BUFFALOENGINEER

SPRING 2012

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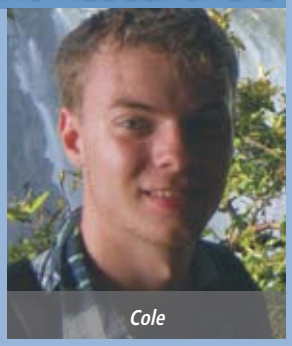
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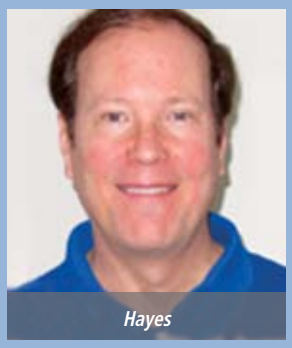
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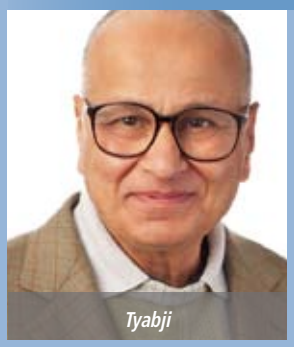
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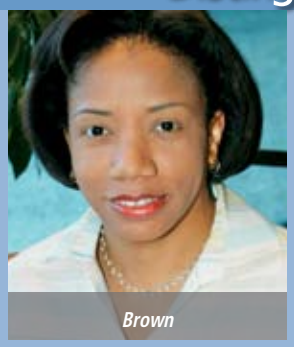
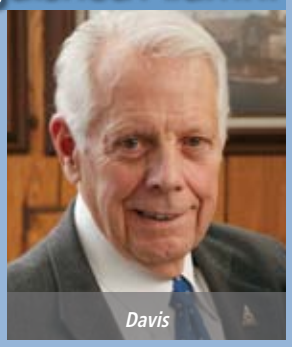

Brown


Davis

School of Engineering and Applied Sciences
University at Buffalo The State University of New York

This spring, we are happy to report the progress our School has made in several areas.

Several of our remarkable students have earned national recognitions: IE students **Tejswaroop Geetla** and **Matthew Henchey** won a US Department of Transportation competition, and CE student **Jonathan Cole** traveled to Africa with a National Science Foundation research award. Please see their stories in the Student section.

Batta in the new Davis Hall office

As our students graduate and become alumni, many become leaders whose great contributions revolutionize how we live and work. We are pleased to include a very special feature in this issue – a portrait of one our most distinguished alums, Bytemobile Chief Executive Officer **Hatim A. Tyabji** (MS EE '69). The White House recognized our alumna **Tamara Brown** (MEng CE '03) as a Champion of Change for creating Tech Savvy, a technology outreach program specifically for young women. Please see the Top Story on page 3 for more, and the Pre-College section to learn about Tech Savvy. Our alumnus **Jack Davis** (BS IE '55) is recognized in the Alumni section as the UB Engineering Alumni Association's 2012 Engineer of the Year, for his distinguished contributions to alumni, business, and community affairs.

Thank you to our donors who support our School. Recent gifts have come in the form of bequests from our generous alums **Roderick G. MacKinnon** (BS '82 EE) and **Edward F. Sverdrup Jr.** (BS EE '51). Another gift, from **Norman M. Hayes** (BS EE '80) names a Davis Hall laboratory. Corporate gifts have also been received from National Grid and from Praxair. The National Grid gift is to run a residential summer camp for high school students aimed at encouraging students to consider an engineering career. The Praxair gift supports a professorship and a seminar series. We are grateful to all of our donors, individuals and corporations, new and continuing, who contribute to enhancing our School and promoting its goals.

The departments of CSE and EE, the offices of CUBS and CEDAR, and several members of the Dean's office have made the physical move into Davis Hall, now open for its first academic semester. Please see the Development section for photos and more, including the event, held in the building, honoring Barbara & Jack Davis and our many supporters, without whom Davis Hall would not have been possible. A ribbon-cutting will be held Thursday, May 10th at 10 am.

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

✻**denotes dues-paying Alumni Association members**

Degrees

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

Cover photos of Cemal Basaran and Natalia Litchinitser by Doug Levere; all others are courtesy of the individuals shown.

This is a publication of the School of Engineering and Applied Sciences Office of External Affairs and the Engineering Alumni Association, University at Buffalo. Anyone wishing more information on the articles contained herein may contact External Affairs: 716.645.0966; 716.645.2495 (fax); or ub-seas@buffalo.edu. Circulation: 26,000.

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

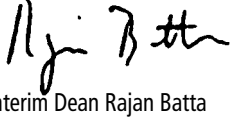
A driving force behind many of our School's recent accomplishments – **Harvey G. Stenger Jr.**, former UB Engineering CBE professor, dean, and UB interim provost – deserves our heartfelt congratulations on his promotion to Binghamton University president. We are also proud of our faculty, several of whom have recently garnered prestigious national awards. CSEE Professor **Cemal Basaran** earned both an American Society of Mechanical Engineers Excellence in Mechanics Award and a US Naval research award; CSEE Professor **Michel Bruneau** received the American Institute of Steel Construction's T.R. Higgins Award; and EE Associate Professor **Natalia Litchinitser** earned a US Department of Defense research award. Please see page 3 and the Faculty section for more on these accomplishments.

Our School has enjoyed a peak increase in proposal submissions, with a total of 240 in the first and second quarter, indicating our highest first and second quarter total submissions ever. For more details on this and many other items, I invite you to visit our home page to read my quarterly report (in the "Dean's Communications" tab, under "About").

I have spelled out the School's goals in my quarterly report, with our overarching goal identified as ranking more favorably chiefly among the Association of American Universities' engineering public; our surrogate goal is achieving an improved *US News & World Report* ranking – first, to rank in the top 45 of US engineering schools over the next three years, and, in the next five years, to rank in the top 40. (This year our School placed on the first page of the rankings, "tied for 54th.") A summary for achieving these overarching goals and our continuous efforts to improve our School are briefly listed as: improve our undergraduate student educational experience; grow our faculty in key areas and more easily assemble research teams that garner large, center-type proposals; foster and sustain a strong development effort; renew efforts to increase research funding that fosters doctoral education and research; and improve our prominence among engineering administrators in the US and students worldwide.

With the energy of the School's recent achievements, including milestones like the opening of Davis Hall, we hope that you, too, will experience its continued momentum and participate in its growth.

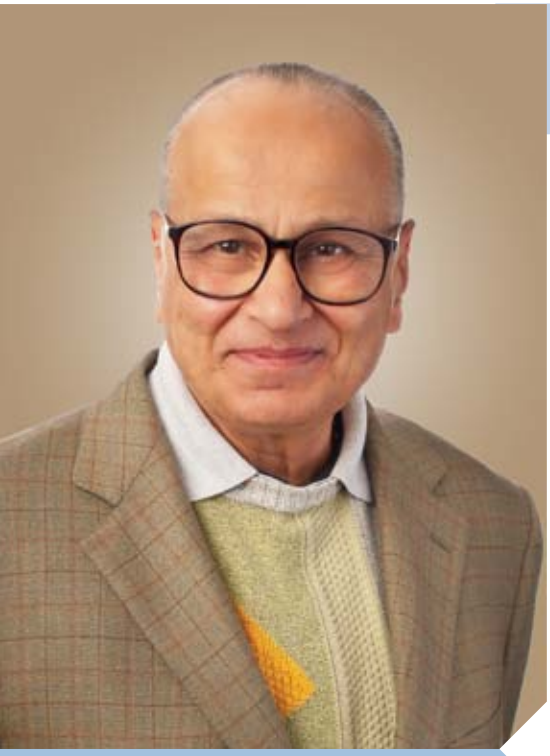
Sincerely,



Interim Dean Rajan Batta

Distinguished Alumnus Profile: Hatim Tyabji

We are pleased to feature a profile of our esteemed alumnus.



Distinguished alumnus Hatim Tyabji

"Life is not a spectator sport. Don't accept the status quo... Always strive to effect positive change."

