SPIE, and AAAS, respectively. CBE Professor **Kofke** has earned a SUNY Distinguished title.

Two student teams have achieved notable success this semester too, in ISE and in MAE, and are proof positive of the great education and extracurricular activities of our School. An ISE team won second place in a prestigious GE Challenge, while another student team in MAE earned a top spot in the SAE Clean Snowmobile Competition.

I look forward to working together with you all to bring our School to new heights of achievement.

Liesl Folks,
Dean

For abbreviations used in *Buffalo Engineer*, please see page 24.

Cover photos are courtesy of UB and the individuals themselves.

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* Robert E. Barnes, Editor-in-Chief
Debra Steckler, Editor

Distinguished Alumnus Norman R. McCombs: National Medal of Technology and Innovation



The National Medal of Technology and Innovation (Image courtesy of the White House)

President Obama with Norman R. McCombs upon presenting the National Medal of Technology and Innovation

UB Engineering alumnus **Norman R. McCombs**, BS ME '68, received the National Medal of Technology and Innovation at a White House ceremony. The top US government honor recognizes those who have made lasting contributions to US competitiveness and quality of life and who have helped strengthen its technological workforce. McCombs is senior vice president of research and development of AirSep Corp., in Amherst, NY. The award recognizes McCombs' contributions to pressure-swing adsorption (PSA), a technology that has helped ease breathing for millions of lung-disease sufferers and has improved safety and efficiency in many industries, from fish farming to steel and paper manufacturing, and wastewater treatment.

McCombs' work in the development of PSA systems led to the invention of the first portable oxygen concentrator. As a direct result of his contributions, the technology has become a viable, safe, and affordable part of the long-term oxygen therapy necessary for patients with chronic obstructive pulmonary disease. He succeeded in refining the system and its design from weighing over 200 pounds to 45 pounds, and recently, to an ambulatory device weighing only 1.8 pounds – small and safe enough that the Federal Aviation Administration has approved its use on airlines, allowing plane travel for hundreds of thousands of people.

For these and his many other inventions – he has been granted over 50 US patents and hundreds more internationally – he has been honored three times in Inventor of the Year competitions. McCombs is a fellow of the American Society of Mechanical Engineers (ASME) and a member of the Society of Automotive and Aeronautical Engineers. His many awards include the American Intellectual

Continued on page 4

NSF CAREER AWARDEES

EE's Melodia

EE Associate Professor **Tommaso Melodia** earned an NSF CAREER award for his project entitled, "Towards Ultrasonic Networking for Implantable Biomedical Devices."

Wirelessly networked systems of implantable sensors and actuators could enable revolutionary applications that advance medical treatment of disease. Yet, most research to date has focused on communications along the body surface among devices interconnected through traditional electromagnetic radio-frequency (RF) waves, while the key challenge of enabling networked intra-body miniaturized sensors and actuators that communicate through body tissues is substantially unaddressed. The main obstacle to enabling this vision is posed by the physical nature of propagation in the human body, which is composed primarily of water, a medium through which RF electromagnetic waves do not easily propagate.

Melodia's project investigates for the first time the fundamentals of ultrasonic networking in human tissues through a closed-loop combination of mathematical modeling, simulation, and experimental evaluation.

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Tommaso Melodia

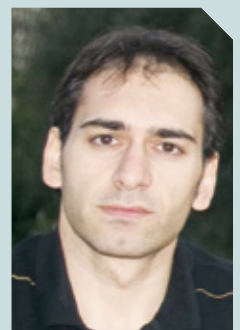
EE's Scutari

EE Assistant Professor **Gesualdo Scutari** earned an NSF CAREER award for his project, "Variational Inequalities: A New Paradigm for Cognitive Network Layering." The goal of this research is to envisage distributed mechanisms for cooperative adaptation and learning in complex large-scale networks.

Complex networks are prevalent in modern science, including the study of biological networks, power grids, and communication systems. In many complex systems, it is common to observe emergent behavior arising from the interaction among individual agents. While each individual agent is not capable of complex behavior, it is the combined coordination among multiple agents that leads to the manifestation of sophisticated behavior at the network level.

Scutari seeks to develop a new methodology to design and analyze distributed mechanisms for complex networks, which represents a shift from current heuristic based approaches. One important application is cognitive radio networks, where the nodes sense the environment and decide how to optimally allocate their radio resources.

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Gesualdo Scutari

Alumnus-Inventors

The following alumnus-inventors have been credited on patented innovations. For details, please visit the alumni section of our web site <http://www.eng.buffalo.edu/alumniFriendsDonors/patents/>

Avarachan V. Cherian, MS EE '06
Cynthia A. Hoover, Dean's Council member, PhD CBE '95
Robert C. Johnson, MS CBE '81
Jack C. Kitchens, BS '79 EngSci
Daniel C. Merkel, BS CBE '89
John D. Peck Jr., BS '93 MS '95 PhD '00 CBE
Hang T. Pham, BS '80 MS '92 CBE
John K. Schneider, BS '80 MS '87 PhD '90 EE
Haiyou Wang, PhD '01 CBE

In Memoriam

UB Engineering offers its sincere sympathy to family, friends, and classmates of those alumni who have recently passed away.

Douglas A. Adams, BS ME '75
Donald A. Alianello, BS EE '67
Robert K. Bensching, BS IE '53
John B. Cannito, BS IE '62
Richard Dahler, BS ME '50
Joseph G. Debo, Sr., BS IE '50
Paul C. Eisinger, BS ME '60
Gordon H. Elwell, BS ME '50
George C. Erickson, BS ME '64
David J. Evers, BS CivE '75
Edward W. Falsetti, PE, BS ME '80
Philip F. Frandina, PE, LS, BS CivE '64 (see article this page)
Russell M. Gaiser, BS IE '48
Wei-Zheng Gao, MS EE '88
Zigmund J. Glichowski, BS EngSci '71
Franklyn P. Good, Jr., BS ME '49
John H. Gordon Jr., BS CivE '62
Walter V. Grabowski Sr., BS ME '58
Oscar W. Haas, Jr., BS '76 MS '88 ChemE
Robert A. Hayman, BS '54 MS '62 EE
Michael E. Hopkins, BS CivE '81
James L. McGarry, MS CivE '76
George J. McLoughlin, BS CivE '71
Harry J. Radloff, BS EE '63
Paul Roman, BS ME '81
William E. Smith, BS IE '50
Fred Standen Jr., BS EE '83
Charles S. Tittle, BS IE '52
Richard A. Weber, BS IE '55
David Wittman, BS ME '48

Distinguished Alumnus Norman R. McCombs

Continued from page 3

Property Law Association's Lifetime Achievement Award (2005); the Thomas A. Edison Patent Award of the ASME (2007); the UB Engineering Alumni Association's Engineer of the Year (2007); the UB Engineering Dean's Award for Achievement (2008); and the UB Alumni Association Clifford Furnas Memorial Award (2010).

Mr. McCombs is a longtime Tonawanda, New York resident with his wife of 52 years, Grace (Seitz). In 1956, he began his career in development at Fedders Corporation, and in 1963 moved to research at the Linde Division of Union Carbide. He subsequently founded NRM Development Corporation and, later, Xorbox Corporation, which evolved into AirSep Corporation in 1986. In addition to his work, McCombs enjoys the classical guitar, sculpting and gourmet cooking. He was appointed Officier Maître de Table Restaurateur of the Confrérie de la Chaîne des Rôtisseurs, the world's premier gourmet society.



McCombs after receiving the UB Alumni Association Clifford Furnas Memorial Award in 2010



Philip Frandina

Philip F. Frandina, PE, LS, BS CivE '64 (1929-2013)

The School of Engineering mourns the loss of alumnus **Philip F. Frandina**. A prominent professional engineer and former Erie County public works commissioner, Frandina worked throughout the eight years it took to complete his UB CivE degree. He eventually advanced through all of the engineering positions in the county Department of Public Works, becoming commissioner in 1982.

After retiring in 1988, he continued working at his family's firm, Frandina Engineering. A highly regarded structural engineer, bridge designer and arbitrator in construction disputes, he earned several awards from the Erie-Niagara Chapter of the New York State Society of Professional Engineers, of which he was a past president. He also was a past president of the Technical Societies Council and the Buffalo section of the American Society of Civil Engineers. He founded the local chapter of the Association for Bridge Construction and Design and served as its first president. The American Public Works Association state chapter named him one of the Top Ten Public Works Officials of 1988.

In 2001, Frandina and his three children, **Frank** (BS '73 MS '74 CivE), **Joseph** (BS CivE '78), and **Rosanne** (BS CivE '81, with a UB MBA) – all professional engineers, were named Engineers of the Year by the UB Engineering Alumni Association.

Engineering Alumni Association Supports Student Clubs



The UB Engineering Alumni Association presented Engineers for a Sustainable World (ESW) with a check that helped fund their attendance at ESW's "What is Your Legacy" conference at University of California, San Diego. Shown holding the award are ESW Treasurer Olga Carcamo, (ChemE), and ESW Funding Specialist Alanna Olear (EnvE).



Engineering Alumni Association Vice President Joe Frandina presents the UB chapter of American Society of Civil Engineers (ASCE) President Alvaro Giron with a check that helped fund their participation in ASCE competitions including Concrete Canoe, Steel Bridge, and Seismic Design.

2013 Engineer of the Year: Dennis Elsenbeck



(L to R): UBEEA's Colleen M. O'Connell and Jeffrey Dudek with Dennis Elsenbeck and Dean Liesl Folks

The UB Engineering Alumni Association's annual Engineer of the Year award went to **Dennis Elsenbeck** (MEng ME '96), regional executive for National Grid's (NG) Western Division. The award recognizes a UB Engineering alum or closely affiliated person with distinguishing activities in alumni, community, and professional affairs.

Elsenbeck's civic engagements are extensive: he is UB Engineering's Dean's Advisory Council chair and sits on many regional community advisory boards. His service efforts earned him the 2010 UB Alumni Association's Community Leadership Award and a National Federation for Just Communities' Community Leader Award. (For more about the latter, see the Class Notes section.)

A regular contributor to our School's Delta Society, Elsenbeck also donates generously of his time and energy. He has championed relationships between NG, the School, and UB in many ways: he helped usher NG sponsorship to UB Engineering of \$250,000, which supported programs and computer and teleconferencing updates to 414 Bonner Hall. The room will be known as "the Advanced Global Conference Room, brought to you by National Grid." He worked with Interim Dean **Rajan Batta** to establish the School's first high-school summer residency program, to which NG gave, through Dennis' advocacy. With UB and NG, Elsenbeck was also instrumental in establishing a master's degree program that has granted degrees to about 35 NG employees recently.

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- **Have advice for current college students?**
Join the **Meet-a-Mentor** program.
- **Job hunting?** Get job search assistance and access to online postings and interviewing opportunities.

Please visit: www.ub-careers.buffalo.edu. Career Services Office, 259 Capen Hall, North Campus, University at Buffalo (716) 645-2231.

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Discover a World of Talent

Scholarships

Since the early 1990s, the UB Engineering Alumni Association has carried on a tradition of giving scholarships to deserving undergraduate students through the UB Engineering Alumni Association Scholarship Fund. Please consider continuing this tradition with your own donations, which are essential to supporting the fund. Together, we can promote UB Engineering's excellence.

Please address checks to the UB Foundation, with the fund name above noted in the memo, and sent to:

External Affairs
UB Engineering Office
412 Bonner Hall
University at Buffalo
Buffalo, NY 14260-1900

Annual UB Engineering Alumni Association Tailgate



(L to R): Alums Jon Kolber and Joe Testa



(L to R): Alum Jim Karsten, Larry Perot (UB Law), and UBEEA President Jim Boyle

The UB Engineering Alumni Association (EAA) held its annual tailgate party prior to the UB Bulls homecoming game against the University of Pittsburgh Panthers. School alums, family, and friends came out to enjoy the event.

UB Engineering Alumni Association Board of Directors

Officers:

- *James D. Boyle, President (BS CivE '78)
- *Joseph S. Frandina, PE, Vice President (BS CivE '78)
- *Stephen P. Buechi, Treasurer (BS CivE '93, MEng '95)
- *Michael J. Dray, Secretary (BS ChemE '04)

Members:

- *Michelle C. Barker (BS ChemE '99, MS CivE '07)
- *Peter Buechi, PE (BS '68 MS '70 CivE)
- *Jeffrey Dudek (BS CivE '00)
- *John T. Kociela, PE (BS CivE '68)
- *Johnathan Kolber, (BS '72, MS '74 CivE)
- *Anthony S. Markut (BS IE '80)
- *Colleen M. O'Connell (BS CivE '03)
- *Brian J. Peer (BS ChemE '05)
- *Richard A. Rink, PE (BS CivE '80)

- *Howard Strauss, PE, Emeritus and Founding Faculty Advisor (MS ME '54)
- Bill Swenson, PE, Emeritus Alumni Coordinator
- *Robert E. Barnes, Alumni Coordinator (MS '76, PhD '84 IE)

Alumni Membership – One Amount Pays All

DID YOU KNOW? A member of the UB Engineering Alumni Association automatically joins the UB Alumni Association (UBAA)!

NOT A MEMBER? Join now to begin saving on events, online shopping, UB merchandise and much more. When you join the alumni association, you're making a statement that you're *True Blue*, you support UB, and you want to make a difference. (And, you'll get all the benefits membership has to offer!) Show your pride and support an organization whose purpose is to provide support for you.

Find out more online at http://www.eng.buffalo.edu/alumni_membership.php or call UBAA at 1-800-284-5382.

THANK YOU MEMBERS

Thank you to all Engineering School alumni who have joined the UB Engineering Alumni Association and the UB Alumni Association. Your support allows us to program both alumni and student events and activities.

Wherever this symbol * appears in *Buffalo Engineer*, a dues-paying alumni member has been named.

UB Engineering Alumni Association (UBEAA) at Basketball

This year, UBEEA's basketball game event enjoyed a record student attendance, as well as a win for the UB Bulls vs. Northern Illinois University.



(Top) Alumni and families, students, faculty and staff enjoyed the pre-game party and the Bulls' victory.



(Middle) Alum and EE Assistant Professor Jennifer Zirnheld was chosen by the Division of Athletics as the game's honorary faculty coach. Zirnheld is standing between Victor E. Bull and Dr. Donald Reed, Senior Associate Athletic Director for Academics and Sports Management. Photo: Paul Hokanson.



(Bottom) The UBEEA Student Spirit Award was presented to Tau Beta Pi by UBEEA's Treasurer Steve Buechi and Event Chair Rick Rink (far left). The Spirit Award was co-sponsored by the UB Alumni Association.

CURCA Awards

These student-mentor teams received Center for Undergraduate Research and Creative Activities' (CURCA) awards for their projects; they are listed by student major.

ChemE:

Aubrey Beckinghausen, "Association of E.coli contamination with nuisance filamentous algae blooms at public recreational beaches," CSEE Research Assistant Professor **David Blersch**

Yan Lin Zhang, "Profile of a liquid film near a rough solid surface," CBE Research Instructor **Gersh Berim**

CompSci:

Xiang Lin, "A powerful cloud developing combination Android and Google engine," CSE Research Associate Professor **Bina Ramamurthy**

EE:

Sharece Blake, "Effects of transient currents on the electrical characteristics of a thin wire," EE Assistant Professor **Jennifer Zirnheld**

EnvE:

Alanna Olear, "Hand Dryer Feasibility Study," CSEE Professor **James N. Jensen**

Daniele Cardoso Spinelli, "Performance evaluation of a low-cost reactor design for cultivation of benthic filamentous algae," Blersch

ISE, all with ISE Assistant Professor Jun Zhuang:

Marie Catalano, "Screening Simulation for Balance Congestion and security and facing strategic applicants" (group project)

Giovanni Madejski, "Modeling attacks and defenses of smart grids using game theory"

Elizabeth Newell, "Visa Security Screening" (group project)

ME & AE, all with MAE Assistant Professor Manoranjan Majji:

Zachary Fisher, "Design and development of a UAV tracking system"

Andrew Lyons, "UAV flight systems"

Frank Repetti, "UAV tracking system"

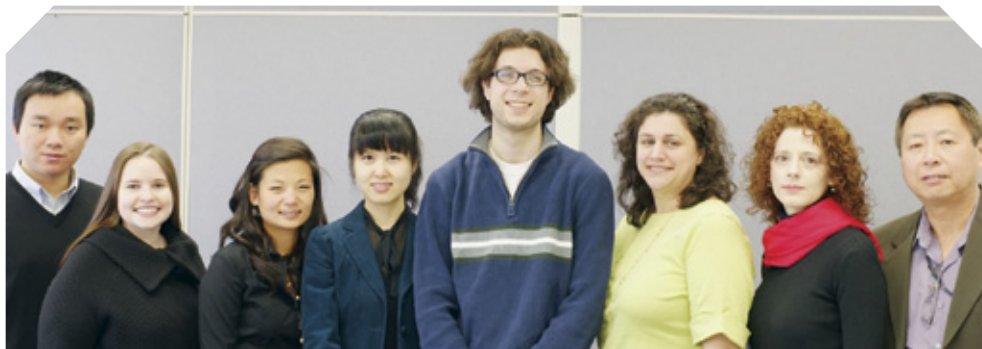
Vruddula Varun, "Development and testing of UAV tracking system"

ME:

Joseph Groele, "Design of an aerodynamic fairing," Majji

Alexander Elhage, "Data acquisition in consumer products," NYSCEDII Research Associate **Andrew Olewnik**

IE Student Team Wins Second Place in GE Challenge



Left to right: IE PhD students Dapeng Cao, Nicolette McGeorge, Theresa Guarrera, Yuan Zhou, David LaVergne, Sabrina Casucci, Judith Tiferes, and ISE Professor Li Lin.

The IE team pictured won the competition's first milestone and placed second overall in the GE HealthQuest challenge, for their submission entitled "Discharge Roadmap - A Patient-Centric App for a Better Discharge Experience." The judges were impressed by the importance of the problem and the depth of the team's proposal that focused on developing a new mobile application for improving hospital operations and the patient/caregiver experience. ISE Professor Li Lin provided guidance. See: <http://www.gequest.com/c/hospital/visualization/352>.

UB SAE Wins Best Emissions in 2013 Clean Snowmobile Challenge

The UB Society of Automotive Engineers' (SAE) team was the Best Emissions Winner in the SAE 2013 Clean Snowmobile Challenge (CSC). The CSC engineering design competition challenges engineering students to reengineer an existing snowmobile to reduce emissions and noise and increase fuel efficiency. Their modified snowmobiles compete in a variety of events including emissions, noise, fuel economy/endurance, acceleration, handling, static display, cold start and design presentation. The UB SAE team competed in the event with a 3-cylinder turbo-diesel engine, passing the standards set for soot output by over 40%. The team's faculty advisor is MAE Adjunct Assistant Professor **Edward M. Kasprzak**.



UB SAE team members, left to right: Amie Vuong, Dave Stedman, Patrick O'Byrne, Joseph DeMario, Co-Captain Noor Jariri, SAE Vice President Matt Strang, Nick Lanzano, Co-Captain Cory Bunnell, Matt Egan, and SAE President Robert Neuman Jr.



IE Student Daley Wins Best Poster

IE MS student **Oriane Daley** won a poster competition at the 13th annual InterUniversity Workshop on Human

Factors and Ergonomics, hosted at the University of Toronto, for her project entitled, "Layering Tactile Graphics for Blind STEM Students."



CSE Student Rodolph Reaches Out

CSE PhD student **Lavone Rodolph** is working to make science education fun and engaging in the Buffalo Public Schools through the Interdisciplinary Science and Engineering Partnership (ISEP). The program is led by UB, Buffalo State

College, the Buffalo Public Schools, and the Buffalo Museum of Science. At Rodolph's alma mater, Hutchinson Central Technical High School, he helped a computer technology teacher develop an Android programming course. At Burgard High School, he helped a biology teacher organize a trip and related lessons on the Buffalo Museum of Science's CSI exhibit. With a Burgard physics teacher, Rodolph helped students design, build, and race model race cars to understand the effects of air flow and car shapes on speed and velocity. Rodolph also was instrumental in securing funding for the project and a related field trip.

IE Student Casucci Wins SHS Student Paper Award



IE PhD student **Sabrina Casucci** won the Society for Health Systems (SHS) student paper competition for her paper, "A Theoretical Model for Patient Care Transition Processes to Reduce Hospital Readmissions." She presented the work at the 2013 Healthcare Systems Process Improvement Conference in New Orleans.

UB SEDS Hosts Space Conference



SEDS conference organizers with astronaut Peggy Whitson (center, in pink shirt).

The UB chapter of Students for the Exploration and Development of Space (SEDS) hosted the largest US student-run space conference, having won the opportunity to do so after competing with SEDS chapters nationwide. The conference theme, "Crossroads: How Our Generation Will Take Us to the Space Frontier," addressed how today's students will impact tomorrow's space industry. Held at the Buffalo-Niagara Convention Center, prominent speakers from NASA and the space industry included UB Engineering alumni **Christopher Scolese** (BS EE '78), director of NASA's Goddard Space Flight Center, and **Hussein Jirdeh** (PhD ME '88), head of communications and public outreach for the Space Telescope Science Institute, plus directors from NASA's Kennedy Space Center, Langley Research Center, and astronaut Peggy Whitson, thirteenth chief of NASA's Astronaut Office. Private sector presenters included Will Pomerantz, Virgin Galactic's vice president for special projects, and Chris Lewicki, president of Planetary Resources, "the asteroid-mining company."

The UB SEDS president is **Mary Magilligan** (AE) and MAE Professor **Paul DesJardin**, AE undergraduate studies director, is its faculty advisor. AE student **Andrew Dianetti**, past UB SEDS president, served as conference chair. To learn more about SEDS and the conference please visit: https://www.buffalo.edu/home/feature_story/space-conference.html.

ME Doctoral Student Starts Up Buffalo-Based Sensorcon

ME PhD student **Mark P. Wagner** is founder and CEO of Sensorcon, a Buffalo, NY-based company that has developed Sensordrone, a keychain-sized device that acts as a smartphone accessory to run hundreds of new applications useful in daily life, including breathalyzer, stud finder, carbon monoxide detector, lighting, and weather and air quality applications. The gadget has received much praise and press coverage. A successful Kickstarter campaign raised more than six times its initial stated goal of \$25,000.



Mark Wagner



Far left, the Sensorcon device; left, screenshots of information the Sensorcon has gleaned.

Buckwalter and Kodweis: NSF Summer Research Experiences

UB Engineering students **Esther Buckwalter** (EnvE) and **Courtney Kodweis** (BME), both UB Honors College Scholars, performed research during their summers, through the National Science Foundation's (NSF) Research Experience for Undergraduates (REU) program, which gives undergraduates hands-on research experience.

EnvE major and Presidential Scholar **Esther Buckwalter** (minoring in Spanish) spent six weeks studying water availability and cloud forests in Costa Rica, through a summer REU with Texas A&M University. The program took her to the university's Soltis Center for Research and Education near the Monteverde Cloud Forest in central Costa Rica. With other students, Buckwalter studied hydrologic and biogeochemical changes in the watershed of a tropical forest and built a weir – a concrete structure designed to collect data on flow rate – in the study watershed's stream. This flow data, combined with groundwater levels

from wells, was analyzed to understand the watershed's response to storm events. The information also offers local Costa Rican communities better insight on water available to them.

In July, Buckwalter returned to Texas A&M to complete her analysis and present findings; she also presented at the American Geophysical Union conference (San Francisco, Calif.). The summer's research concluded the second year of a three-year program held at Soltis. Buckwalter will not return for the program's third year, but will continue to analyze data collected in the forest. She said she will carry on her work improving the environment here at UB, as an active member of Engineers for a Sustainable World.



Esther Buckwalter in Costa Rica



Courtney Kodweis presents findings at her REU's final poster session. She is holding two of the models developed through her research.

BME student **Courtney Kodweis** was selected to participate as a research intern at Milwaukee School of Engineering (MSOE) through NSF's REU. Advised by MSOE ME professor Subha Kumpaty, Kodweis's applied research project, "Three-Dimensional Modeling of the Pediatric Airway" focused on developing a method for the creation of patient-specific, three-dimensional models of the pediatric airway (both compromised and healthy). The research resulted in the development of two initial models, and is intended for use in the clinical setting, with the aim of allowing doctors to plan for and/or practice complex surgeries and of educating parents/patients on their condition. The research results may offer doctors a better assessment of airflow dynamics through the airway, and a better understanding of how the airway operates under compromised conditions. Kodweis' poster was accepted for the 2013 National

Council on Undergraduate Research conference (LaCrosse, Wis.).

The REU has been funded for three years, so Kodweis's research will inform future REU research in coming summers. The experience offered her rare opportunities to collaborate with physicians at world-renowned hospitals and to work with state-of-the-art technology, especially at the MSOE Rapid Prototyping Center. As a result of her REU experience and mentee relationship, Kodweis is travelling to Hyderabad, India to conduct materials-based research for biomedical applications. She will be part of the International Research Experience for Students (IRES) program through MSOE, led by Kumpaty. At UB, Kodweis is conducting spine biomechanics research with a team led by CSEE Professor **Stuart Chen**.

New York Space Grant Funds Support Student Research



Left to right: IEEE Photovoltaic Specialists best poster team of Juhyung Yun, EE Professor Wayne A. Anderson, Eric Kozarsky, Chong Tong; not pictured is Xueli Hao.

NY Space Grant funds supported fellowships awarded to **Daniel Snitzer** (MAE), who studied nonlinear systems, **Jun Wang** (EE), who researched heterojunction solar cells, and **Meredith Canty** (EE), who studied high-voltage resistors. **Eric Kozarsky** (EE) was partially supported in his research on thin silicon films for lower cost solar cells. An EE graduate student team consisting of Kozarsky, with co-authors **Juhyung Yun**, **Chong Tong**, **Xueli Hao**, and **Jun Wang** was awarded Best Poster at the 38th Institute of Electrical and Electronics Engineers (IEEE) Photovoltaic Specialists Conference in Austin, Texas. Their "Thin-Film ZnO/Si Heterojunction Solar Cells: Design and Implementation" research focused on improvements in efficiency and light absorption of thin films. Their advisor was EE Professor **Wayne A. Anderson**.

UB ISE's HFES Chapter Wins Excellence Award

The UB ISE student chapter of the Human Factors and Ergonomics Society (HFES) won the Silver Level HFES Outstanding Student Chapter Award for 2012, in recognition of its excellence in supporting many successful activities in categories including member recruitment, technical workshops, guest speakers, social activities and mentoring new students. The award was presented at the Student Reception of the HFES Annual Meeting in Boston, Mass.



UB HFES student chapter members with award

Listed by discipline are the following inductees:

AE: Sandra Czarnicki, Bjorn Foote, Michael Hotto, Richard Kennedy, Shawn Jiun-Mu Seet, Mitchell Slomowicz

AE and ME: Vincent Buttimer, Scott Chown, Jacob Deutsch, Brian Fenton, David Fijas, Christopher Germain, Thaddeus Song En Low, Devpriyan Maniarasu, Christopher Michels, Nnamaka Nwanegbo, Michael Rossi, Diane Sorenson, Jeevan Suparmaniam, Willy, Miata Wright, Ping Song Wu

BME: Alexandra Ciolko, Tara Harten, Divya Kanthala, Eric McDermott, Ryan Murphy, Kari Puma, Stephanie Rosenbaum

ChemE: Cheng Kee Lai, Michael Samol, Raymond Scuderi, Carly Snyder, Zi Feng Wu

CompE: Shane Anderson, Matthew Handley, Daniel Kozlowski, Divakar Singh, Kshitij Srivastava, Lauren Stutzman

CivE: Erdim Acik, Osman Akhmedov, Erik Austin, Merve Babayigit, David Barile, Andrew Bartlett, Viktor Barzilay, Fahrettin Bay, John Boser, Yavuz Canefendic, Dillon Green, Mikhail Dashkevich, Mehmet Demir, Anthony DeSantis, Koral Dolu, Mary Doran, Danielle Farabell, Blake Fenwick, Mark Fintzel, Fred Frandina-Brawn, Shang Jie Gan, Kaitlin Gorski, Burcin Guler, Ali Gurbuz, Eda Gurses, Kevin Hebert, Colin Judge, Oguiz Kadioglu, George Kalkowsky, Walter Kaniecki, Matthew Keilson, Brian Kelly, Stephen Kent, Katie Kochmanski, Andrew Leising, Jihong Li, Brian LoVerdi, Michelle Mekker, Garrett Miller, Seam Moore, Caitlin Moore, Joseph Oliverio, Michael Owamagbe, Joseph Panzetta, Minjin Park, Sanjeev Paudel, Michael Perkins, Michael Picard, Anthony Poupalos, Basit Qayyum, Rammohan Rajasekharan, Michael Rhode, Gesner Rigaud, Curtis Scott, Zhen Hau Sing, Patrick Sleasman, Stephen Smallidge, Justin Sullivan, Atinc Tunali, Yigit Turk, Zeynep Usta, Nejdet Uzun, Martin Valdivia, Frederick Van Der Sande, Cha Nee Wang, Steven Wolf, Mark Zablocki, Grzegorz Zak, Bin Zheng, Mackenzie Zimmerman

EE: Nikita Butakov, Daniel Gold, Matthew Hess, Chocodhury Tausif Moorir Jhalok, James Li, Boon Teik Lim, Ailin Lin, Donald Lui, Kevin Mei, Dustin Muscato, Christopher Owen, Cecilia Simon, Kirussanth Sivathan, Tobin Varghese, Bich Vu, Michael Walsh

EnvE: Feridun Akalin, Halil Altun, Mesut Bicakci, Esther Buckwalter, Busra Cetin, Michael Dietrich, Duygu Erguz, Elizabeth Hennessy, Mubeccel Ilyia, Selen Isik, Faruk Kucukali, Ryan Lichtman, Merve Mermertas, Necip Olkay, Taylan Ozturk, Irem Parmaksizoglu, Ece Pekoglu, Qi Ze Tan, Tugba Uslu, Aysegul Yalcin

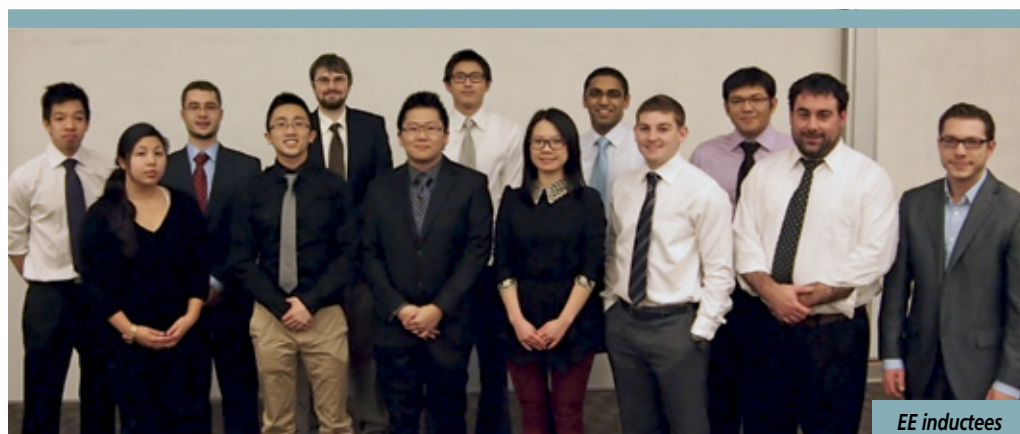
IE: Andrew Carroll, Marie Catalano, Howard Chen, Christine DiGiacomo, Shawn Gubala, Lisa Harrer, Shanney Lacey, Emily Landesberg, Areea Mostofi, Elizabeth Newell, Rajdeep Ray

ME: William Dutcher, Surobh Ghosh, Nicholas Jeyaratnam, Qing Hong Jiang, Hanybul Jun, Thanusyan Kanniah Jegatheswaran, Joshua Kasprzyk, Chunki Kim, Jasmine Lawrence, John Leung, Christopher Mayer, Emmanuel Obunadike, Donald Pangrazio, Parth Parikh, Theodore Piterra Richard Viehdeffer III, Lisa Vogt

Order of the Engineer at 2013 Engineers Week



AE and AE/ME inductees



EE inductees



EnvE inductees



ME and AE/ME inductees



ChemE inductees

A central event of Engineers Week was the Order of the Engineer (OE) ceremony, which enjoyed its largest turnout, requiring a second ceremony to accommodate all. OE welcomes graduating seniors into the engineering community with an oath of professionalism. Inductees also included UB Engineering Alumni Association's Engineer of the Year **Dennis Elsenbeck** (MEng ME '96) (see story, Alumni section), and Canadian engineer **Daniel Bailargeon**.