1995 UB Engineering Dean's Award winner **Hatim Tyabji** (MS EE '69), Chairman and Chief Executive Officer of Bytemobile, Inc., was born and raised in Mumbai, India. Tyabji's precipitous rise after immigrating to the United States in 1967 can be marked by one milestone after the next. In 13 years at Sperry Corporation, he rose to become President of Information Systems, the number-three position in a company with 77,000 employees. At VeriFone, he created what many consider to be the first virtual company – with globally decentralized operations that presaged the "flattening" of the world through the Internet and advanced communications tools. Thanks to VeriFone's ubiquitous technology – for which Tyabji coined the term "transaction automation" – it's possible for consumers to make purchases with a single credit card swipe in virtually every country around the world.

The story of VeriFone's success epitomizes Tyabji's break-the-rules approach to management, innovation, and customer service, which is encapsulated in the playwright George Bernard Shaw's quote: "Some men see things as they are, and say, 'Why?' I dream of things that never were, and say, 'Why not?'" Striving not merely to compete but to set new industry standards while challenging business-as-usual practices, Tyabji has applied his uncompromising pursuit of excellence to the leadership of Bytemobile, which stands at the forefront of the mobile Internet revolution. Bytemobile enables mobile network operators to deliver video, web and application services to billions of subscribers, with groundbreaking technologies that improve network performance and capacity for a superior user experience. The company serves the world's leading mobile data carriers – such as AT&T, China Mobile, Sprint, and Vodafone – from offices worldwide and manages network deployments in over 60 countries.

As a result of Tyabji's visionary leadership, Bytemobile has garnered numerous awards, including Light Reading's 2011 Leading Lights Private Company of the Year Award for innovations in cable, wireless, and telecommunications. In 2011, the company announced a global partnership with IBM and formed a joint venture with China Communications Services to deliver Bytemobile technology to the world's largest and fastest growing market for mobile communications.

Continued on page 4

TOP AWARDS

Alumna: Tamara Brown

White House Honors Alumna Brown, Tech Savvy Founder

Tamara E. Brown (MEng CE '03) was recognized as a Champion of Change by the White House, for creating Tech Savvy, a technology outreach program specifically for young women. Begun in 2006 by the American Association of University Women and assisted by the School of Engineering, the program has engaged thousands of young female middle school students, their parents, and teachers, with

Continued on page 5

Faculty: Cemal Basaran

Cemal Basaran: ASME EPPD Excellence in Mechanics & US Naval Awards

CSEE Professor and Electronic Packaging Lab (EPL) Director **Cemal Basaran** received the American Society of Mechanical Engineers (ASME) 2011 Electronic and Photonic Packaging Division (EPPD) Excellence in Mechanics Award, for outstanding contributions to the application of engineering mechanics in electronic and/or photonic packaging, including stress analysis, reliability study, experimental methods and computational modeling.

Continued on page 18

Faculty: Michel Bruneau

Michel Bruneau: 2012 AISC T.R. Higgins Award

CSEE Professor **Michel Bruneau** received the American Institute of Steel Construction (AISC) annual 2012 T.R. Higgins Lectureship Award, for his papers on steel plate shear wall design, published in AISC's *Engineering Journal* and the proceedings of the Canadian Conference on Earthquake Engineering. The award recognizes an outstanding lecturer and author of outstanding technical papers on fabricated

Continued on page 15

Faculty: Natalia Litchinitser

Natalia Litchinitser: DoD DURIP Award for Metamaterials Research

EE Associate Professor **Natalia Litchinitser** received a prestigious Department of Defense (DoD) University Research Instrumentation Program (DURIP) award for her research project, "Metamaterial characterization of nonlinear and spin optics," on light interaction with metamaterials, whose unusual properties include negative index of refraction, subwavelength imaging, and cloaking.

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Distinguished Alumnus Profile: Hatim Tyabji

Continued from page 3

From Surgery to Mount Kilimanjaro

Tyabji's no-holds-barred approach also finds expression in his love of life, through a spirit of adventure and the strength of his family and professional commitments. He survived three silent heart attacks and quintuple bypass surgery in the late 1990s, going on to disprove his cardiologist, who said Tyabji would never ski again. He is still an avid skier, having resumed the sport with the encouragement of his wife, Durriya.

Last fall, at the age of 66, he and Durriya climbed Tanzania's Mount Kilimanjaro. After seven days of hiking up to 13 hours a day, they celebrated their 42nd wedding anniversary at the peak's summit – 19,345 feet above sea level. In 2005, the couple bungee-jumped the world's highest suspension bridge, at Victoria Falls on the Zambia-Zimbabwe border, and they continue to travel extensively, having taken both an Antarctic expedition and a safari in recent years.

Hatim and Durriya skiing

> *"If you are driven, you can influence any environment, and when you start doing that, the pebble in the water becomes a ripple, and that ripple one day becomes a wave."*

Tyabji met Durriya in 1962; they were engaged in 1966 and married in 1969. When not traveling to or from an adventure, the couple resides in California. The life they have built together includes their two sons, Salim and Abizer, both of whom pursued careers in computer engineering and management. Salim is a Latitude Product Line Manager at Dell, and Abizer is a United States Air Force (USAF) major working in the USAF Academy's Management department as an instructor and director of Information and Technology. A personable man with strong family ties, Tyabji reflected on the nature of family and the dynamics of personal and professional life in his 2007 book, *Husband, Wife & Company: An Honest Perspective on Success in Life and Work*.

Leadership Across Business and Education

In addition to his decade of leadership at Bytemobile, Tyabji is currently chairman of Jasper Wireless and serves on the boards of Best Buy, Merchant eSolutions, Sierra Atlantic, Touch Networks (Australia), and the Missile Defense Advocacy Alliance. He is ambassador-at-large for Benchmark Capital. Tyabji has previously served on the boards of numerous public and private companies, including Ariba, Bank of America Merchant Services, Datacard Group, Deluxe Corporation, eFunds, Norand Corporation, Novatel Wireless, PubliCard, and SmartDisk Corporation.

Tyabji's leadership role in higher education has been equally impressive. In addition to his service as a UB Engineering School Dean's Advisory Council member, he has served on the Santa Clara University Leavey School of Business Dean's Council and on the board of the Carnegie Institution for Science.

As for his own education, Tyabji holds a BS in EE from the College of Engineering in Poona, India, and an MBA in International Finance from Syracuse University, as well as his MS in EE from UB Engineering. He is also a graduate of the Stanford Executive Program. In 2001, he earned a State University of New York honorary doctorate, the system's highest award, in recognition of his pioneering worldwide work in transaction automation.

Tyabji's distinguished career accomplishments have been recognized with the 1997 UB Alumni Association's (UBAA) Distinguished Alumni Award and the 2004 UBAA's Furnas Award for a distinguished career in engineering, as well as the 1995 UB School of Engineering Dean's Award. He has travelled often to our School and to the Buffalo area, sharing his time to address students, and was a keynote speaker at the 2011 Bright Buffalo Niagara forum. Tyabji's impact on the audience that day is best summed up in a line from his book: "If you are driven, you can influence any environment, and when you start doing that, the pebble in the water becomes a ripple, and that ripple one day becomes a wave."

See Insights next panel

INSIGHTS

FROM HATIM TYABJI

Buffalo Engineer: **How would you best describe the dot-com industry today, and what direction do you see it taking in the future?**

HatimTyabji: Technology today consists of multiple industries, and they have had a profound impact on human civilization. The mobile data industry in which Bytemobile does business is a prime example. Advances are being driven not only by enabling technology – from wireless networks to mobile devices to new content and applications – but also by consumer demand for the mobile lifestyle. This dynamic tension between supply and demand will continue to drive the industry forward far into the future – and it will continue to change the way that people live and work.

Buffalo Engineer: **Do you have any advice for engineering graduates, especially those entering the Computer Science and Engineering field as they join the work world?**

HatimTyabji: I would refer them to the George Bernard Shaw quote cited in the article. Life is not a spectator sport. Don't accept the status quo. Maintain a vibrant intellectual curiosity and pursue it relentlessly. Always strive to effect positive change, and your efforts will be contagious.