BME inductees



CompE inductees



IE inductees



Daniel Bailargeon



CivE inductees



CivE inductees



Attendees of the second OE ceremony, held to accommodate the excellent student response to participate.

E-Week 2013

See more pictures of Engineers Week (E-Week) 2013 at the UB Student Experience Facebook page: <http://on.fb.me/14HmqTO>.



Left to right: Mr. & Mrs. Engineer, John Billingsley (ChemE) and Catie Bonga (ME)

CBE's Koushik Ponnuru: Knovel Week One Challenge Winner



UB students turned in a record number of submissions during the first week of the Knovel University Challenge, becoming the first in Challenge history to have over 100 students participate in under 24

hours. ChemE student **Koushik Ponnuru** took the first week's prize, a Western Digital HD TV Live Streaming Media Player.

AEWG Award for CivE PhD Student Farhidzadeh



CSEE PhD candidate **Alireza Farhidzadeh** received the Acoustic Emission Working Group's (AEWG) 2012 Student Award for his paper, "Introducing Sifted b-Value Analysis and a New Crack Classification for Monitoring Reinforced Concrete Shear Walls by Acoustic Emission." His PhD research is supervised by CSEE Assistant Professor **Salvatore Salamone**. Farhidzadeh's primary research interests include structural health monitoring of complex structures using acoustic emission techniques.

Alireza Farhidzadeh with award at the 54th AEWG meeting (Princeton, NJ)

ISE Students and Faculty at INFORMS



ISE students and faculty attended the Institute for Operations Research and the Management Sciences-INFORMS Annual Meeting in Phoenix, Arizona.

NSF Project Supports IE Students

ISE Assistant Professor **Jun Zhuang's** project, "Robust Approval Process in the Face of Strategic Adversaries and Normal Applicants," with National Science Foundation (NSF) funding, has supported PhD students **John Coles**, **Cen Song**, and **Jie Xu**, and research experience for IE undergraduates **Marie Catalano** and **Elizabeth Newell**. Learn more about the project at: <http://www.ise.buffalo.edu/node/100>.

CSEE Plays Soccer

CSEE's Second Annual Civil (orange) vs. Environmental (green) Engineering Soccer Match ended in a 2-2 tie. The well-attended game included displays of ASCE's concrete canoe, which doubled duty as a water cooler, and Engineers for a Sustainable World's solar powered smoothie cart. The game was refereed by **Pierre Gautreau**.



UB CBE's 15th Annual Graduate Symposium

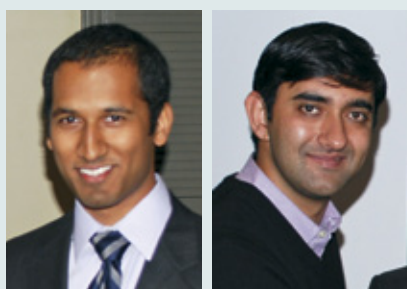
The CBE department's annual graduate symposium, held at the Center for the Arts, was an opportunity for students to learn about each other's work and to socialize. Student presentations by **Mitali China** and **Jasdeep Mann** were followed by keynote speaker John Magnani, GlycoMimetics, Inc.'s chief scientific officer and vice president. Later, over sixty graduate students presented their research during the poster competition. The 2012 poster contest winners were: **Yongjia Fan** (Tzanakakis group), **Xin Liu** (Swihart group), and **Xiaozheng Xue** (Furlani group). The CBE students' choice awardee was **Mohammad Ghasemi** (Alexandridis group).



*Keynote speaker
John Magnani of
GlycoMimetics, Inc.*



Student presenters Mitali China and Jasdeep Mann



Presenting plaques to sponsors was Sourobh Ghosh, TBP external vice president, treasurer and event chair. (Left to right, top to bottom): Surobh Ghosh; Bloomberg's Mohit Devnani, John Kirchgraber, and Amol Kothari; ASG's Kim Grant; Cobham's Jim Talty; and Moog's Paul Badding and Chrissy Seuffert.



Tau Beta Pi, NY Nu Chapter Hosts Honors Dinner and Tech Fair

The Tau Beta Pi New York Nu chapter held its annual Honors Recruitment Dinner and Tech Fair.

The event received gold sponsorship from ICONICS; silver-level sponsors were Applied Sciences Group (ASG), Bloomberg, Cobham, and Moog.



(Left to right): A student who interned at ICONICS; recent alum, former TBP office holder and employment dinner chair Greg Maloney (BS EE '12 with a UB MBA), now an ICONICS sales application engineer; and ICONICS Founder, President, and CEO Russell L. Agrusa (BS EE '76), who is on the Dean's Advisory Council and earned the 2010 Engineering Dean's Award.

NSF Recognizes IE Student Coles' Research

IE PhD student **John Coles'** dissertation was recognized and earned funding from the National Science Foundation's through its Decision, Risk and Management Sciences (DRMS) program, with ISE Assistant Professor **Jun Zhuang** as PI.



The project is entitled, "Doctoral Dissertation Research in DRMS: Modeling the Dynamics of Agency-agency Partnerships Before and Following Extreme Events." The researchers develop models to explore how characteristics

of partnerships could be used to predict dynamics in agency investment, commitment length, partnership selection, and exit timing. The research collects and validates data by interviewing agencies active in responding to extreme events. This project compares agency behavior in two separate disaster response scenarios, mathematically models the life-cycle of agency partnerships during disaster operations, and conducts controlled experiments to analyze agency decision making.

US News & World Report's Rankings

US News & World Report has ranked the School of Engineering & Applied Sciences and some of its graduate programs against other national public and private engineering schools and their programs as follows:

Ranking	Area
36	Aerospace
not ranked	Biomedical
43	Chemical
24	Civil
not ranked	Computer Engineering
61	Computer Science
76	Electrical
42	Environmental
25	Industrial
68	Mechanical
61	School of Engineering

NEW MS in Embedded Systems Degree Program with Amrita, India

The School of Engineering has launched a new overseas degree program, the MS in Embedded Systems (MSES), in collaboration with Amrita University in India. The MSES is a 12-course, 36 credit-hour program; the curriculum includes courses on real-time operating systems, embedded system on a chip, wireless networks, multimedia systems, and multi-core architectures. MSES's first offering, in Spring 2013, was for employees of the Robert Bosch Engineering and Business Solutions, Ltd., and focused on automotive systems.



Summer Enhancement Course Offerings

The School of Engineering is pleased to again offer a comprehensive set of summer school course offerings for undergraduates and graduate students. UB Engineering students and matriculated students from other schools are welcome to enroll, as are incoming freshmen and transfer students. For more information, please visit <http://ubthissummer.buffalo.edu/>. Please note: there must be sufficient enrollment for a course to be offered.



Shambhu Upadhyaya

NSF Award: Bringing Students to CEISARE

UB's Center of Excellence in Information Systems, Assurance, Research and Education (CEISARE) was awarded \$1.6M from the National Science Foundation, for bringing up to 16 students to study at CEISARE. The grant will cover the cost of student stipends (\$25,000), in-state graduate tuition and fees (\$12,000) and books, travel expenses and health insurance (\$3,000) for two years. The remainder of the grant, roughly \$345,000, goes to costs associated with running the center for five years. CSE Professor Shambhu Upadhyaya is CEISARE director.

In exchange for the financial support, students must agree to work for the federal government for two years upon graduation. According to Upadhyaya, students can choose from numerous agencies, including the National Security Agency, the Department of Homeland Security, the Department of Defense, and the FBI.

Co-investigators on the grant included Mathematics Professor Thomas Cusick; Management's SUNY Distinguished Service Professor H. Raghav Rao; and Law Associate Professor Mark Bartholomew.

The Right Stuff: Gerhardt Lecture

Dean's Advisory Council member and distinguished alumnus **Lester A. Gerhardt** (UB MS '64, PhD '69, EE) delivered an Engineer's Week @UB Special Seminar entitled, "The Right Stuff: Personal and Professional Values, Strategies, and Goals" to a full auditorium. Gerhardt's insights on "the right stuff" included how wisdom and good interpersonal skills, combined with the proper technical education and tools, can lead to a "wow" factor. He also discussed how generations differ in expectations and approaches and how these differences manifest themselves in the workplace; and how creativity, innovation, and entrepreneurship can inspire powerful results when combined with strong leadership skills.

Gerhardt's distinguished career includes prominent industrial and academic experience at Bell Aerospace and over 40 years at Rensselaer Polytechnic Institute (RPI), where he is a professor of Electrical, Computer, and Systems Engineering, with a joint appointment in Computer Science. His many honors include the American Society for Engineering Education's highest honor – the prestigious Benjamin Garver Lamme Award and Medal – for his "combined contributions to the art of teaching, contributions to research and technical literature, and achievements that contribute to the advancement of the profession and of engineering college administration." Gerhardt also received the UB Alumni Association's Distinguished Alumni Award.



Gerhardt with Dean Folks

NanoJapan Connects US Undergraduates with Top Nanotech Research in Japan

The School of Engineering is a collaborator on the NanoJapan International Research Experience for Undergraduates (IREU) Program, an undergraduate research experience through Rice University that cultivates interest in nanotechnology, especially for undergraduates from underrepresented groups. NanoJapan provides structured research opportunities in Japanese university laboratories with Japanese mentors. The program is recognized as a model for international education programs for science and engineering students, and is mentioned in *Infusing Real World Experiences into Engineering Education*, a National Academy of Engineering report showcasing top US college-level engineering programs. EE Professor **Jonathan Bird** participates in the program's research with a number of Japanese university professors, and supervises the work of its US undergraduate IREU participants.



Jonathan Bird



UB: Quality Academics and Affordability

In 2013, the University at Buffalo rose in affordability according to *Kiplinger's Personal Finance* magazine. Its list of 100 Best Values in Public Colleges ranked UB at 33rd (up from 38th in 2012) of the most affordable, academically outstanding US schools for in-state students. UB remained at 27th for out-of-state students. UB's score improved "thanks to its high four-year graduation rate, low average student debt at graduation, abundant financial aid, a low sticker price and overall great value," according to Kiplinger.

UB was also named as one of *Princeton Review's* top 75 Best Value Colleges in 2013 among public colleges and universities, citing UB's "stellar academics," research emphasis, and affordability. UB students surveyed said they also enjoyed UB's diversity and its variety of academic choices.

Faculty & Staff Accomplishments

CBE's UB Distinguished Professor **Paschalis Alexandridis** was elected a fellow of the American Association for the Advancement of Science (AAAS), for "fundamental discoveries on block copolymer thermodynamics, structure and dynamics, for development of functional products utilizing self-assembly methodologies, and for outstanding graduate student mentoring." His research addresses interconnections between molecular interactions and supramolecular assemblies, and between structured assemblies and their properties and function.

Associate Dean for Research and Graduate Education, ISE Professor **Rajan Batta** and ISE Professor **Rakesh Nagi**, and co-author **Min Zhang** (PhD IE '07), won the Institute of Industrial Engineers *IIE Transactions'* Best Paper Prize in Design and Manufacturing for, "Designing Manufacturing Facility Layouts to Mitigate Congestion."

CSEE Professor **Michel Bruneau** published *The Emancipating Death of a Boring Engineer*, a novel.

CSE Professor **Chang Wen Chen** received the UB Exceptional Scholar Award for Sustained Achievement, which honors outstanding professional achievement focused on a particular body of work over a number of years. It recognizes an unprecedented accomplishment in a senior scholar's career, distinguishing a body of work of enduring importance that has gone beyond the norm in a particular field of study.

CSEE Professor **Andre Filiatrault** was appointed by the Natural Sciences and Engineering Research Council of Canada (NSERC) as member on the Vanier Canada Graduate Scholarships (CGS) Selection Committee. The Vanier CGS attracts and retains world-class doctoral students to Canada with an award of \$50,000 per year for three years and is available to both Canadian and international PhD students studying at Canadian universities.

CSE's SUNY Distinguished Professor **Venu Govindaraju** was elected a fellow of SPIE (Society of Photo-optical Instrumentation Engineers), for significant achievements in document recognition and retrieval, and biometrics.

ISE/CSEE Stephen Still Assistant Professor in Transportation and Logistics Engineering **Qing He** won Best Research Paper Award for "Development and Testing of Priority Control System in Connected Vehicle Environment," at the Intelligent Transportation Society Arizona Annual Conference.

CBE's UB Distinguished Professor **David A. Kofke** was profiled on the cover and in the ChE Educator section of the journal *Chemical Engineering Education*, in an extensive write-up by CBE Professor and Director of Graduate Studies **Jeffrey R. Errington**, CBE's SUNY Distinguished Teaching Professor **Carl R.F. Lund**, and ChemE Professor David M. Ford of University of Massachusetts, Amherst.

EE Associate Professor **Natasha Litchinitser** received the Best Abstract Award in the 43rd Winter Colloquium on the Physics of Quantum Electronics for her work on "Structured Light and Matter," which was presented in the session "Singular Optics and Fano Resonances" (Snowbird, Utah). The work was a follow up on her perspective article reported in *Science* last year.

EE's SUNY Distinguished Professor **Vladimir Mitin** was elected a fellow of SPIE for significant achievements in nanoengineering.

CSEE Professor **Adel Sadek** was selected to serve on a panel of SUNY experts recommending improvements to New York State's (NYS) natural disaster and emergencies response preparedness, for the NYS 2100 Commission.

Top Honors

The SUNY Board of Trustees appointed CBE's **David Kofke** to the rank of SUNY Distinguished Professor, its highest distinguished ranking, conferred upon individuals who have achieved prominence and a distinguished reputation within their field.



David Kofke

Kofke is internationally recognized in the field of molecular simulation. His many contributions include inventing the Gibbs-Duhem integration technique; developing intermolecular potentials that permit prediction of the properties of toxic chemicals, which help reduce the need for dangerous experiments; and developing a suite of molecular simulation modules for research and education. Kofke has systematically examined biases in molecular simulation methodologies and developed a simple heuristic to detect bias. He continues to develop methods of calculating virial coefficients and cluster integrals that previously could

not be computed. This represents an important step toward the goal of first-principles calculation of fluid-phase properties. His numerous awards include the John M. Prausnitz Award for Outstanding Achievement in Applied Chemical Thermodynamics, only one of five recipients to have earned it; the Jacob F. Schoellkopf Medal, and SUNY Chancellor's Awards for Excellence in Research and Creative Activity, and for Excellence in Teaching, among others. See the Accomplishments article in this section for more about Kofke.

Faculty Mentors Awarded



Alexandridis



Burke



Swihart



Zhuang



Zirnheld

CBE's UB Distinguished Professor **Paschalis Alexandridis** received the UB Excellence in Graduate Student Mentoring Award from UB's Graduate School, which recognizes exceptional excellence in faculty mentoring of graduate students.