Sport Your School Pride with Alumni Apparel

The UB Engineering Alumni Association and the UB Alumni Association are proud to share the www.iLoveUB.com web store, your source for UB School of Engineering gear. Please visit to see a new line of School of Engineering apparel, t-shirts, caps, hoodies, and more!

Jack Davis: UBEAA 2012 Engineer of the Year

(L to R): UBEAA's Mike Dray presents Jack Davis with the award, with Interim Dean Rajan Batta, and UBEAA's Brian Peer.

John R. "Jack" Davis (BS IE '55), a founder and principal of I Squared R Element Company, Inc. (Akron, NY), was named UB Engineering Alumni Association's (UBEAA) Engineer of the Year, for distinguishing contributions to alumni, community, business, and professional affairs.

After serving in the Marine Corps Reserves and as a deck officer in the Coast Guard, Davis founded I Squared R. A top manufacturer of heating elements, the company's products are made entirely in the US, and its operations have grown to an 86,000-square-foot manufacturing facility that now employs about 80 people. Under Davis's strong, visionary leadership, the company has continued to meet current market demands to work at the leading edge of industry and technology.

Davis and his wife, Barbara, passionate believers in the value of education, have made the largest single contribution from individuals in UB Engineering's history to name the new engineering building. The reach of this investment will extend well beyond the region, as students and faculty produce research with access to the cutting-edge technologies now housed in Davis Hall. For more about Davis Hall, please see the Development section.

UB Career Services: Discover. Develop. Achieve.

- **Job hunting?** Get job search assistance and access to online postings and interviewing opportunities.
- **Seeking top candidates for your company?** To arrange on-campus interviews or showcase your organization, e-mail **jobs@buffalo.edu**.
- **Have advice for current college students?** Join the **Meet-a-Mentor** program.

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

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 donations. Together, we can all work to promote UB Engineering's excellence.

Checks should be addressed to the **UB Foundation** with "School of Engineering & Applied Sciences" noted in the memo, and sent to:

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

White House Honors Alumna Brown, Tech Savvy Founder

Continued from page 3

the possibilities available in science, technology, engineering and mathematics (STEM) fields.

The program's success has allowed its expansion to Tech Savvy Girls on a Roll, for tenth- to twelfth-graders who have completed the middle-school program.

The award was also an opportunity for Brown to talk to the White House administration about women in STEM and to work in break-out sessions on recruitment and retention topics. For this year's Tech Savvy program, see the article in the Pre-College section.

In Memoriam

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

James B. Baker, BS EE '50

William G. Baumler, BS IE '51

Thomas F. Bernecki, MS '77 PhD '82 EngSci

Anthony P. Buchiarelli, BS IE '50

August A. Cenkner Jr., PhD EngSci '73

Thomas J. Cici, BS ME '52

Richard E. Coleman, BS EngSci '72

David A. Concordia, BS EE '72

David Feign, MS AE '53

Captain Aloisius S. Grikis, BS ME '60

Gerald J. Hoffman, BS EE '57

James A. Huffcut, BS ME '51

Henry J. Kazimor, BS ME '50

Jay R. Martin, MS CE '75

Francis J. Meyer Jr., BS '69 MS '71 IE

John Narog Jr., BS ME '50

Richard B. Rupp, MS EE '69

Frank A. Saeli, BS ME '49

Robert G. Schopp, BS EE '51

Brian E. Scroger, BS IE '89

Edward F. Sverdrup Jr., BS EE '51

Andre Z. Szuwalski, BS CIE '63

Engineering Alumni Association Tailgate

The UB Engineering Alumni Association (UBEAA) celebrated the Bulls' home opener against the Stony Brook Seawolves with its annual tailgate party.

Above: friends, families, and students enjoyed the event. Right: at the grill (l to r): UBEAA President James Boyle (BS CIE '78), UBEAA Director Richard Rink (BS CIE '80), Jim's son Kevin Boyle (UB Physics), UBEAA Vice President Joseph Frandina (BS CIE '78)

25th Annual Engineers at UB Basketball and Spirit Award

The UB Engineering Alumni Association (UBEAA) hosted its 25th annual basketball party, a fun-filled event for UB Engineering faculty, family, friends, staff, and students to mix and show their support for UB sports. The UB Men won against Western Michigan, 59-57, and the UB Women played against Central Michigan, losing 66-60. Both were Mid-American Conference games.

The UBEAA awarded the Engineering Student Club Spirit Award to the Society of Women Engineers as the club with the greatest presence at the games.

(L to R): ✻Tom Stoll (BS EE '66), wife Jeanette, and family members

UB Engineering Alumni Association Board of Directors

Officers:

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

Members:

- ✻**Michelle C. Barker** (BS CE '99, MS CIE '07)
- ✻**Peter Buechi**, PE (BS '68 MS '70 CIE)
- ✻**Jeffrey Dudek** (BS CIE '00)
- ✻**John T. Kociela**, PE (BS CIE '68)
- ✻**Johnathan Kolber**, (BS '72, MS '74 CIE)
- ✻**Anthony S. Markut** (BS IE '80)
- ✻**Colleen M. O'Connell** (BS CIE '03)
- ✻**Brian J. Peer** (BS CE' 05)
- ✻**Richard A. Rink**, PE (BS CIE '80)
- ✻**Howard Strauss**, PE, Emeritus and Founding Faculty Advisor (MS ME '54)
- **Bill Swensen**, 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.

CE Student Cole Studies Thin Films in Botswana

Jonathan Cole at Victoria Falls in Zimbabwe, Africa.

CE student **Jonathan Cole** pursued a summer National Science Foundation Research Experience for Undergraduates program in Botswana, Africa, through Case Western University (CW), in collaboration with the University of Botswana (UBot), to study sustainable energies, particularly solar energy. Under the guidance of CW Professors Daniel Lacks and Mohan Sankaran, Cole researched solar panel thin films for their effectiveness in conducting electricity. A film must be transparent to allow sunlight to reach the active material, so materials require a combination not normally found in nature – of conductivity and transparency. Cole studied the materials indium tin oxide, the most commonly used but also most expensive option, and zinc oxide, which is less expensive.

UBot Physics Professor Stephen Sathiaraj devised the experiment, with UBot Physics graduate student Muiva Cosmas mentoring Cole and UBot Physics undergraduates Mosaic Thobega and Onkabetse Sengate.

The team found a trend between the varied production parameters and the resulting optical and conductive properties of the films, and determined that the samples they made would work for transparent conducting oxide applications, such as for solar cells. In addition to making a final report and presentation for CW students, the team's research abstracts were accepted for presentation at the Africa Materials Research Society conference in Victoria Falls, Zimbabwe.

Cole's visit also included sightseeing at game drives, the Jwaneng diamond mine, Zimbabwe's Victoria Falls, and a safari to Kasane, on Botswana's northern border.

UB Engineers for a Sustainable World (ESW) Hosts National Conference

The UB ESW chapter hosted ESW's national conference, with the theme "Green Tech: Sustainable Cities in the 21st Century." The conference highlighted the ways in which engineering fosters environmental, social, and economic sustainability to improve the quality of life and the condition of our planet.

Keynote speakers were McCullagh Coffee CEO and President Warren Emblidge, General Motors Advanced Technology Demonstration Manager Gary Stottler, and NY Energy Research and Development Authority Energy Smart Communities Coordinator Gary Carrel. Several other speakers presented at the three-day conference, including CBE SUNY Distinguished Teaching Professor **Carl Lund**, who spoke on "Reducing Waste Byproducts of Cellulose Hydrolysis."

Activities included tours of the NY Power Authority Niagara Power Vista and the single stream recycling plant in use by UB; a project poster session on UB ESW sustainability projects; and a service project to plant trees at UB's Solar Strand on the North Campus.

CSEE Professor and Research Exploration Academy Faculty Director **James N. Jensen** is the UB's ESW chapter faculty advisor. The conference's main organizers were AE student, ESW President **Mike Alcazaren**, and ESW officers, AE student **Ryan Bonetto**, and CompE student **Calvin Holic**, with Professor Jensen.

The conference was sponsored by Autodesk, Sun Edison, Cameron, and National Fuel.