Assistant Professors **Jun Zhuang** (ISE) and EE's **Jennifer Zirnheld** (BS '93 MS '97 PhD '04 EE) were honored at a reception recognizing faculty mentoring excellence. Zhuang and Zirnheld had each received the University at Buffalo Faculty Award for Excellence in Mentoring Undergraduate Research and Creative Activity; the award has been renamed the President Emeritus and Mrs. Martin Meyerson Award for Distinguished Teaching and Mentoring.

UB's Collegiate Science and Technology Entry Program (CSTEP) Mentoring Awards were given to EE Lecturer **Kevin Burke** (BS '97 MS '04 PhD EE '10), Zirnheld, and CBE Professor, Director, Integrated Nanostructure Systems **Mark Swihart**. The award recognizes outstanding CSTEP research mentors.

Comings, Goings and Changes

Comings



We extend a warm welcome to our new Dean Liesl Folks. Please see the inside front cover for the Dean's Message.

BME



BME Academic Coordinator **Michael Korona** earned his MBA from UB. His experience includes positions at UB's Office of Campus Living as assistant hall director and residence hall director. Michael served as a coordinator for Student Development at Cal Poly State University, San Luis Obispo, prior to joining UB Engineering.



BME Technical Staff Assistant **Christopher Majchrzak** graduated this past year with a BS in Business Administration, concentration in Management Information Systems, from UB's School of Management. While he was attending UB, Christopher worked as an Instructional Support Assistant at Science and Engineering Node Services.

CBE



CBE Secretary **Lori DuVall** is an experienced administrator whose previous positions at UB includes those at the Office of Undergraduate Admissions, the Physics Department, and Comparative Medicine's Laboratory Animal Facility. She holds degrees from Canisius College (BA English Literature and BA Communication) and has published poetry and several "My View" columns in the Buffalo News.

CSE



CSE Graduate Admissions Secretary **Jill Fryzowski** holds a BS in Environmental Studies from UB. Her previous work experience was in retail and manufacturing.



CSE Assistant Professor **Oliver Andrzej Kennedy** earned his PhD from Cornell University in 2011. His research focusses on data management, uncertainty, distributed systems, stream processing, and web-applications.



CSE Associate Professor **Kui Ren**, an NSF CAREER awardee, earned his PhD from Worcester Polytechnic Institute. His research interests are in cloud computing, wireless networking, smart grid and cyberphysical systems, especially the aspects of security and privacy.



CSE Assistant Professor **Lukasz Ziarek** received his PhD from Purdue University. His research interests are in programming languages and software engineering and systems, with a focus on language, compiler, and runtime design.

CSEE



CSEE Assistant Professor **Sarah K. Delavan** earned her PhD in Civil and Environmental Engineering from Georgia Institute of Technology. Her research interests reside in experimental fluid mechanics, with a focus on the influence of hydrodynamics on biological and ecological systems. Her work will help facilitate the management of our natural waterways through an understanding of the complex relationships between man-made structures, fluid mechanics, and the plants and animal that inhabit those natural waterways.



Outreach Coordinator **Sarah D'Iorio** joins CSEE after serving as a media production specialist for MCEER. Prior to joining UB, Sarah held positions as a communications specialist for Penn State University and as a producer/writer for Seven Three Media, LLC. She earned her BA in journalism from Penn State University.



CSEE Graduate Academic Coordinator **Amanda Harding** earned a BS in Business Management from The College at Brockport and worked as an admissions advisor there, recruiting in the central New York region. She is currently pursuing an MS in Higher Education at Buffalo State College.



CSEE Assistant Professor **Berat Haznedaroglu** received a PhD in Chemical and Environmental Engineering from University of California, Riverside. His research interests address problems pertaining to water quality and sustainable bioenergy, specializing on the fate and transport behavior of important human and animal pathogens in aquatic environments and functional genomics of photosynthetic organisms for biofuel applications.



CSEE Assistant Professor **Jongmin Shim** earned a PhD in Engineering Mechanics from Massachusetts Institute of Technology. His research interests are in multifunctional flexible structures characterized by tunable properties; material characterization under high-strain rate loading; and constitutive modeling based on finite deformation theory for innovative materials.



CSEE Assistant Professor **Mettupalayam Sivaselvan** (MS '99 PhD'03 CivE) served as a University of Colorado, Boulder Civil, Environmental and Architectural Engineering assistant professor prior to his current

appointment. His research interests include nonlinear structural analysis, numerical methods for structural failure simulation, hybrid test systems, control systems for structures and testing, and large-scale experimentation.

ISE



ISE Assistant Professor **Lora Cavuoto** received her PhD in Industrial Engineering from Virginia Tech. Cavuoto's research evaluates the impacts of aging and obesity on worker capabilities and injury risk. Her goals are to facilitate the development of more inclusive ergonomic guidelines and interventions to accommodate the diverse and changing workforce.



ISE and CSEE **Stephen Still** Assistant Professor in Transportation and Logistics Engineering **Qing He** was a postdoctoral researcher at the IBM T. J. Watson Research Center, where he led projects in Smarter Transportation. His PhD is from the University of Arizona. He's research vision is to develop multimodal and multidimensional transportation and logistics systems which incorporate new information technology, by applying a broad range of techniques such as optimization, control, simulation, and statistics.

MAE



MAE Staff Assistant **Molly Dandino** recently earned an MA in Educational Psychology and Quantitative Methods from UB. While completing her master's, she served as a graduate student assistant in the office of Graduate Enrollment Management Services. In MAE, Molly is assisting with undergraduate program administration, student registration, research administration, and Research Foundation account and personnel management.



MAE Assistant Professor **Ehsan Tarkesh Esfahani** earned a PhD in ME at University of California, Riverside. His research interests are in artificial intelligence in engineering design, brain computer interfaces, assistive devices, interactive CAD interfaces, human-machine interactions, bipedal locomotion (human and humanoid).

MSE PROGRAM



MSE Staff Assistant **Laura Dombrowski** holds a BA in English and a BS in Brain and Cognitive Sciences from the University of Rochester. Her experience includes working in event planning and advocating for higher education inclusion for students with intellectual disabilities.

Changes



*We thank Associate Dean for Research and Graduate Education **Rajan Batta** for his service as acting and interim dean.*



*We also thank UB Distinguished Professor of CBE and MSE Program Co-Director **Paschalis Alexandridis** for his service as acting associate dean for research and graduate education.*

Promotions to Professor



BME: Chair Albert Titus
(joint appointment with EE)



CSE: Rohini Srihari



CSE: Jinhui Xu



CSEE: Adel Sadek



MAE: Paul DesJardin

Promotions to Associate Professor



Tefvik Kosar (CSE):
promoted to tenure;
also appointed CSE
Admissions Director



EE: Tommaso Melodia



EE: Kwang Oh



MAE: Puneet Singla

Appointments



CSEE Professor Adel Sadek, CSEE Director of Graduate Studies



CSE Associate Professor Hung Ngo, Director of Graduate Studies



EE Associate Professor Leslie Ying, Director of Graduate Studies



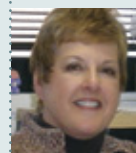
David Love, formerly of FIRM, is now an MAE staff assistant.

Goings

Retiring are the following; we thank each for their special contributions throughout their years of service:



During CSEE Professor **Prasanta Banerjee's** 35 years of service, he advised over 50 graduate students. Banerjee is known for his pioneering contributions to the boundary integral equation method, for which he coined the name Boundary Element Method (BEM) and authored the subject's first comprehensive book which was translated into Russian and Chinese. His work on static and dynamic behavior of pile foundations and on constitutive behavior of saturated granular medium is also recognized worldwide. Banerjee's computational engineering mechanics laboratory developed and distributed several boundary element codes in the public domain – BEST3D, BESTCMS and BESTFSI. Banerjee founded the Boundary Element Software Technology Corporation. His many awards include the International Society for Geomechanics' US Region Award, for contributions to the static and dynamic behavior of pile foundations (2007); and two NASA Technology Development Awards – for the inelastic thermal durability analyses of structures (1995), and for micromechanics of composites by BEM (1998).



Administrator Assistant **Judy Flick** has retired. She worked with ISE SUNY Distinguished Professor Emeritus **Colin Drury** on a Federal Aviation Administration grant from April 1990 to 2006 and for SUNY Distinguished Professor and Dean Emeritus **George C. Lee** on a Federal Highway Administration grant from Spring 1997 through August 2012.



CBE's Graduate Admissions Secretary **Dawn Townsend** has retired. Dawn held the position from 2003–2012 and was a wealth of information, handling everything from appointments and purchasing to managing the graduate student service area. Townsend earned a SUNY Chancellor's Award for Excellence in Classified Service, for superior performance and extraordinary achievement by employees in classified service positions.

UB Engineering welcomes its new members and thanks its departing staff for their years of dedicated service.

We wish continued success to Christina Bloebaum, Yun (Raymond) Fu, Arif Islam, Kerry Lynch, and Gilberto Mosqueda. Kyle Anderson is now an Applications Developer at UB Enterprise Application Services. Theresa Mealey, formerly of MCEER, has moved to a position in the Provost's Office. CSE Administrator Yvette Pardee is now in the Department of Physics.

Service Recognition Ceremony

The annual UB Engineering Service Recognition Ceremony honored the service, by decade, of UB Engineering employees as of 2011.

This year's honorees were:

50 Years:
George C. Lee



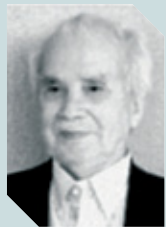
20 Years:
Christina Bloebaum, Kerry Collins-Gross, Paul Desjardin, and Nicholas Dipirro

10 Years:
Gersh Berim, Kevin Patrick Cleary, Jeffrey Errington, Bahattin Koc, Venkat Krovi, Timothy Leyh, Gerald Meyers, Hung Ngo, Cheryl Robbins, Albert Titus, and Sergey Tulyakov.



Present were (left to right): Jeffrey Errington, Venkat Krovi, Albert Titus, then-Interim Dean Rajan Batta, Kevin Patrick Cleary, and Gerald Meyers.

Obituaries *The School of Engineering mourns the loss of its members.*



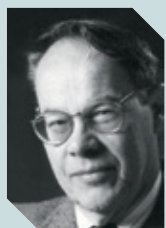
Wan Yong Chon April 25, 1924 – July 15, 2012

Born and raised in Korea, Chon came to the US in 1954 as a visiting scholar at Massachusetts Institute of Technology. Chon taught at the Universities of Rhode Island, New Brunswick, and McGill before joining UB as a Nuclear Engineering associate professor in 1968. He served here through the mid-1980s, and was also director of the Western New York Nuclear Research Center on UB's South Campus. Chon headed a major research project central to the development of the emergency reactor core cooling systems that remain a standard safety feature today. After retiring from UB, he became a key figure in South Korea's nuclear power industry, serving as a special adviser to the Korea Electric Power Corp. In addition to his professional accomplishments, he was an amateur cellist, author of books on Taoism and Buddhism, and a member of the Tuscarora Yacht Club (Wilson, NY). Chon was a dedicated husband to Kay Chon, a father of four – Margaret, Richard, Robert, Michelene – and grandfather of three.



Sherwood Peter "Bud" Prawel Jr. January 17, 1932 – August 19, 2012

Prawel was a founder of UB's CivE program in the early 1960s, where he helped to shape the structures area. He designed the first shake table platform of the Structural Engineering and Earthquake Laboratory using ferrocement, and constructed it with help from student clubs. He was also a co-founder of the National Center for Earthquake Engineering Research (now MCEER). Two of the three college engineering textbooks Prawel co-authored were written with former UB President Robert L. Ketter. Throughout his 40 years of university service, Prawel mentored hundreds of students, doctoral and post-doctoral associates, and young junior faculty. He was recognized with the SUNY Chancellor's Award for Excellence in Teaching (1975). Upon his retirement, the CSEE Outstanding Structural Engineering Student award was established. Prawel's extracurricular activities included sailing, woodworking, restoring nineteenth-century cuckoo clocks. He also played the bagpipes, raised award-winning orchids, and was a genealogical researcher. Prawel is survived by his wife of 58 years, Florence, his five children, Pete, David, Tim, Eric and Jennifer, eleven grandchildren, and one great-grandchild.



Rowland "Toby" Richards June 2, 1935 – Jan. 8, 2013

CSEE Professor Emeritus Richards taught at Princeton and at the University of Delaware before joining our School in 1980. During his 30 years of service, he taught courses from fluid mechanics to structural aesthetics, with a research focus on seismic soil mechanics. His publications include *Principles of Solid Mechanics*, which includes elegant hand-drawn diagrams and footnotes with many literary and observational asides. Born in New York City and raised in Southern California, Richards led a life of some adventure. As a young man, he was twice a US national champion archer and won the 1950 World Junior Archery Championship, held in Brussels. His summers as a youth were spent working at Trail Lake Ranch in Wyoming, and as a college student, gold mining in California and the Yukon Territory of Canada. In 1960, Richards opened Floodwoods Farm in Waitsfield, Vermont, where he raised Belted Galloway cattle. The farm is still operated by the family. Survivors include his wife of 45 years, the former Martha Marcy; two sons, Rowland III and George; two daughters, Kelvey Wilson and Jean Damon; and two sisters, Catherine Murff, and Christine Rousselot.



Grace S. Lee
October 25, 1935 –
September 8, 2012

The School of Engineering fondly remembers **Mrs. Grace S. Lee**, wife of SUNY Distinguished Professor and Dean Emeritus **George C. Lee**. Mrs. Lee was a longtime supporter and member of the UB Women's Club.

Donations may be offered; please specify **S.P. Prawel Fund** or **Grace Lee Memorial Scholarship Fund**. Mail to: PO Box 900, Buffalo, NY 14226-0900; or call: 716.645-3013.

Research Proposals Win Funding from UB and SUNY

E FUNDS

UB's E Fund competition invests in collaborative, high-return strategic initiatives responsive that accelerate UB's recognition as a leading public research institution. These School of Engineering faculty proposals have won. They are listed with the names of the project leads:

- **Computational and Data-Enabled Science and Engineering (CDSE)** – CSE's SUNY Distinguished Professor **Venu Govindaraju**, with MAE Professor **Abani Patra**, Math Professor **Gino Biondini**, and CSE Professor **Vipin Chaudhary**
- **UB Center for Home Health and Well-Being through Adaptive Smart Environments (Home-BASE)** – ISE Professor Associate **Victor Paquet**, Home-BASE director; ISE Professor and Chair **Ann M. Bisantz**; BME Professor and Chair **Albert H. Titus**; Rehabilitation Science's **James Lenker**; CSE's SUNY Distinguished Professor **Govindaraju**; Nursing's **Mary Carey**; and Architecture's **Edward Steinfeld**
- **Institute of Bridge Engineering (IBE)** – CSEE's SUNY Distinguished Professor **George C. Lee** and CSEE Professor and Chair **Andrew Whittaker**
- **Institute for Sustainable Transportation and Logistics (ISTL)** – CSEE Professor **Adel W. Sadek**, with ISE's SUNY Distinguished Teaching Professor, Praxair Professor in Operations Research **Mark Karwan**; CSE Associate Professor **Tevfik Kosar**; CSE Professor **Chunming Qiao**; and, from Management: Associate Professor **Charles Wang**; Associate Professor **Natalie Simpson**; and UB Distinguished Professor, Chair of Operations Management and Strategy **Nallan Suresh**
- **Materials Science & Engineering (MSE)**, co-directed by UB Distinguished Professors of **Paschalis Alexandridis** (CBE) and **Frank Bright** (Chemistry) was awarded E-funds in the prior fiscal year.

SUNY SUSTAINABILITY AWARD COMPETITION

The inaugural SUNY Sustainability Award competition promotes sustainability issues and seeks to reduce on-campus energy use.