ESW National Conference organizers, (l to r): Alcazaren, Bonetto, Holic, and Professor Jensen

IE Student Coles Wins Risk Analysis Award

IE PhD student **John Coles** won the 2011 Student Paper Award of the Society of Risk Analysis's Decision Analysis and Risk Specialty Group, for the paper, "Partnership Optimization Decision Support System (PODSS): Improving Partnership Development and Resource Allocation in Disaster Recovery Operations using Game Theory," which ISE Assistant Professor **Jun Zhuang** co-authored. The paper was presented at the SRA annual meeting in Charleston, South Carolina.

The research was partially funded as a NSF's RAPID project and by the Department of Homeland Security through the Center for Risk and Economic Analysis of Terrorism Events – CREATE.

CS Student Florentino, Entrepreneur

This past fall, CS undergraduate and UB honors college student **Scott Florentino** was profiled in the *Buffalo News* for the entrepreneurial spirit he applied to co-founding Clarence Computer Solutions, based on his ability and enjoyment in working with computers. The friend who worked together with him has since left for college at Rochester Institute of Technology, giving Scott full rein over the business, from which he has learned several values, including creativity, hard work, time management, service, and the importance of relaxation and reward.

IE Student Cheung in *Decision Analysis* Journal

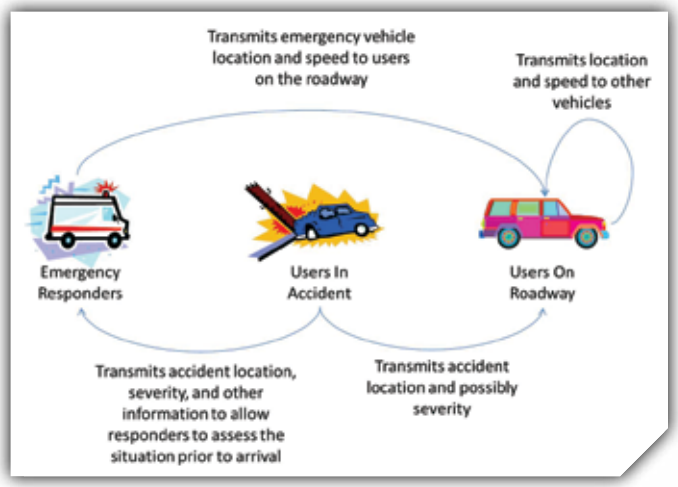
IE senior **May Cheung**'s peer-reviewed article, "Regulation Games Between Government and Competing Companies: Oil Spills and Other Disasters," was accepted for publication in *Decision Analysis*, a publication of the Institute for Operations Research and the Management Sciences –INFORMS. The co-author is ISE Assistant Professor **Jun Zhuang**.

(L to R:) Henchey and Geetla with award

ISE Students Geetla and Henchey Win DOT Challenge for Vehicle Communication

A project by ISE graduate students **Tejswaroop Geetla** and **Matthew Henchey** was a winner of the US Department of Transportation's (DOT) Connected Vehicle Technology Challenge, which asked entrants to use Dedicated Short Range Communications (DSRC) technology to develop new applications, products, and services. They presented their work and received the award at the 18th World Congress on Intelligent Transportation Systems in Orlando, Florida.

Geetla and Henchey's submission, "Emergency Response Application of DSRC Technology," proposed upgrading emergency responses to auto accidents with short-range technology. For example, vehicles involved in a crash could automatically notify traffic management controllers and emergency responders, minimizing response time and reducing traffic congestion.



Fall 2011 CURCA Awards

UB's Center for Undergraduate Research and Creative Activities, with UB Libraries, recognized the following student-faculty mentor research projects with Fall 2011 CURCA Awards.

CSE

Sean Zawicki, "Smart-Phone Benchmarking," with CSE Assistant Professor **Geoffrey Challen**

CSEE

Dyugu Altintas, "Evaluation of *J. curcas* as a Water Coagulant," with CSEE Professor **James Jensen**

Peter Byrley, "Assessment of Floating Algae Cultivator," with CSEE Research Assistant Professor **David Blersch**

Yachen Liao, "Computer Modeling to Accelerate Construction of Bridges," with CSEE Associate Professor **Stuart Chen**

EE

Lisa Rae Zoldos, "Dielectric Elastomer Actuators," with EE Assistant Professor **Jennifer Zirnheld** (BS '93 MS '97 PhD '04 EE)

ISE

Elizabeth Newell, "Game Theoretic Application to Disaster Preparation and Mitigation–Hurricane Case Study," with ISE Assistant Professor **Jun Zhuang**.

MAE

Kucheng Wang, "Vibration Damping Cement-Based Material Testing," with MAE Professor **Deborah Chung**

Chi Xu, "Sound Absorbing Cement-Based Material Testing," with MAE Professor **Deborah Chung**

ISE Student Chapter Hosts Conference

Nicolette McGeorge

Sudeep Hegde

UB's student chapter of the Human Factors and Ergonomics Society hosted the twelfth Inter-University Workshop, where students presented research and networked. The 78 participants came from University of Toronto, University of Waterloo, University of Michigan (Ann Arbor), Cornell University, Rochester Institute of Technology, and UB. Keynote speakers were Emilie Roth (Roth Cognitive Engineering), who spoke on "Designing for Collaborative Automation: A Course of Action Exploration Tool for Transportation Planning," and Dr. Thomas Armstrong (University of Michigan, Ann Arbor), who spoke on "Biomechanical Models for Study and Control for Work-related Illnesses and Injuries of the Hand." The best poster award went to ISE's **Nicolette McGeorge** and **Sudeep Hegde** for "Studying the Impact of Interoperable Health IT on Workflows in Ambulatory Care."

Engineering Students Win Knovel University Challenge

EE and Mathematics senior **Rahul Thakkar** won an iPad2 from the annual Knovel University Challenge grand prize, while CSE MS candidate **Vivek Kamath** was one of eight to be rewarded for outstanding participation at universities with 100 or more correct entries. Kamath's prize was an iPod nano. The competition asks students to answer three questions correctly, placing them in a random drawing, and is an opportunity to learn to use the Knovel database as a research tool.

Rahul Thakkar

Vivek Kamath

Wei Chen

Ming Shao

CSE Students Win IEEE Best Paper Award

CSE PhD students **Wei Chen** and **Ming Shao** (a UB Presidential Fellow), with CSE Assistant Professor **Yun (Raymond) Fu**, won the best paper award at the IEEE International Conference on Data Mining 2011 Workshop on Large Scale Visual Analytics, for their paper entitled, "Clustering Based Fast Low-Rank Approximation for Large-Scale Graph."

SWE Hosts Events

UB's Society of Women Engineers (SWE) hosted two events for young and prospective engineers. "Getting Started in Engineering" was an opportunity for current students to question a panel of industry representatives, including those from SWE's professional section, and from Cannon Design, DuPont, and IBM. For SWE "Shadow Day," high school girls gained a glimpse of life as a UB engineering freshman, with a presentation on freshman curriculum by UB Engineering's Director of Student Excellence Initiatives **Bill Wild** (BS IE '83, MA English '85, MS IE '87), tours of the campus, lunch with SWE members, and a speaker panel with female engineering faculty, including CSEE Lecturer **Christine Human**, EE Professor and Chair **Stella Batalama**, EE Assistant Professor **Jennifer Zirnheld** (BS '93 MS '97 PhD '04 EE), and ISE Associate Professor **Ann Bisantz** (BS '89 MS '91 IE). Undergraduates **Jaclyn Bronner** (ME) and **Julia Morrissey** (CE) worked on both events, and with **Emily Clark** (IE), **Chrissy Diagacamo** (IE) and **Jenna Wegrzyn** (IE). The SWE Faculty Coordinator for both events was **Christine Human**.

SWE Shadow Day participants

UB Robotics Explosive Ordnance Disposal Robot Presentation and Demonstration

The UB Robotics club organized an explosive ordnance disposal (EOD) robot presentation and demonstration by the U.S. Air Force Niagara Falls Air Reserve Station 914th Airlift Wing (AW). The event was held to show students the diverseness of Air Force careers with an emphasis on robots and technology. Club officers received certificates of appreciation from the 914th AW. US Air Force photo by Tech. Sgt. Joseph McKee.