- CSEE and ISE Assistant Professor **Qing He**'s project, "Monitoring Event Traffic to Increase Efficiency," studies improving traffic patterns for large-scale, planned, special events. This project is also supported by UB's Office of Parking and Transportation Services.

UB'S CATALYST FUND

The UB Catalyst Fund supports the development of promising technologies in the life sciences and enables researchers to demonstrate the commercial value of potential products. The goal is to move promising technologies closer to the market. School of Engineering researchers receiving these awards:

- BME Assistant Professor **Mark Ehrensberger**, director of the Kenneth A. Krackow Orthopaedic Research Lab, and Microbiology and Immunology Professor **Anthony Campagnari**, to test and optimize a novel electrochemical technique for eradicating biofilm infections on metallic medical implants.
- MAE Associate Professor **Venkat Krovi**; Gynecology-Obstetrics Associate Professor **Pankaj Singhal**; and CSE Assistant Professor **Jason Corso**, to study the repurpose of video-based micromotion analysis, traditionally used to evaluate industrial manipulative skills and efficacy, in evaluating proficiency and improving training of doctors performing robotic surgeries.
- CBE, Pediatrics, and Physiology and Biophysics Assistant Professor **Daniel Swartz**, to develop specialized vascular grafts that, when implanted, could be stimulated to become functional as a native tissue, thus alleviating the need for donor blood vessels.

SUNY/RESEARCH FOUNDATION (RF) COLLABORATION FUND AWARDS

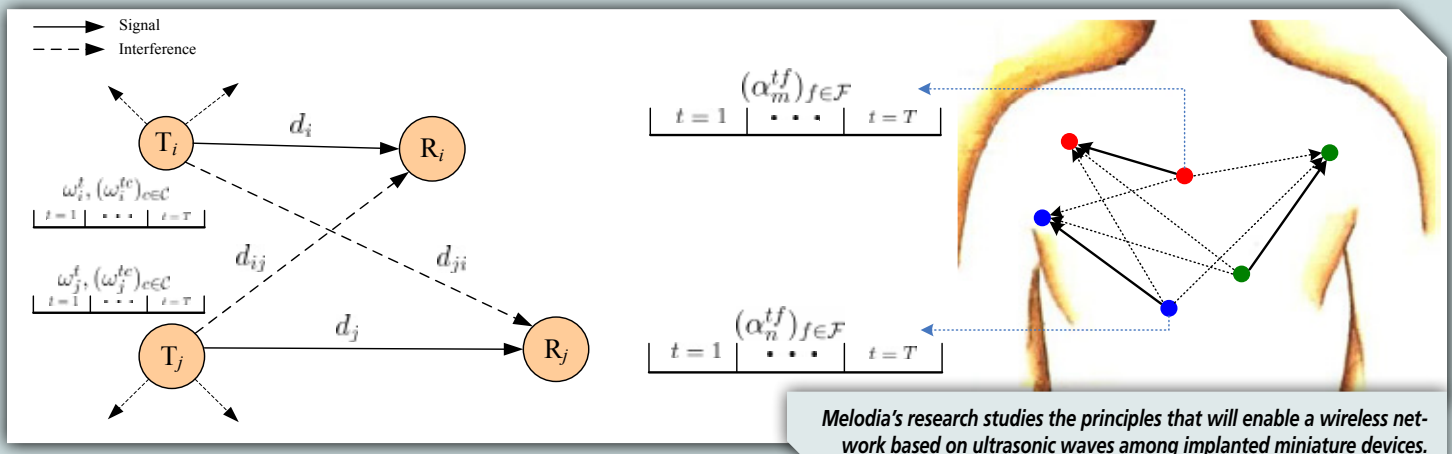
The SUNY RF Collaboration Fund promotes new and existing inter-campus collaborations and partnerships.

- BME Assistant Professor **Jonathan Lovell**, with University at Albany researchers: "Probing Nanovesicle Self-assembly Using Electron Paramagnetic Resonance." In this project, electron paramagnetic resonance will be used to make molecular insights of how porphyrin-phospholipid porphyrin nanoparticles self-assemble using nitroxide spin labels and copper-porphyrin chelates.
- CSEE Assistant Professor **Salvatore Salamone**, with Binghamton University collaborators: "Collaborative Research to Advance Scientific Knowledge of the Mechanism of Corrosion in Civil Infrastructures." (See article on page 21.)

EE's Melodia *Continued from page 3*

The project is investigating four intertwined research tasks: (i) ultrasonic channel modeling and capacity analysis; (ii) physical/medium access control layer solutions for ultrasonic communications; (iii) distributed and asynchronous cross-layer control and resource allocation algorithms based on stochastic modeling of ultrasonic interference; and (iv) performance evaluation through a multi-scale simulator and a software-defined testbed.

EE PhD student **G. Enrico Santagati** and EE postdoctoral researcher **Zhangyu Guan** are contributing to the project.



BME's Sarkar Researches Synthetic Nanostructured Biomaterials in Stem Cells

For tissue engineering applications, regeneration of damaged organs and tissues through stem cells and artificial matrix is dependent on controlling the cell fate.

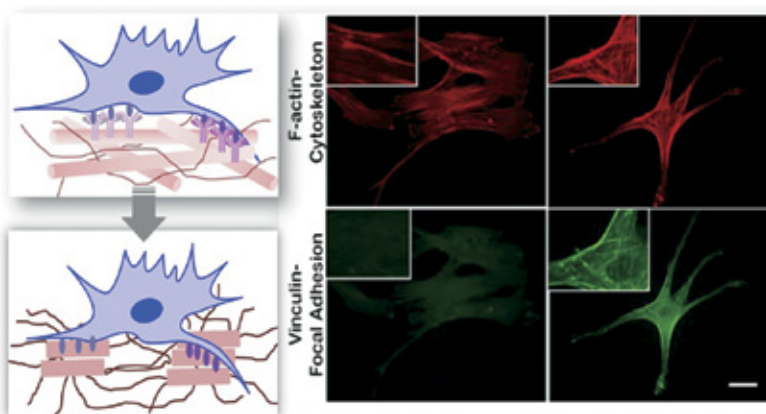


Debanjan Sarkar

Interaction between cells and the extracellular matrix tightly regulates cell fate during the regeneration process. BME Assistant Professor **Debanjan Sarkar** and his research team from the Biomaterials and Regenerative Therapeutics Laboratory published a study in *Journal of Biomedical Materials Research Part A* showing that the fate of stem cells is determined by the phase structure of synthetic matrix. By studying the interaction of adult stem cells on synthetic polymer matrices derived from biodegradable polyurethanes, they have shown the unique relationship between the nanophase structures of synthetic extracellular matrix and stem cells.

Polyurethanes exhibit nanostructured biphasic morphology, which is an excellent structural and functional mimic of natural extracellular matrix at nanoscale dimension. This phase morphology influences the function of adult stem cells through prompting appropriate cellular response. Sarkar and his team developed a group of polyurethane materials that exhibit distinct nanostructures and these phase morphologies induced significant changes in stem cell behavior. Cells changed their shape and size in response to the phase morphology, and as a result, cellular responses such as proliferation, adhesion, migration were modulated. This is significant for controlling stem cell fate during artificial tissue regeneration process in tissue engineering applications. This research has demonstrated exquisite control of stem cell functions with synthetic biomaterials and it provides an excellent opportunity to regenerate tissue by mimicking the natural regeneration process.

This research was supported by a faculty startup fund provided by UB. CBE graduate student **Patrick Dicesare**, BME undergraduate students **Wade Fox** and **Michael Hill**, and BME postdoctoral researcher **G. Rajesh Krishnan** were part of the research team. Dr. Shuying Yang of the UB Oral Biology Department collaborated on this project.



Sarkar's research demonstrates exquisite control of stem cell functions with synthetic nanostructured biomaterials.



Jonathan Lovell



Chulhong Kim

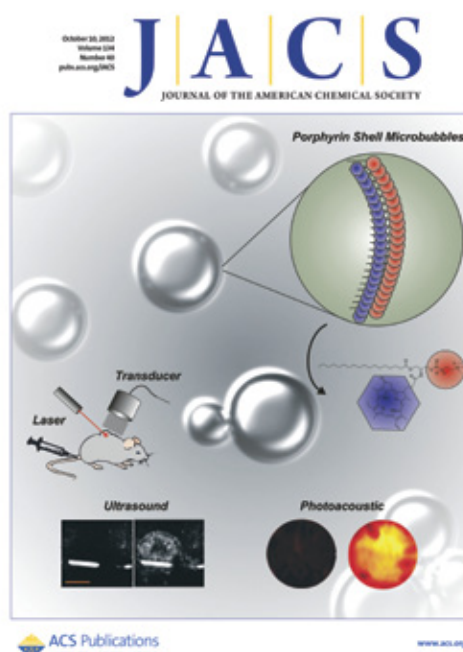


Mansik Jeon

BME's Lovell and Kim Develop Porsche Microbubbles; Medical Imaging Innovation

BME assistant professors **Jonathan Lovell** and **Chulhong Kim** coauthored "Porphyrin Shell Microbubbles with Intrinsic Ultrasound and Photoacoustic Properties," with **Mansik Jeon**, BME postdoctoral associate, and four collaborators from the University Health Network in Toronto.

Their research, on a novel contrast agent called porsche microbubbles (MBs), was featured on a recent *Journal of the American Chemical Society* cover.



A BME team's innovation poses an improvement to medical imaging. The research appeared on the cover of the Journal of the American Chemical Society.

MBs are tiny bubbles of fluorinated gas injected into a patient's bloodstream, to sharpen the grainy black-and-white images produced from ultrasound. The team created the porsche MBs contrast agent by encapsulating MBs in a shell of porphyrin, an organic compound that strongly absorbs light, and phospholipid, a fat similar to vegetable oil.

The team discovered that the intrinsic properties of porsche MBs made them suitable for both ultrasound and photoacoustic imaging, with a resonance frequency of 9–10 MHz. As such, their distinctive properties are potentially advantageous for a broad range of biomedical imaging and therapeutic applications. The team calculated that the porphyrin-lipid in the MB shell improved the porsche stiffness by three to five times that of commercial lipid MBs.

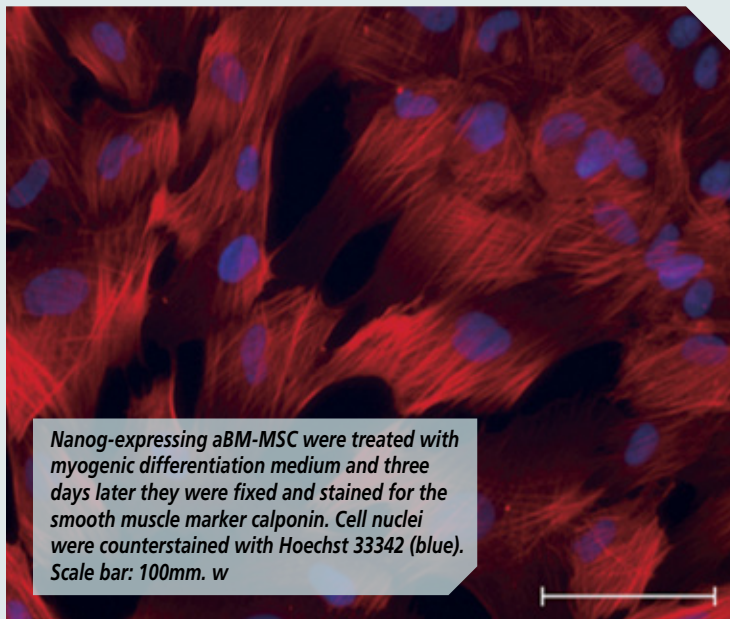
The paper is available at: <http://pubs.acs.org/toc/jacsat/134/40>.

CBE Group Led by Andreadis: Novel Way to Restore Function of Aged MSCs

CBE Professor and Chair **Stelios T. Andreadis** (with affiliations in BME and the Center of Excellence in Bioinformatics and Life Sciences) was PI on "Nanog reverses the effects of organismal aging on mesenchymal stem cell (MSC) proliferation and myogenic differentiation potential," with CBE PhD students **Juhee Han**, **Panagiotis Mistriotis**, CBE Research Instructor **Pedro Lei**, and Roswell Park's **Dan Wang** and **Song Liu**.



Stelios Andreadis



Nanog-expressing aBM-MSC were treated with myogenic differentiation medium and three days later they were fixed and stained for the smooth muscle marker calponin. Cell nuclei were counterstained with Hoechst 33342 (blue). Scale bar: 100mm. w

The paper, published in *Stem Cells*, demonstrated that the introduction of a single gene can reverse aging of stem cells in culture.

Andreadis' group showed that MSCs originating from older donors suffer from limited proliferative capacity and significantly reduced myogenic differentiation potential, of concern because the patients most likely to suffer from cardiovascular disease are elderly. The group tested whether a single pluripotency associated transcription factor, Nanog, could reverse the proliferation and differentiation potential of bone marrow (BM)-MSC from adult donors. Microarray analysis showed that adult (a)BM-MSC expressing Nanog clustered close to Nanog-expressing neonatal cells. Nanog markedly upregulated genes involved in cell cycle, DNA replication, and DNA damage repair, and enhanced the proliferation rate and clonogenic capacity of aBM-MSC. Notably, Nanog reversed the myogenic differentiation potential and restored the contractile function of aBM-MSC to a similar level as that of neonatal (n)BM-MSC. The team's results suggest that Nanog may be used to overcome the effects of organismal aging on aBM-MSC, thereby increasing the potential of MSC from aged donors for cellular therapy and tissue regeneration.

The research received funding from the National Heart, Lung, and Blood Institute.

CSEE's Salamone: Corrosion Monitoring System for Civil Infrastructures

Professor **Salvatore Salamone** is working on a joint project entitled "Collaborative Research to Advance Scientific Knowledge of the Mechanism of Corrosion in Civil Infrastructures," with Binghamton University ME Assistant Professor **Guangwen Zhou**.

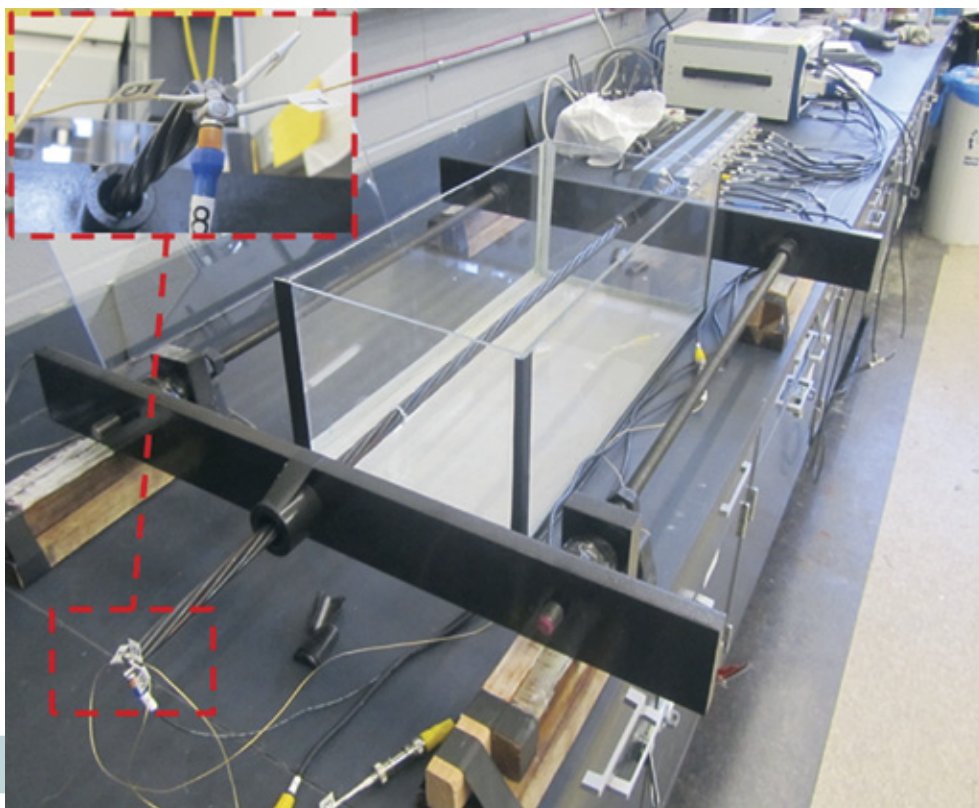


Salvatore Salamone

Through an interdisciplinary structural engineering and material science approach, the researchers seek to develop mitigation strategies to slow the corrosion rate and resulting progressive deterioration of civil infrastructures.