First UB INFORMS Student Chapter Research Symposium

Students from the Schools of Engineering and Management attended the first annual research symposium of the UB INFORMS' (Institute for Operations Research and the Management Sciences) student chapter, the president of which is ISE graduate student **John Coles**.

The gathering was an opportunity for many of the students to prepare research talks for the national INFORMS conference. With that goal in mind, UB INFORMS officers created parameters similar to those of the national conference, with each student allowed 15 minutes for presenting, and 5 minutes for answering questions. Each audience member was also given a questionnaire to provide the speaker with more in-depth feedback to help further improve their work and presentation skills.

John Coles welcomed attendees to the first UB INFORMS symposium, a successful event with 8 presentations and over 25 attendees.

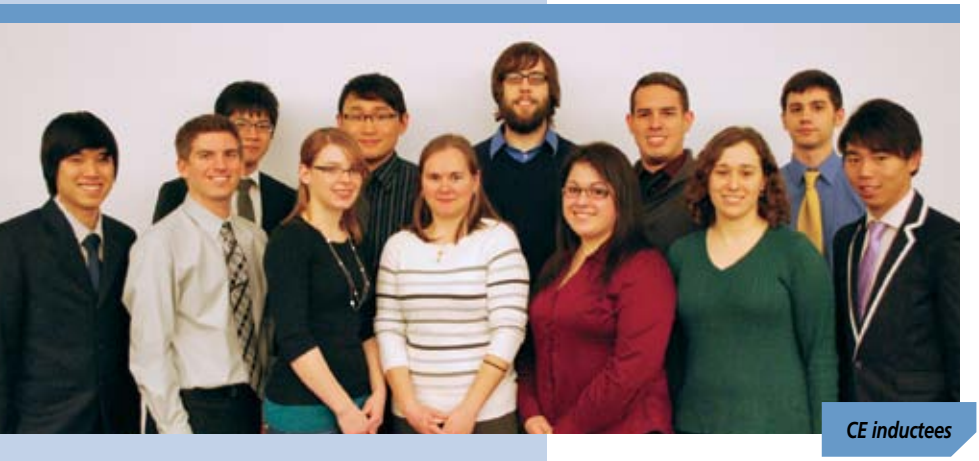
The organizers with some of this year's presenters (l to r, back to front): Faculty Advisor, ISE Assistant Professor Jun Zhuang; Vice President Geoff Gross, Cen Song, President John Coles, Treasurer Matthew Henchey, and Jie Xu

Participants heard talks on counter-terrorism, futuristic road network sensors, supply chain management, and online advertising.

Symposium organizers and INFORMS officers were: Faculty Advisor, ISE Assistant Professor **Jun Zhuang**; Vice President **Geoff Gross**, President **John Coles**; Treasurer **Matthew Henchey**. Coles stated that UB INFORMS provides an arena to better prepare students for futures in academia and industry, through a supportive and dynamic network of peers.

Please see the last page for more photos of Engineers Week.

Order of the Engineer at 2012 Engineers Week



CE inductees

EnvE inductees

Listed by discipline are the following inductees:

AE: ***Jason Stinson***

CE: ***Karl Barber, Martha Baron, Ui Tee Cheah, Seng Kiel Chin, Xun Xian Chong, Cassandra Harm, Ying Haw Lee, Chong Tatt Lim, Frank Mason, Jorge Mok, Thao Nguyen, Daniel Poore, Michelle Reele, Amanda Roder, David Rousseau, Timothy Stepniak, Julio Valenzuela Roca, Stephen Zicari***

CS: ***Douglas Calderon, Calvin Holic, Sathish Balaji Kumar, Eric Lehrer, Mohammed Makda, Yalei Song, Arjun Upadhyaya, Joseph Ventresca, Darwin Yip***

CIE: ***Sunday Adebayo, Matthew Baker, Jeremy Bielby, Brian Boehm, Cihan Camaloglu, Sedef Cinar, Eric Culver, Shawn Danek, Derrek Drass, John Ellis, Joshua Ezemadu, Fang Fang, David Goldstein, Isabel Gonzalez, Nailah Hatten, Craig Hebbard, Justin Kellogg, Tugce Kervan, Robert Kline, Duygu Kokoc, Zachary Kolbuc, Ceren Kucukcelebi, Jamey Lazio-Maimone, Gregory Leiby, Kyle Lemcke, Francis Mahaney, Yomar Martinez, Kasey McCarthy, Sarah Meskinas, Richard Nolan, Alexis Sigeti, Yunus Simsek, Umaipalan Sivartnarajah, Oguz Sonmez, Michelle Taegtmeier, Ashley Tarasco, Taylan Tasci, Michael Tearno, Mustafa Tuter, Tim Wilson, Leah Wzientek, Joseph Zaleski, Piotr Zareba***

EE: ***Ammar Albaldawi, Muazzam Azam, Lip Kin Chong, Allay Desai, Nathan Getze, Jonathan Grimaldi, Chinmay Karanjkar, Michael Kremlicka, Aditya Krishman, Harland Krupp, Ashley Leisck, Michael Marseglia, Khoi Nguyen, Alozie Owunwanne, Catalin Popescu, Jeffrey Randdolf, Daniel Rider, Andrew Smith, Kenneth Tan, Chee Jing Yeoh, Adrian Yeong***

EE and CS: ***Adam Czerniejewski, Michael D'Angelo***

EngPhysics: ***Richard Doell***

EnvE: ***Merve Babayigit, Mike Conese, Hasan Ertuggrul, Cansu Karaca, Christopher Savery, Daniel When***

IE: ***Maria Bejarano-Rodriguez, Jacob Bober, Jennifer Chen, Sean Frier, Matthew Gregoire, John Henzler, Bradley Hunt, Derek Kan, Emil Kuhl, Nattaporn Mahattanasakul, Brian Morgan, Yih Haur Ng, Evan O'Brien, Todd Otis, Hengky Robinsun, Bartholomeus Salim, Chad Stahl, Colin Walker***

ME: ***Emmanuel Cabrera, Mohd Hazzil Amir Chehashim, Rusty Donlon, Eric Gande, John Northrup, Daryl Quay, Daniel Reilly, Petko Veltchev, Alexis Wong***

ME and AE: ***Michael Alcazaren, Tikiriyadura De Silva, Christopher Kujawinski, John McGreevy, Johnnie Pacifico, Ramesh Pudasaini, Andrew Ring, James Trzaskos***

CS inductees

EE inductees

EE inductees

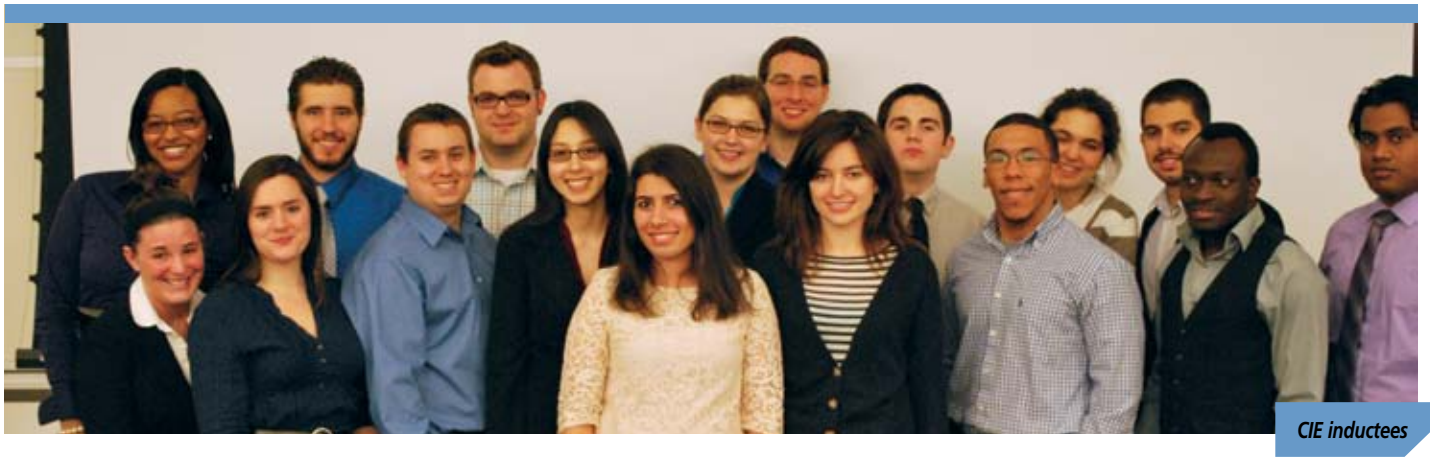
A main event of Engineers Week was the Order of the Engineer ceremony, at which graduating seniors are welcomed into the engineering community with an oath of professionalism.

ME & AE inductees

ME inductees

EngPhysics inductee

IE inductees



CIE inductees

CIE inductees

CBE Graduate Student Research Symposium

Woodrow K. Shiflett

The event was an opportunity for students to present their research posters, mingle at a reception, and attend lectures by fellow CE students **Biswajit Sarkar** and **Alexander Buffone**, and by keynote speaker Woodrow K. Shiflett, Chevron Products Company (Richmond, Calif.), who discussed "Moving Innovation into the Marketplace: Harvesting R&D Value in the Global Hydroprocessing Catalyst Arena."

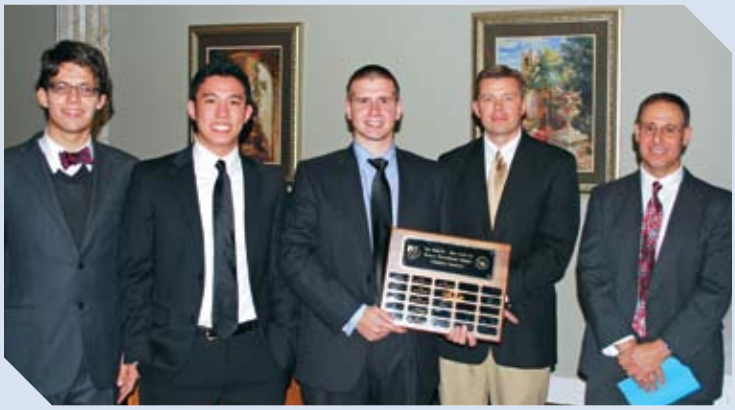
The symposium was held at the UB Center for the Arts.

Shown here with CBE Chair, Professor David Kofke at center, are the student poster winners (l to r): Kaustubh Rane, Sri Madabhushi, Munish Sharma, and Sushil Patil, who won the Student Choice award.

Tau Beta Pi Recognitions and Induction

Tau Beta Pi's New York Nu chapter, which earned a TBP Chapter Project Award for excellent project work at TBP's 105th convention, recently inducted new members.

The chapter also held its annual Honors Rectruitment Dinner and Tech Fair, which received gold sponsorship from Cobham Missions Systems.



(L to R): Internal Vice President Michael D'Angelo; President Steve Hsieh; External Vice President Greg Maloney; Kevin Kankolenski, Thermal Management Systens Engineering Manager at Cobham Mission Systems Division; and Gary Thomasulo, Oxygen Systems Engineering Manager, Cobham

Iconics CEO Russ Agrusa (BS EE '76), right, with students at the Tech Fair

Inductees (pictured here), listed in alphabetical order: John Bossung III, Esther Buckwalter, Brandon Colling, Matthew Corby, Adam Czerniejewski, Jacob Deutsch, Richard Doell, Joseph Flannery, Sourobh Ghosh, Alex Gioseffi, Jonathan Grimaldi, Calvin Holic, Richard Kennedy, Cheng Kee Lai, Eric John Lehner, Matthew Leibowitz, Jin Li Ke Liu, Laura Marron, Michelle Mekker, Sean Monckton, Paul Nixon, Daniel Rider, Mark Rutecki, Daniel Salem, Umaipalan Sivaratnarajah, Yalei Song, Laura Stutzman, Rachel Styn, Arjun Upadhyaya, Kevin Walczyk, Alex Wells, Zelu Xu Shih, Wing Yip

UniQ-UB/MCEER Earthquake Engineering Seminars Continue to Help Haiti Rebuild

Participants of an MCEER-Quisqueya University (UniQ) international education program now attend seminars in a newly constructed building on UniQ's Port-au-Prince campus, which had been completely leveled by the earthquake. The design of the new building is taken from an example used by seminar instructors in previous programs. "This is an especially gratifying example that the new knowledge passed along in the seminars is taking root in Haiti," said CSEE Professor **Andre Filiatrault**, an instructor in the program. Three previous seminars had been held in a large tent on the UniQ campus. The seminar program is for Haitian engineers rebuilding their nation after a major earthquake in 2010. In addition to Filiatrault, instructors in the fourth seminar installment included CIE PhD student **Pierre Fouché**, a Haitian native; André Bergeron (a Montreal, Quebec structural engineer); Constantin Christopoulos, (University of Toronto); Wassim M. Ghannoum, (University of Texas, Austin); J. Eric Karsh, (Equilibrium Consulting Inc., Vancouver); and Denis Leboeuf, (Laval University, Quebec). MCEER Senior Program Officer **Sofia Tangalos** was seminar coordinator, Lou-Anne Filiatrault assisted with registration, and Haitian colleagues Dean Evenson Calixte and Tingue Wolfield of the Faculty of Engineering & Architecture organized the event on behalf of UniQ.

All seminars are developed in consultation with UniQ faculty and based on Haitian construction practices. Lectures and seminar materials are presented in French and provide participants with the opportunity to receive credit toward a Master's of earthquake engineering degree at UniQ. For more information, visit http://mceer.buffalo.edu/education/UniQ/default.asp.

2011 participants, UniQ-UB/MCEER seismic design of steel structures program, posed in front of the classroom building used to present the UniQ-UB/MCEER seminar series. The building's design was based on a seismic design example presented at an earlier installment of the seminars. CSEE Professor Andre Filiatrault is front left (in blue); next to him (l to r) are: UniQ Rector, Jacky Lumarque; instructor Constantin Christopoulos; and Pierre Fouché (squatting).

Summer Enhancement: Course Offerings

The School of Engineering is pleased to 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.

CSE Internship Program Enjoys Success

Under CSE Internship Coordinator, Professor **Shambhu Upadhyaya**, CSE's internship program leads the School of Engineering in its participating students earning credit. This past summer, 64 MS/PhD and 10 BS students took part, many of whom were international students. Because they were geographically flexible, interns were placed both locally and nationally, at a national lab – Los Alamos National Laboratory, and at a diverse range of companies. The list includes Amazon, Bloomberg, Cisco, Citrix Systems, EMC, Fujitsu, Google, Health Care Technologies, HP, IBM, Intel Corporation, IVR Technology Group, LinkedIn, MathWorks, Pfizer Inc., Samsung, Siemens, UB Neurosurgery, VMWare, and Yahoo.

With the positive evaluations they have received, the CSE student interns were outstanding ambassadors who brought visibility to the department and the School.

EngiNet™ Offerings

EngiNet™ is principally a graduate-level distance learning program. We offer courses year-round in the following areas:

- Civil, Structural and Environmental Engineering
- Computer Science and Engineering
- Electrical Engineering
- Engineering and Applied Sciences
- Industrial and Systems Engineering
- Mechanical and Aerospace Engineering

See our website **www.eng.buffalo.edu/EngiNet** for course offerings and more program information.

For additional information, contact the EngiNet™ Office at (716) 645-0956 or enginet@buffalo.edu.

The University at Buffalo placed 38th for in-state and 27th for out-of-state students on *Kiplinger's* list of the best values in public colleges, which examines about 500 U.S. colleges and universities for academics and affordability.