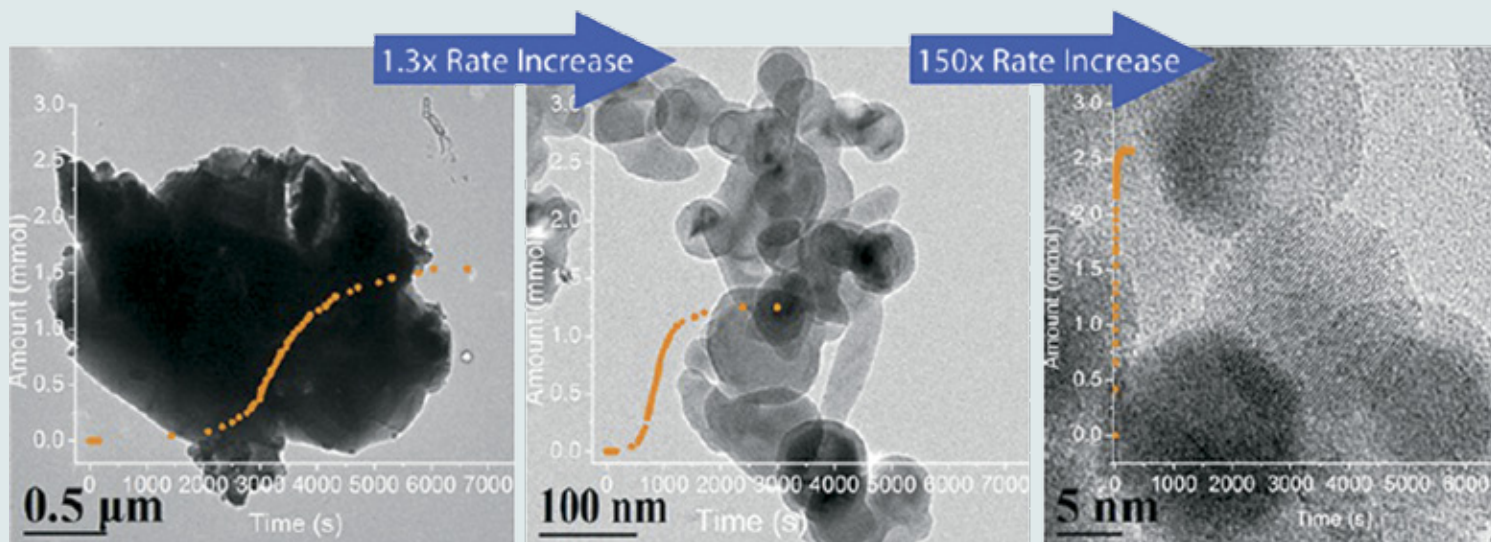
The research framework will make use of recent advances in sensor technologies, statistical signal processing techniques, atomic resolution electron microscopy, and quantitative *in situ* electron microscopy.

To validate the proposed system, accelerated corrosion tests will be done at UB's Smart Structures Research Laboratory (SSRL). The work is supported by a SUNY/RF Research Collaboration Fund Grant.

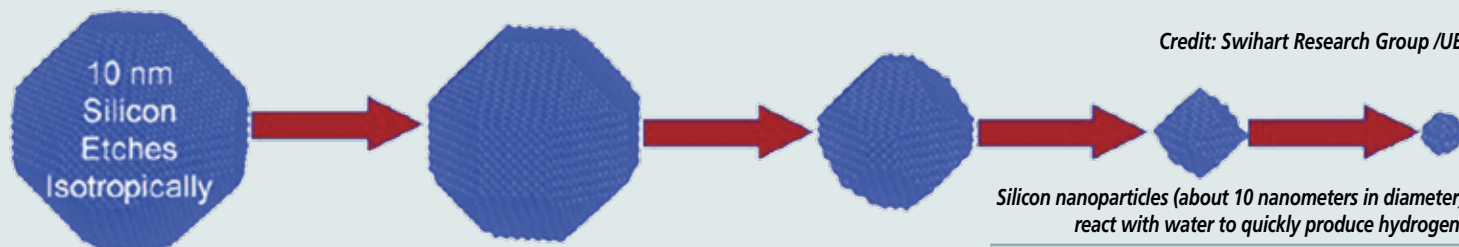


Accelerated corrosion test setup at UB's SSRL

CBE's Swihart and EE's Prasad: Silicon Reacts to Produce Hydrogen from Water



Credit: Swihart Research Group /UB.



CBE Professor **Mark T. Swihart** and SUNY Distinguished Professor **Paras N. Prasad** (Chemistry, Physics, EE, and Medicine) were PIs on a study published in *Nano Letters*, which showed that spherical nanoparticles of silicon react with water to produce hydrogen almost instantaneously.

Swihart is director of the UB's Strategic Strength in Integrated Nanostructured Systems; Prasad is executive director of UB's Institute for Lasers, Photonics and Biophotonics (ILPB).

The researchers demonstrated that the nanosize silicon reacted with water to generate hydrogen 1000 times faster than bulk silicon, and about 150 times faster than similar reactions using silicon particles 100 nanometers wide. They attribute this to a change in the etching dynamics at the nanoscale from anisotropic etching of larger silicon to effectively isotropic etching of 10 nm silicon. As they react, the larger particles form nonspherical structures whose surfaces react with water less readily and less uniformly than the surfaces of the smaller, spherical particles, according to Swihart. The reaction did not require light, heat, or electricity. These results imply that nanosilicon could provide a practical approach for on-demand hydrogen production, for example in new technologies that generate hydrogen for portable power applications.

Authors on the paper were ILPB Research Assistant Professor **Folarin Erogbogbo** (BS '04 PhD '09 CBE), CBE visiting researcher **Tao Lin**, CBE undergraduate **Phillip M. Tucciarone**, **Krystal M. Lajoie** (MS ChemE '13), BME undergraduate **Larry Lai**, and **Gauri D. Patki** (MS ChemE '13).



Mark Swihart

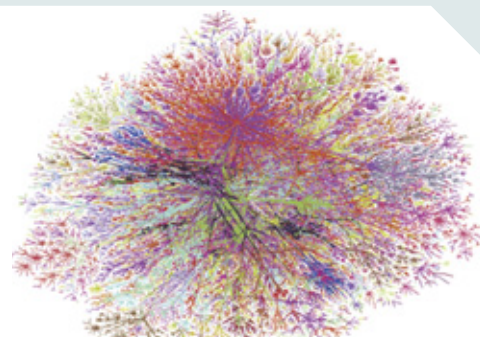


Paras Prasad

EE's Scutari *Continued from page 3*

Sensing is collaborative, to avoid decision errors induced by local shadowing phenomena. Resource allocation is made on a competitive basis, using a game-theoretic approach, but local interactions are incorporated to improve upon the potential inefficiency of Nash equilibria.

The research builds on a novel framework that collectively is termed hierarchical variational inequalities (VI). VI theory provides a broad mathematical framework for a host of formulations of practical interest, such as classical nonlinear optimization, equilibrium, and game-theoretic problems. This research will also introduce VIs in engineering disciplines, encouraging cross-fertilization among different research fields, such as signal processing, optimization, game and decision theory, and networking. VI theory will offer to researchers in these communities a constructive and powerful platform for fruitful developments.



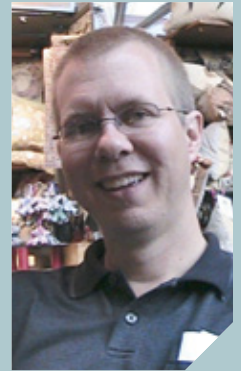
Large-scale complex networks: designing emergent behaviors via variational inequalities

CSE's Alphonse: Education Research

Jürgen Börstler, Ludwik Kuzniarz (both of the Blekinge Institute of Technology, Sweden) and CSE Teaching Associate Professor **Carl Alphonse** led a working group called Teaching Modeling in Computing Curricula at the 2012 Innovation and Technology in Computer Science Education conference.

Together with participants Michał Śmiałek (Warsaw University of Technology, Poland) and William Sanders (University of Hartford), the working group produced a report that "investigated how and when (software) modeling is taught to help us better understand the key issues in teaching (software) modeling." The key findings were that the term "modeling" is not consistently defined across curricular documents, and recommended approaches to teaching software modeling are similarly inconsistent.

Alphonse has also been involved in the VCTAL (The Value of Computational Thinking Across Grade Levels 9-12) project, serving on its advisory board since 2011, and more recently also as an author. He is currently co-writing a module on Recursion together with PI Midge Cozzens of DIMACS (the Center for Discrete Mathematics & Theoretical Computer Science) at Rutgers, The State University of New Jersey.



Carl Alphonse

Computer Learning: Lie Detection Software

CSE Research Scientist **Ifeoma Nwogu** (PhD CS '09) (affiliated with the Centers for Unified Biometrics – CUBS, and of Excellence for Document Analysis and Recognition – CEDAR), CSE's SUNY Distinguished Professor **Venu Govindaraju** (PhD CSE '92), UB Communications Professor **Mark G. Frank**, and CUBS scientist **Nisha Bhaskaran** (MS CSE '10) produced software that allowed a computer to assess eye movements to determine whether a speaker was lying.

The computer detected lies with an 82.5% accuracy, faring over 12% better than a trained human interrogator. The study was supported by the National Science Foundation.

The researchers established regular eye movements to distinguish subjects' honesty from dishonesty, particularly noting blinking rate and frequency of gaze-shifting. They culled forty conversations from a psychological study, taped with a variety of subjects and under various conditions. The subjects chose whether or not to steal a check, and when asked if they had done so, subjects whose eye movement patterns remained the same were labeled truthful, and those whose patterns changed, were labeled as liars. Most but a few particularly good liars kept their physiological responses under control.

"What we wanted to understand was whether there are signal changes emitted by people when they are lying, and can machines detect them?" stated Nwogu. "The answer was yes, and yes."

The scientists are developing a system that employs a larger database, to be used alongside human interrogators.



Ifeoma Nwogu



Venu Govindaraju



Eye Measurements

Abbreviations Used in the *Buffalo Engineer*

Departments

BME, Biomedical Engineering
CBE, Chemical and Biological Engineering
CSEE, Civil, Structural and Environmental Engineering
CSE, Computer Science and Engineering
EE, Electrical Engineering
ISE, Industrial and Systems Engineering
MAE, Mechanical and Aerospace Engineering
MSE, Materials Science and Engineering

Degrees

AE, Aerospace Engineering
ChemE, Chemical Engineering
CivE, Civil Engineering
CompE, Computer Engineering
CS, Computer Science
EE, Electrical Engineering
EnvE, Environmental Engineering
ES, Engineering Science
IE, Industrial Engineering
ME, Mechanical Engineering

School

SEAS, School of Engineering and Applied Sciences

*denotes dues-paying Alumni Association members

NYC Brownstones are Focus of MCEER Earthquake Engineering Studies



Andrew Whittaker

Researchers from MCEER, collaborating with the Structural Engineers Association of New York (SEAoNY) and the International Masonry Institute (IMI), are investigating the seismic vulnerability of panel walls that comprise New York City's large stock of aged brownstones buildings.

MCEER's research team built two unreinforced masonry walls using materials typical of late nineteenth – early 20th-century construction techniques; one wall was reinforced with steel rods and bolts that connected the flooring to the wall, and the other was not. The walls were subjected to two sets of earthquake ground motions; first from the 5.8-magnitude 2011 Virginia earthquake, which caused both walls to move, but did not cause noticeable damage.

The second set of ground motions was from the 6.3-magnitude 2011 New Zealand earthquake. This time, the parapet on the unreinforced wall collapsed, and the reinforced wall suffered some damage but remained standing.

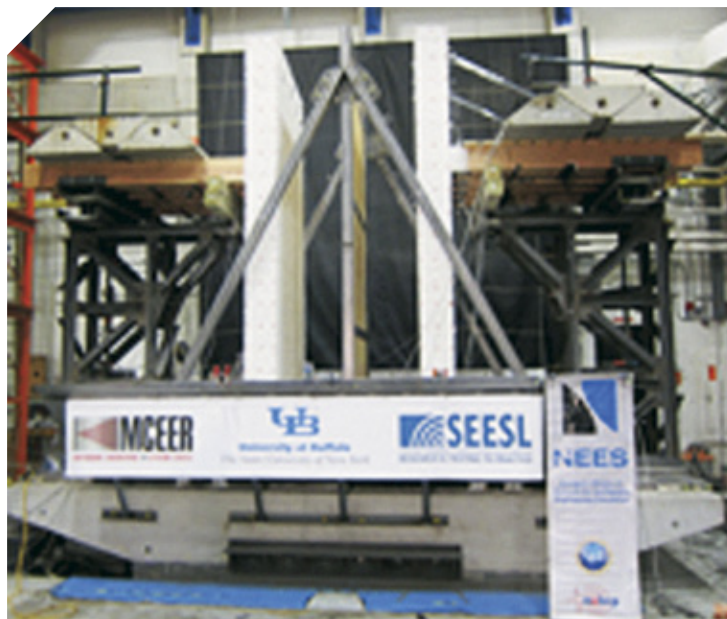
The experimental testing is part of a larger project to develop and validate numerical models to be used for seismic vulnerability assessments, such as for property loss and human casualties.

The project team includes CSEE Professors **Andrew Whittaker** and **Amjad Aref**, Research Associate Professor Gilberto Mosqueda (University of California, San Diego), and CivE PhD candidate, Fulbright Scholar **Juan Aleman**. Other collaborators were the International Union of Brick Layers & Allied Craft Workers—Local #3 NY, United Materials LLC, Scranton's Thruway Builders Supplies, and Reclaim Syracuse Inc.



Amjad Aref

The research was widely covered in the national media, including Discovery Channel Canada's "Daily Planet." For more information, visit: <http://mceer.buffalo.edu>.

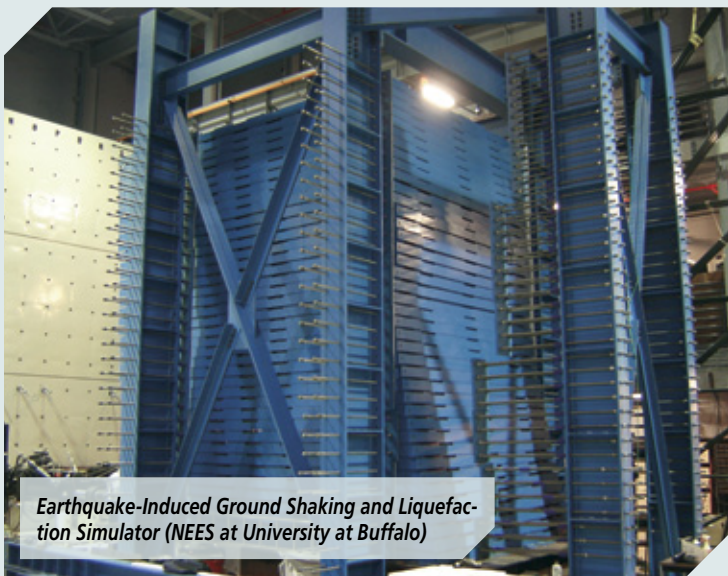


Testing of unreinforced masonry walls, typical of those in New York City, aids in development of new tools for practitioners.