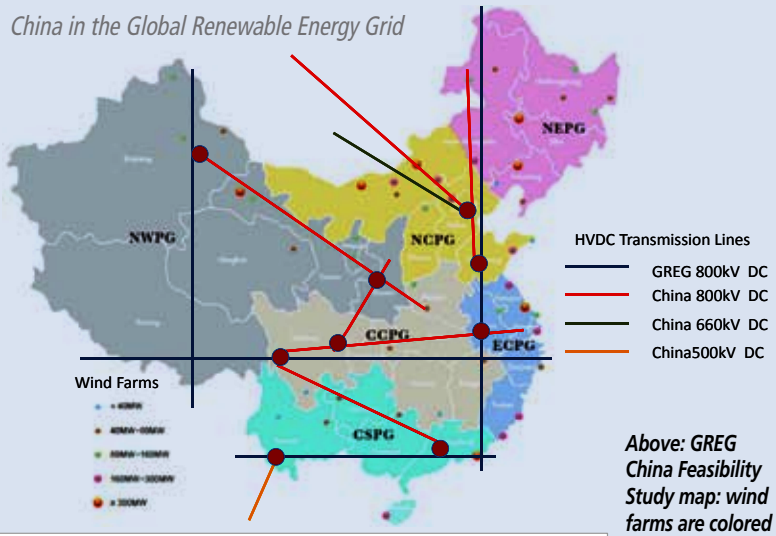
Students Research Potential for Global Renewable Energy Grid

After completing an independent study in distributed energy systems, EE PhD student **Robert Finton** went to China to contribute to research on a Global Renewable Energy Grid, under the supervision of EE's **Mohammed Safiuddin**. Finton carried out a feasibility study, illustrating China's electrical industry structure, and characterizing the Chinese power transmission system. He participated in the project as a fulfillment of the EAS496 Co-op Program.

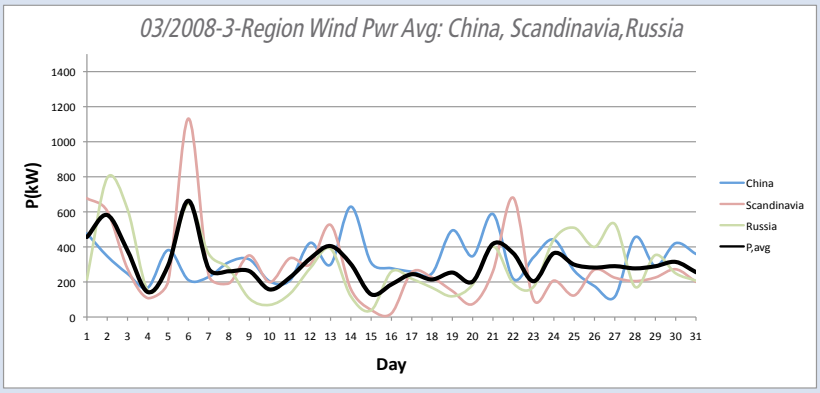
Previously, students of Safiuddin had studied wind energy patterns in five regions of the world. Finton's assessment of wind energy patterns in China filled in a missing component to the data. He incorporated the data on China with the average global wind power figures in the Global Renewable Energy Grid (GREG) project's database. The research seeks to identify the ebbs and peaks of wind energy globally, for the prospect of harnessing wind and solar energy 24 hours a day, seven days a week, with transmission across nations, to minimize energy storage requirements and power flow fluctuations.

Mohammed Safiuddin

Robert Finton



Above: GREG China Feasibility Study map: wind farms are colored dots overlayed by existing and proposed high voltage transmission lines.



Left: Plot showing average wind power for China, Russia, and Scandinavia during the sample month

In the Smart Grid Lab at Buffalo State College, (L to R), standing in back: UB EE graduate students Shwetha Virupakshi (red shirt), Manjunath Rama (tan shirt),and Buff State student Jonathan Demay, EE Research Professor Emeritus Safiuddin, and Buff State Professor Grinberg; seated in front are: Buff State student William Brzezinski (with hat), UB EE graduate student Yuvaraj Kondaswamy (blue sweatshirt), and Buff State student Marcus Samerson. *Photo: Bruce Fox*

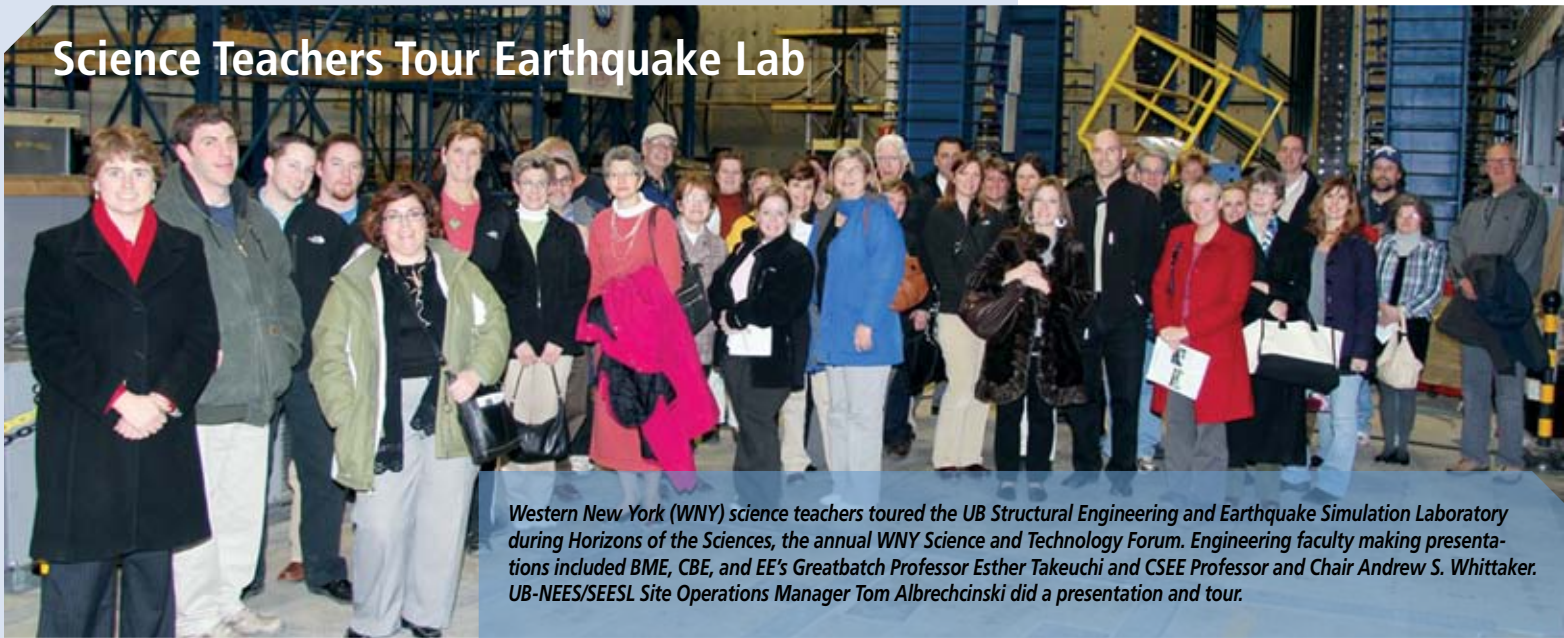
Smart Grid Training Program Addresses Need

Under the leaderships of EE Research Professor Emeritus **Mohammed Safiuddin** and Buffalo State College EE Technology Professor Ilya Grinberg, a joint Smart Grid Laboratory on Buffalo State College's campus has been established, to educate and train full-time students, technicians, and power system professionals from the industry.

The related Smart Grid Workforce Training program addresses a Department of Energy call to enhance job opportunities in the electric utility and the equipment manufacturing sectors of the power system industry. The name of the DOE inititive is STEPS–Strategic Training and Education in Power Systems. The program currently engages the following academic institutions, together with UB and Buffalo State College: Clarkson University, Onondaga Community College, Syracuse University, and University of Rochester. National Grid USA is a regional utility industry partner in the project.

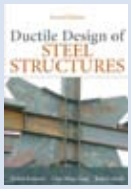
For more information on this program, please contact EE Professor Emeritus Safiuddin at safium@buffalo.edu.