Full-Scale Testing for New Method to Prevent Soil Liquefaction

CSEE Professor **Sabanyagam Thevanayagam** is the UB coPI on "Induced Partial Saturation (IPS) Through Transport and Reactivity for Liquefaction Mitigation," a new method to prevent soil liquefaction that is undergoing large-scale testing at UB.

Funded by a \$1.2 million NSF grant, the PI is Northeastern University Professor M. K. Yegian, with coPIs Kenneth Stokoe (University of Texas, Austin), Akram Alshawabkeh (Northeastern), Arvin Farid (Boise State University, Idaho).



Earthquake-Induced Ground Shaking and Liquefaction Simulator (NEES at University at Buffalo)



Sabanyagam Thevanayagam

IPS promises a more targeted, efficient, and environmentally-friendly way to treat areas experiencing soil liquefaction, which typically occurs when earthquake shaking causes the water pressure in sandy soils to greatly increase. Soil liquefaction results in a temporarily weaker soil that cannot support structures. Using the IPS procedure, a solution is pumped that releases tiny oxygen gas bubbles, which renders the sandy soil more resistant to liquefaction. IPS can be implemented even in a built environment under buildings and bridges.

The tests utilized NSF's George E. Brown, Jr. Network for Earthquake Engineering Simulation - NEES geotechnical laminar box, which simulates the effects of soil liquefaction in real-world ground conditions subjected to strong earthquake shaking. After lab tests, field tests will be conducted at a NEES site in Southern California in an area prone to earthquakes and containing liquefiable soils.

UB CSEE students contributing to the project include: **Jeremy Bielby**, **Craig Hebbard**, **Qiqi Huang**, and **Kaitlyn Murray**.

Faculty Inventors

The UB Office of Science, Technology Transfer, and Economic Outreach – STOR recognized the following UB Engineering faculty inventors.

FACULTY INVENTORS NAMED ON US PATENTS:

- CBE Professor **Sriram Neelamegham**, with Roswell Park Cancer Institute's E. V. Chandrasekaran, Khushi Matta, and Jun Xue: Method for Synthesis of Sialylated Products Using Reversible Sialylation
- EE Professor **Adly T. Fam**: Generating Partial Sums
- MAE Professor **James Felske**, Chemistry Professor James F. Garvey, MAE Research Professor **John Lordi**, and MAE Professor **Joseph Mollendorf**: Method of Altering a Fluid-Borne Contaminant

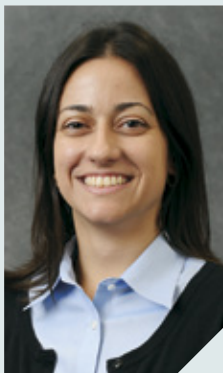
VISIONARY INNOVATORS: UB TECHNOLOGIES LICENSED TO INDUSTRIAL PARTNERS

- CBE Professor **Paschalis Alexandridis**, to Quantum Technology Group: Controlled Synthesis of Nanocrystals and Nanoparticles by a Gas-Emulsion Process, and Controlled Synthesis of Polymorphic Nanostructures (Nanodots, Nanorods, Nanowires, Nanotubes, Nanolaminates, Hollow Nanospheres) Using Templates Formed by Amphiphilic Block Copolymer Stabilized "Water in Oil" and "Oil in Water" Ternary Systems
- MAE Professor **Thenkurussi Kesavadas** and ISE Professor **Ann Bisantz**, to Tactus Technologies, Inc.: Haptic Enabled Simulator for Rehabilitation and Improved Writing Skill
- MAE Professor **Thenkurussi Kesavadas**, for Simulated Surgical Systems, LLC: Skills Trainer for Robotic Surgery

ENTREPRENEURIAL SPIRIT

- 2012 UB Faculty Entrepreneur: EE SUNY Distinguished Professor **Vladimir Mitin**, founder of Optoelectronic Nanodevices, LLC

ISE's Cavuoto Researches Obesity



Lora Cavuoto

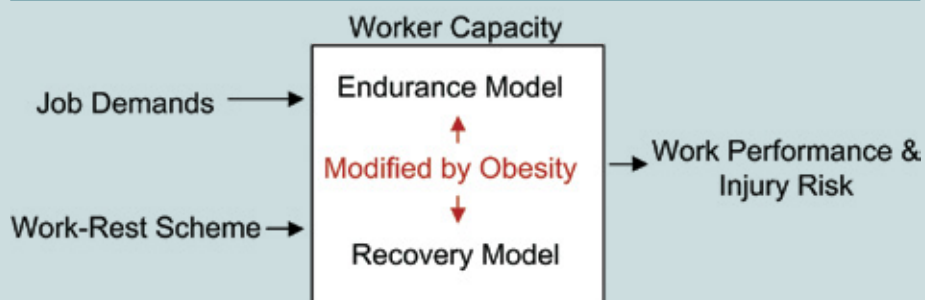
Current studies estimate that over two-thirds of the US adult population is either overweight or obese, with profound impact on the workplace.

ISE Assistant Professor **Lora Cavuoto** is identifying and characterizing how obesity can modify job demands and affect worker capacity muscle function. Recently, she examined whether obesity effects are modified by workplace/workstation configuration, specifically the extent to which body parts need to be supported at work. Her research has shown that with obesity, strength is higher, but endurance time is lower, particularly for more complex tasks. She is now applying this finding in her current project considering changes in muscle fatigue and recovery for the development of new models for work-rest scheduling. The outcomes of this research can facilitate workplace interventions to reduce fatigue and injury risk, thus lowering the economic burden. Overall, the research goal is to help ensure

that ergonomic guidelines and practice are appropriate to accommodate the diverse and changing workforce.

Cavuoto's team includes IE students **Maria Bejarano-Rodriguez**, **William Macaluso**, and **Ali Karimi Nouri**, in collaboration with Texas A&M Health Science Center Assistant Professor Ranjana Mehta.

The outcomes of this research can facilitate workplace interventions to reduce fatigue and injury risk, thus lowering the economic burden.



Top: Determining grip strength and endurance.

Bottom: Relationship between job demands and worker capacity.

ISE Team with Nikolaev and Nagi Studies Social Networks



Alexander Nikolaev



Rakesh Nagi

ISE Assistant Professor **Alexander Nikolaev** is PI on "Discovering Fundamental Structural and Behavioral Laws of Social Networks," with ISE Professor **Rakesh Nagi** and Nutonian, Inc. Founder Michael Schmidt as co-PIs.

Analyzing the structure or behavior of complex constructs like social networks presents new challenges for empirical relationship discovery. The researchers exploit the methodological toolbox based on symbolic regression, with the objective to assist the human mind in simultaneously searching through multiple social network datasets and detecting stable relationship patterns across them, thus allowing for the discovery of natural social network behavior laws. The team identifies objectively measurable, macroscopic metrics pertaining to social network phenomena, and explores under what conditions the computer-enabled empirical approach to knowledge discovery can be successful. To this end, multiple networks of millions of nodes are computationally traversed in search of robust expressions (explicit formulae and invariants) corresponding to hidden symbolic laws. This project furthers advances in communications, economics, engineering, political science, psychology, sociology, epidemiology, and other domains engaged in studies of social interaction and behavior. ISE students working on the project included **Alireza Farasat**, **Mohammadreza Samadi**, and **Michael Stearns**.

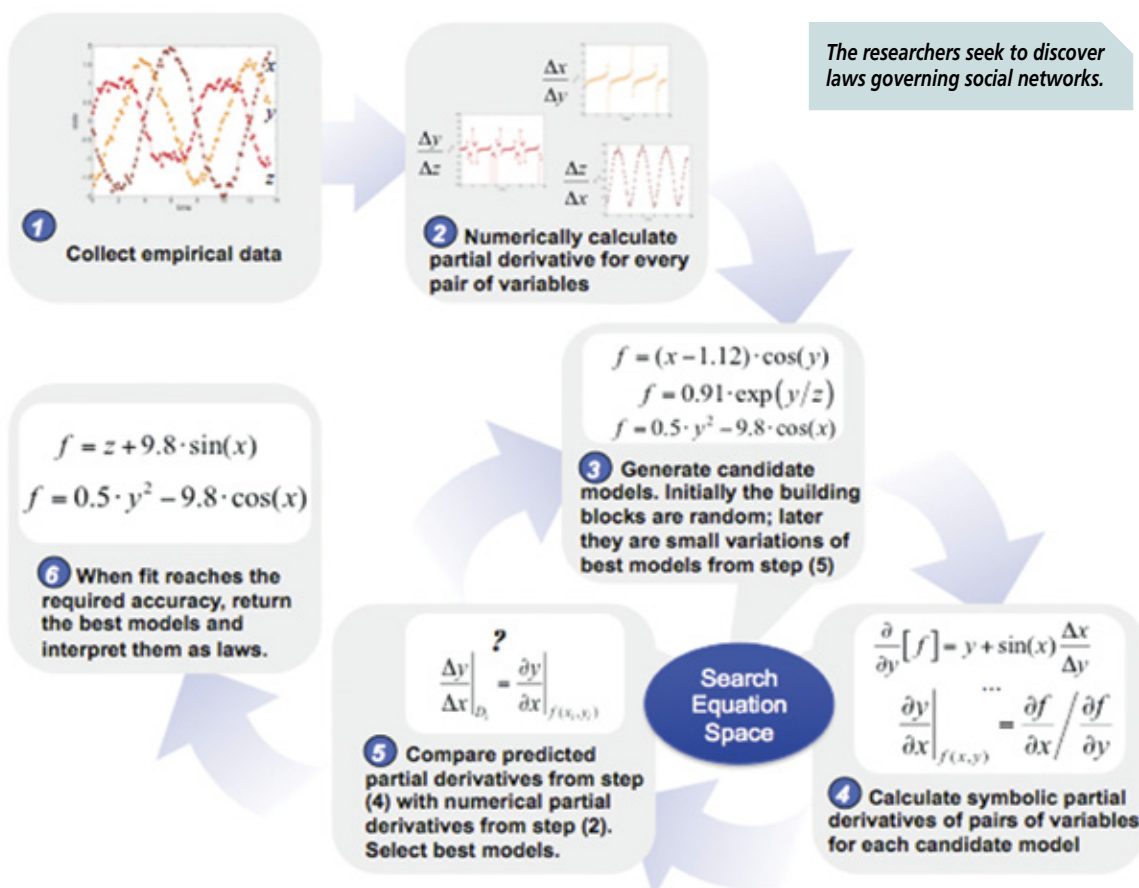
The research is funded by the National Science Foundation.

Analyzing the structure or behavior of complex constructs like social networks presents new challenges for empirical relationship discovery.



This project furthers advances in communications, economics, engineering, political science, psychology, sociology, epidemiology, and other domains engaged in studies of social interaction and behavior.

The researchers seek to discover laws governing social networks.

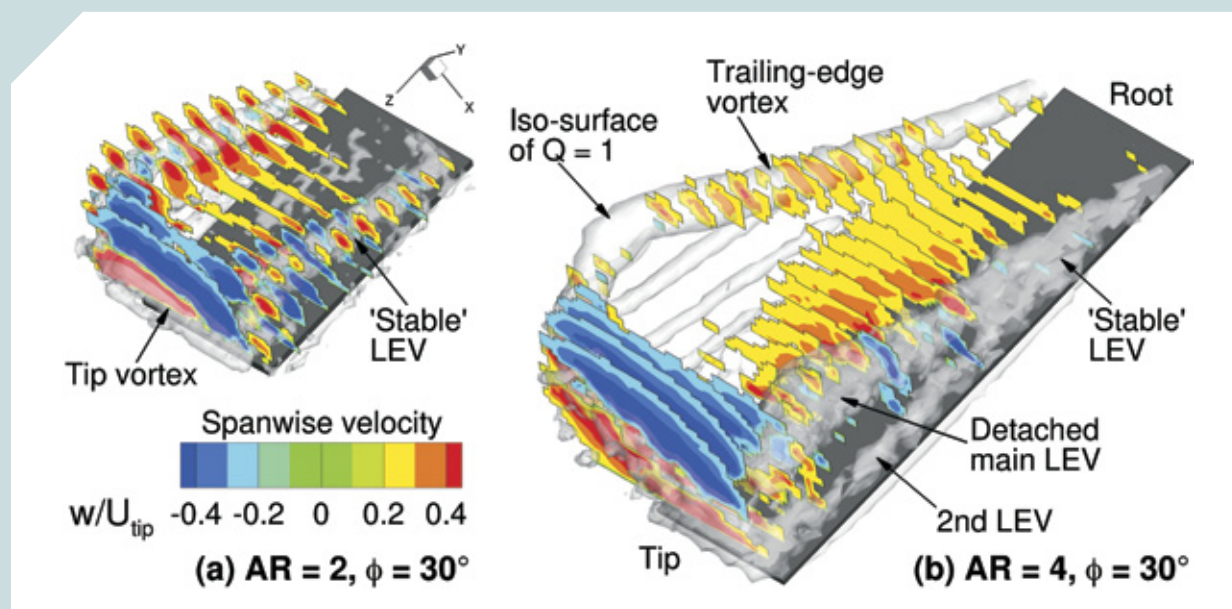


MAE's Ringuette: Vortex Formation and Forces of Flapping-Wing Hovering

MAE Assistant Professor **Matthew Ringuette** is PI on research that seeks to understand the fluid dynamics of flapping-wing hovering.

The application is highly-maneuverable micro air vehicles (MAVs) inspired by insects and hummingbirds, which could gather local information in complex disaster zones or battlefields, and operate in swarms.

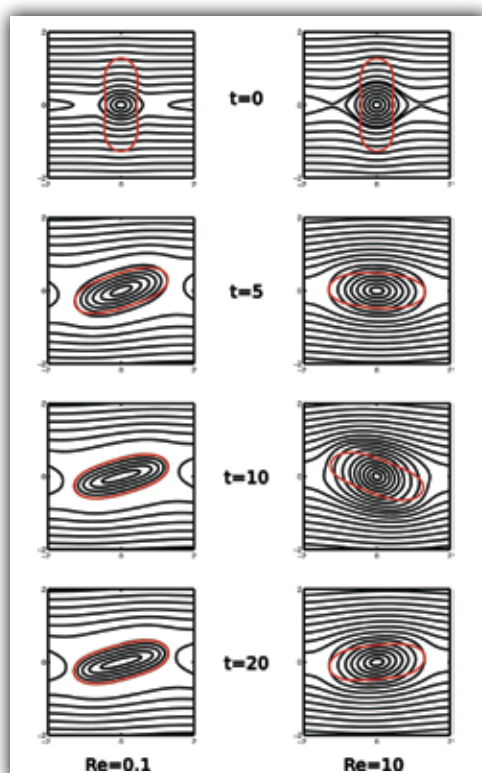
For flapping wings, flow separation along the edges generates vortex loops. The objective is to characterize these unsteady, 3-D vortices and their relationship to the wing geometry, motion, and lift force. Ringuette's team experiments with simplified, scaled models in liquid-filled tanks, emphasizing physics rather than mimicry. Stereoscopic particle image velocimetry is used to reconstruct the time-varying, volumetric velocity. The team examines rectangular wings rotating from rest at high angles of attack, representing a hovering stroke. For smaller aspect ratios (AR, span divided by chord), tip-vortex effects produce greater spanwise velocity and altered vortex formation (see figure).



Matthew Ringuette

MAE Postdoctoral Associate **Zakery Carr** and MAE PhD students **Adam DeVoria** and **Matthew Burge** contribute to the research, which is supported by the Air Force Office of Scientific Research.

(Left) The vortex loop produced by $AR = 2$ and 4 wings. Each has an attached leading-edge vortex (LEV) inboard, but the former is more coherent due to the dominant tip flow; the latter exhibits outboard vortex detachment and a lower lift coefficient. (Slices of spanwise or out-of-plane velocity; iso-Q gives vortices.)



MAE's Salac: Lipid Vesicle Research

Lipid vesicles are model systems for simple biological cells, such as red blood cells.

They have also been proposed as drug delivery vectors or micro-reactors. The goal of MAE Assistant Professor **David Salac**'s work is to understand the electrohydrodynamics of lipid vesicles. Using advanced computational techniques the fluid-structure and electric field-structure interactions that vesicles experience are modeled *in silico*.

Salac's research has already demonstrated that inertial effects have a stabilizing influence on the dynamics of vesicles in fluid flow in the absence of electric fields. For example, in the absence of inertia a vesicle will tumble end-over-end when the viscosity encapsulated by the vesicle is sufficiently high compared to the surrounding fluid. As inertial effects increase, the tumbling period of the vesicle increases. Eventually the vesicle reaches a stable inclination angle with respect to the fluid flow direction. See the figure for an example.

The research will allow for the simulation of many three-dimensional vesicles under the influence of both fluid flow and electric fields. The result will be a numerical framework capable of predicting the dynamics of vesicles.

Vesicles encapsulating fluid with a large viscosity compared to the surrounding fluid will tumble end-over-end in the creeping flow regime (left). As inertia increases the vesicle will not tumble, but reach a equilibrium inclination angle (right).



David Salac



Barbara and Jack Davis Engineering Education Endowment Fund

Barbara and Jack Davis (BS IE '55) have given \$2 million to establish The Barbara and Jack Davis Engineering Education Endowment Fund, for scholarships to Western New York undergraduate students with financial need.

It will be used to increase the number of engineers and improve the quality of education at UB Engineering. As the largest single scholarship fund in our School's history, the gift represents a philanthropic milestone for UB Engineering. The fund was established in appreciation of the education that Jack received at UB Engineering.

Anonymous Gift

The School of Engineering received a generous anonymous gift of \$1M to be used at the discretion of the Dean.

Currently the funds are being used for faculty start-up costs and enhancements to facilities, including developing the area in front of Davis Hall, Grace Plaza, as an attractive gathering place by adding seating, additional landscaping, and other improvements.



Li Gift Names Davis Hall Data Mining Lab



Robin Li

Robin (Yanhong) Li (MS CS '94) has named a CSE lab space in Davis Hall dedicated to data mining.

The founder and CEO of China's largest search engine, Baidu, was recognized with the UB Alumni Association's (UBAA) 2012 International Distinguished Alumni Award, for his exceptional career accomplishments, which have garnered global renown and landed him on *Time* magazine's 2010 list of top 100 world leaders – those who most affect our world. Li also earned the UBAA 2006 George W. Thorn Award, for distinguished UB graduates under 40.

After completing an undergraduate degree in information science at Peking University, Li became a graduate student here at the School of Engineering, where he studied vector space models used to interpret word recognition results at UB's Center of Excellence for Document Analysis and Recognition – CEDAR. He attributes much of his success to his studies there, and CEDAR Director, CSE Professor **Sargur N. Srihari** recalls Li's "outstanding" work at that time, notably in a 2012 Forbes interview (<http://onforb.es/RTEkBM>). After earning his master's, he worked as an engineer at InfoSeek, a California-based search engine company, until 1999. He returned to China and launched Baidu in 2001, where he developed revolutionary online search technologies that are now considered industry gold standards.

Gifts

We gratefully acknowledge the generous support of all our donors, including the following individuals, foundations, corporations, and institutions:

Individuals / Foundation:

Messrs. Michael and David Cadigan
Dr. Joe Chuang
Tim and Denise Klein
Mr. Don and Mrs. Elfriede Ferguson
Mr. Norm Hayes
Mr. Max Kay and Ms. Naida Irizarry Shaw
Mrs. Grace Lee Memorial Scholarship Fund
Mr. Robin Li
Kenneth O. Young

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Health Research
Huawei Technologies
IBM Corporation
Logic Blox
National Grid
Northrop Grumman
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Watts Architecture and Engineering

Departmental Advisory Boards and DAC Convene



The School and departmental advisory council chairs (ACC) at the Fall 2012 DAC meeting. Left to right: Dean's ACC Dennis Elsenbeck; CBE Co-ACC Cynthia Hoover; CSE Russell L. Agrusa; BME ACC Joseph V. Fritz; MAE ACC James F. Van Oss; ISE ACC Patrick Abrami; CSEE ACC Frank J. Puskar. Not pictured: EE ACC John V. Pilitsis and CBE Co-ACC Mitchell J. Pulwer.

This past fall, advisory councils of the BME, CBE, CSE, ISE, and MAE departments convened. The councils, comprised of leading alums and industry representatives, are charged with advocating for departments and assisting in improvements and achieving goals of preeminence in education, research, and service, and with strengthening ties to industry. Their goals include assisting with: long-term planning and strategy; development; educational and professional identity; student organizations; classroom enrichment; student job placement; industrial relations, and new programs.

Thank You, Donors

We thank our donors for their generosity.

Please visit <http://www.eng.buffalo.edu/donors/1112> and the sidebar links to learn more about gifts and giving.

We are pleased to say that the UB Engineering Annual Fund has enjoyed steady growth in the past few years. Your financial support is critical to the mission of the School.

If you're energized by UB Engineering's excellence and wish to participate in the School's dynamic and continued growth, please consider a gift to the School. To make a contribution, please visit <http://giving.buffalo.edu/schools/engineering> and click "Donate" in the left sidebar.

Development staff can be contacted anytime at 1.888.205.2609 or directly:

- Assistant Vice President **Tim Siderakis**: tsiderak@buffalo.edu, 716.645.0970
- Senior Director **Michael Madonia**: mmadonia@buffalo.edu, 716.645.0969
- Director **Patrizia Latvala**: latvala@buffalo.edu, 716.645.5020
- Assistant Director **Bethany Mazur**: bl2@buffalo.edu, 716.645.0968
- Associate **Donna Linenfelser**: dfelser@buffalo.edu, 716.645.2133



(L to R): Bethany Mazur, Donna Linenfelser, Tim Siderakis, Michael Madonia, and Patrizia Latvala

BEAM Events



Interim Dean Rajan Batta with some BEAM Senior Scholars



Buffalo-area Engineering Awareness for Minorities (BEAM) is a nationally recognized program promoting engineering, math, science, and technical educational excellence for underrepresented school-age youth.

BEAM Senior Student Dinner – Buffalo-area Engineering Awareness for Minorities (BEAM) held its annual fall Senior Student Dinner. The event was an opportunity for students to meet potential employers. Table sponsors were: DuPont, Fisher-Price, General Motors Powertrain-Tonawanda, Moog, National Grid, UB School of Engineering, and Wendel Companies. Students earned awards from these sponsors: BEAM, DuPont, Fisher-Price, General Motors, NASA

Grant-EE Professor Emeritus **Wayne Anderson**, and Wendel. Students receiving scholarships were: Hani Al-Jabi Lopez, Christian Brickhouse, Kevin Carlin, Orvis Collins III, Kara Davis, Alexa Dito, Anna Ferri, Melanie Glover, Shannon Griffin, Courtney Jones, Martin Locke Jr., Katherine Metzler, Gina Nasca, Erik Nelson, Richard Plesh, D'Quan Pope, Kori Rabatoy, Christina Reville, Mary Rose Ricotta, Aaron Roach, and Fadi Suboh.



(L to R): BEAM Saturday Academy students: Raven Brock, City Honors School; Amaiya Escobar, Sweet Home Middle School; Willow Gomez, Frederick Law Olmsted Elementary School, PS 64; Jared Ritzler, PS 81; Marquel Hampshire, Math, Science, and Technology Preparatory School, PS 197; Gregory Mosher, Olmsted Middle School, PS 156

BEAM Annual Awards Breakfast – BEAM's annual Awards Breakfast was themed, "Preparing Our Children for a 21st Century Workforce." Addresses were given by BEAM President, Prestolite's Arthur J. McKinnon Jr., BEAM Executive Director **Marilyn Helenbrook**, and BEAM's Finance VP **Carmen Vella**, with guest speakers Cannon Design's Lauren Blas, BEAM Saturday Academy seventh- and eighth-graders, and Moog's Don Davis. DuPont was a breakfast sponsor, and table sponsors were: UB Engineering, Buffalo Public Schools' Career & Technical Education, General Mills, Moog, National Grid, and Wendel. Recognized were: General Mills as BEAM's Corporate Partner of the Year; UB Engineering Dean's Assistant **Christina Escobar** with the Charles Campbell Sr. Outstanding Service Award; Moog's Pete Sergi with the Educational Achievement Award; Nancy Noud with the Special Achievement Award; DuPont's **Christine Wingo** (MS IE '09) with the Technical Advisor Award; and Liberty Partnership Programs' Theresa Bonito with the Faculty Advisor Award.

Tech Savvy 8: Don't Stop Until We Reach Our Dreams!

The American Association of University Women (AAUW) partnered with principals Praxair, Inc., through the Praxair Foundation, UB Engineering, and WTS, Inc., to sponsor Tech Savvy 8, (TS8) the theme of which promoted persistence – an important element in attaining goals, especially in science and engineering careers. The event offered workshops and activities for interested adults and young women in middle- and high-school, geared to helping them discover science, technology, engineering, and math (STEM) careers, and learn useful career skills. UB Engineering colleagues assisting with the program this year were CBE's UB Distinguished Professor **Paschalis Alexandridis**, CSE Teaching Associate Professor **Carl Alphonce**, EE Lecturer **Kevin Burke** (BS '97 MS '04 PhD EE '10), Assistant Dean for Undergraduate Education **Kerry Collins-Gross**, MAE Associate Professor **Venkat N. Krov**, Senior Academic Advisor **Terri Miklitsch**, and EE Assistant Professor **Jennifer Zirnheld** (BS '93 MS '97 PhD '04 EE).

This year, TS also celebrates its nationwide launch. The first will be in Mississippi, the home state of TS founder, Praxair Leader of Community Engagement **Tamara Brown** (MEng ChemE '03). For her leading efforts in promoting STEM education, Brown was recognized as a 2011 White House Champion of Change.



Over lunch, students networked through an autograph/networking game. Here they are filling out their game cards.



Sheila Baker



Brian Betschart



Mark Bulmer



Gilberto Chang



Dennis Elsenbeck



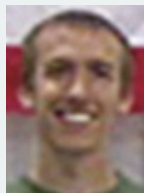
Scott Gleason



Carol Hanley



Thomas Hobika



Jared Kuhl



Sashi Kunnath



Karl Kuriger



Dan Magnuszewski



Sam Masiello



George Mavroidis



Anshu Pasricha



Vincent Pugliese



Oscar Ramirez



Bahgat Sammakia



Ramiro Vargas



Venkata Yelamanchili

1970s

Vincent N. Pugliese, BS CivE '74, is president of Risk Specialists Companies, Inc. (Boston, Mass.), a national network of wholly-owned brokerage subsidiaries of Chartis US.

1980s

Mark E. Bulmer, CPA, BS IE '83, is executive vice president and group head for Financial Services of Glens Falls National Bank and Trust Co.

David Gerland, PE, BS CivE '85, was promoted to deputy chief of the US Army Corps of Engineers (Anchorage, Alaska) Construction Operations Division.

Carol Hanley, MS EnvE '80, was selected as the Kentucky Science Teachers' Association 2012 Distinguished Science Educator of the Year. She is associate director of the Tracy Farmer Institute for Sustainability and the Environment of the University of the Kentucky College of Agriculture.

Sashi Kunnath, PhD CivE '89, and co-author Yannis Dafalias (UC Davis professor) were awarded the American Society of Civil Engineers' Norman Medal for their paper, "SANISTEEL: Simple Anisotropic Steel Plasticity Model." Kunnath is UC Davis CivE department chair and a professor of structural engineering and mechanics.

Bahgat Sammakia, MS '80 PhD '82 ME, a SUNY distinguished professor of ME, is Binghamton University vice president for research (VPR). Sammakia had served as interim VPR since 2010.

Mark Withiam, PE, BS CivE '86 Year, is a structural engineer for Keystone Associates Architects (Scranton, Penn.)

1990s

Brian Betschart, BS ChemE '97, is a partner and automation engineer at Fourstep Automation, Inc.

Rob Call, BS '93 MS '95 ME, is Praxair Associate Director of Global Operations Excellence and

Development, Global Bulk Distribution and Customer Service.

Gilberto A. Chang, PhD CivE '93, is Technological University of Panama's Vice Chancellor for Research and Graduate Education.

Dennis Elsenbeck, MEng ME '96, National Grid's Western Division regional executive, received a National Federation for Just Communities Community Leader Award recognizing his community service. Elsenbeck is this year's UB Engineering Alumni Association's Engineer of the Year. For more, see the Alumni section.

Scott Thomas Gleason, BS EE '91, a Concordia University assistant professor (Montreal, Canada) is a co-investigator for NASA's Cyclone Global Navigation Satellite System, monitoring tropical cyclones.

Thomas Hobika, BS CompSci '93, is vice president of IT Solution Consultants for EarthLink Inc.

Karl Steven Kuriger, BS ME '97, was married to Julia Evelyn Simcox in Durham, NC. He is owner of Kaladyne LLC, and a mechanical engineer for Belcan Engineering.

Michael Martin, BS IE '98, is director of architecture, infrastructure and client services for Nfrastructure.

Scott Rybarczyk, PE, BS CivE '97, is an associate principal for Wendel Duchscherer.

Michael Spitz, PE, BS ChemE '96, is a partner and projects leader at Fourstep Automation, Inc.

Jeff Umland, PhD ME '90, is chief mechanical engineer of NASA Jet Propulsion Lab's Mars Science Laboratory mission, which recently landed. Umland previously was the JPL structural dynamics lead for the Shuttle Radar Topographic Mapping mission; and the lead on the JPL Mars Pathfinder Lander Bridle subsystem effort.

Timothy Zuber, PE, BS CivE '93, is an associate principal for Wendel Duchscherer and Wheatfield town engineer.

2000s

Sheila Baker, PhD ME '01, is a University of Missouri ChemE assistant professor.

Alexander S. Kerr, BS '09 MS '10 CivE, was promoted to engineer II in the transportation division of Barton & Loguidice, P.C.

Dan Magnuszewski, BS CompE '05, is Z80 Labs chief principal innovationist. He also serves CSE's advisory board council.

Sam Masiello, BS CompSci '00, is a board member of the Coalition Against Unsolicited Commercial Email.

George Mavroidis, PhD CivE '04, a Catholic University of America CivE assistant professor, received the Teaching Excellence in Early Career Award.

Anshu Pasricha, JD MS EE '07, is an associate in the White & Case NY office. His JD is also from UB.

***Matthew J. Plizga**, PE, BS CivE '04, passed the NYS Professional Engineer examination.

Oscar Ramirez, MS '98 PhD CivE '01, was elected Rector of the Technological University of Panama (TUP), the institution's highest authority. His term will run for five years, through 2018.

Ramiro E. Vargas, PhD CivE '06, is TUP's Director of the Experimental Center for Engineering Research, the post formerly held by Oscar Ramirez.

2010s

Jared Kuhl, BS '09 MS '11 ME, works in Texas as a ground-support equipment engineer for SpaceX.

Venkata Reetesh Yelamanchili, MS CompSci '11, is a SemaConnect Software Engineer (Annapolis, Maryland).

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UB School of Engineering & Applied Sciences
412 Bonner Hall
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Thanks to you,
I'll keep our nation secure.

Vietnam native Bich Vu has widened her world considerably at UB. She's an Honors College double major in computer and electrical engineering with a Japanese minor. Vu participates in ROTC; was inducted into the National Society of Pershing Rifles; and served as president of the UB Society of Women Engineers. The recipient of two scholarships established by UB donors, Vu plans to work in computer security for the U.S. government. *The best reason to support UB is what students like Bich will do in the future.*

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