Science Teachers Tour Earthquake Lab



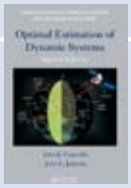
Western New York (WNY) science teachers toured the UB Structural Engineering and Earthquake Simulation Laboratory during Horizons of the Sciences, the annual WNY Science and Technology Forum. Engineering faculty making presentations included BME, CBE, and EE's Greatbatch Professor Esther Takeuchi and CSEE Professor and Chair Andrew S. Whittaker. UB-NEES/SEESL Site Operations Manager Tom Albrechcinski did a presentation and tour.

Faculty & Staff Accomplishments



CSEE Professor **Michel Bruneau**, Chia-Ming Uang (University of California, San Diego), and Rafael Sabelli (Walter P. Moore and Associates, Inc.) published *Ductile Design of Steel Structures, 2nd Edition* (McGraw-Hill Professional).

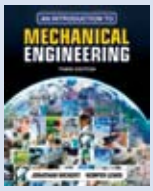
MAE Professor **Deborah D.L. Chung** is co-author, editor, and publisher for the Chinese and English versions of her late mother, Rebecca Chung's, autobiography, *Piloted to Serve*. Rebecca Chung received a long overdue US Army veteran status honorable discharge for her World War II service as a nurse in Kunming, China, with the Flying Tigers and the US Army. Chung received the honor on behalf of the family at a ceremony in Congresswoman Hochul's office (Buffalo, NY).



MAE Professor **John L. Crassidis** and John L. Junkins (Texas A&M University) published *Optimal Estimation of Dynamical Systems, 2nd Edition* (Chapman & Hall/CRC Press).

Yunqian Ma (Honeywell International Incorporated) and CSE Assistant Professor **Yun Fu** were editors of *Manifold Learning Theory and Applications* (CRC Press).

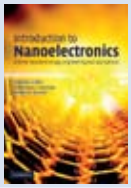
ISE Assistant Professor **Murat Kurt** earned an Institute for Operations Research and the Management Sciences – INFORMS Service Science Section Best Paper Award, for the article entitled, "Valuing Prearranged Paired Kidney Exchanges: A Stochastic Game Approach," with co-authors University of Pittsburgh's Mark Roberts and Andrew Schaefer, and Utku Unver (Boston College).



Jonathan Wickert (Iowa State University) and MAE Professor for Competitive Product and Process Design **Kemper Lewis** published *An Introduction to Mechanical Engineering, 3rd Edition* (Cengage Learning).

MAE Research Professor **Zach Liang**, CSEE's SUNY Distinguished Professor **George C. Lee**, MAE Professor and Chair **Gary F. Dargush**, and MCEER Senior Research Scientist **Jianwei Song** have authored *Structural Damping: Applications in Seismic Response Modification* (Taylor & Francis).

SUNY Distinguished EE Professor **Vladimir Mitin** was named a fellow of the American Physical Society, for contributions to phonon enhancement of sensors and detectors, and to controlled carrier kinetics in sensors with high responsivity.



Vladimir Mitin, with authors Viatcheslav A. Kochelap (National Academy of Sciences, Ukraine), and Michael A. Stroscio (University of Illinois, Chicago), published *Introduction to Nanoelectronics: Science, Nanotechnology, Engineering and Applications (translated into Arabic)* (Cambridge).

Continued on page 16

Michel Bruneau: 2012 AISC T.R. Higgins Award

Continued from page 3

structural steel. The award was presented at the 2012 North American Steel Construction Conference in Dallas, Texas.

Bruneau's abundant research includes the evaluation and retrofit of existing steel bridges and buildings subjected to large destructive forces up to collapse, as well as the development of new design concepts capable of providing satisfactory seismic-resistance, blast-resistance, or both simultaneously as multi-hazard resistant concepts. This research has encompassed contributions to the development and large-scale experimental validation of various energy-dissipating design concepts to enhance the resilience of structures against extreme events: ductile steel plate shear walls, ductile bridge diaphragms, tubular eccentrically braced frames, structural fuses and controlled-rocking piers. Bruneau's work has resulted in updated seismic design requirements included in code sources such as the AISC Seismic Design Provisions 2010 edition, among others. His research on multi-hazard resistant bridge bents has also resulted in updated design requirements for composite steel-concrete bridge bents for both seismic and blast loads.

UB Engineering Service Recognition Ceremony

The annual ceremony honored those employed at UB for their decades of service. Congratulations to our honorees:

40 Years:
Michelle Chasse (pictured with Interim Dean Rajan Batta). Not pictured: Peter Scott

30 Years:
Prasanta Banerjee (not pictured)

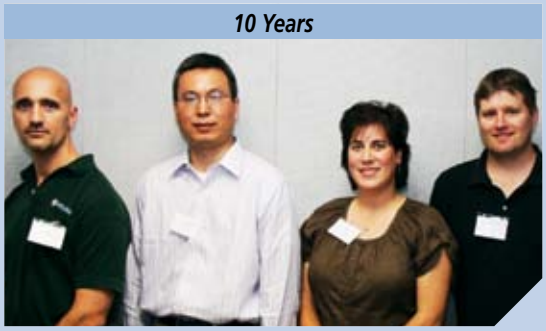
20 Years:
(L to R): Alan Selman, John Crassidis, Johannes Nitsche. Not pictured: Karen Buchheit, Judith Flick, Roger Krupski, and Jo Meachem

10 Years:
(L to R): Scot Weinreber, Jinhui Xu, Maria-Rose Frisina, and Scott Berner. Not pictured: Igor Jankovic, Brian Mirand, Andrew Olewnik, Andrew Whittaker, Ivan Shulgin, Jan Chomicki, Sriram Vilayanoor, and Susan Zonglu Hua

40 Years

20 Years

10 Years



Faculty & Staff Accomplishments

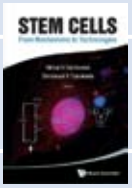
Continued from page 15

Professor **Salvatore Salamone** earned a 2011 faculty award from the American Society for Nondestructive Testing (ASNT), for his proposal, "Revision of Graduate Courses CIE500S 'Introduction to Nondestructive Evaluation." The award was recognized at the ASNT Fall Conference and Quality Testing Show in Palm Springs, Calif.

CSE Teaching Assistant Professor **Kris Schindler** (BS '93 MS '96 PhD '01 EE) published *Introduction to Microprocessor Based Systems Using the ARM Processor* (Pearson Learning Solutions).

Steven Homer (Boston University) and CSE Professor **Alan L. Selman** published *Computability and Complexity Theory, 2nd Edition* (Springer).

SUNY Distinguished Professor of CSE and Center of Excellence in Document Analysis and Recognition Director **Sargur N. Srihari** won the 2011 International Conference on Document Analysis and Recognition (ICDAR) Outstanding Achievements Award for contributions to research and education in handwriting recognition and document analysis, and for community service. Srihari accepted the award in Beijing, and delivered a keynote speech on "Probabilistic Graphical Models in Machine Learning."



Michal Stachowiak (Editor) (UB Pathology & Anatomical Sciences) BME and CBE's **Emmanuel S. Tzanakakis** (Editor), *Stem Cells: From Mechanisms to Technologies* (World Scientific).

President Tripathi recognized the following faculty members for their book publications at the Fifth Anthology of Recognition ceremony: CBE's **Tzanakakis**; CSE's **Alomari, Chaudhary, Fu, Schindler**, and **Selman**; CSEE's **Bruneau**; EE's **Mitin** and **Vagidov**; ISE's **Chang**; MAE's **Chung, Crassidis**, and **Lewis**.

Marschilok: Woman of Distinction in Education

Girl Scouts of Western New York honored Research Assistant Professor **Amy Marschilok** as a Woman of Distinction in Education. The honor recognizes strength of character, commitment to community service, and dedication to mentoring girls and young women. The honorees are nominated by their peers and commit to increasing the impact of Girl Scouting.

Comings, Goings and Changes

Comings

BME

BME Assistant Professor **Jonathan Lovell** earned his MS in Biochemistry from the McMaster University (2007) and his PhD from the University of Toronto's Institute for Biomaterials and Biomedical Engineering (2011). His research involves nanotechnology and novel design of new optically active theranostic agents to combat cancer.

BME Associate Professor **Lei Ying (Leslie)** joins us from the University of Wisconsin-Milwaukee's Electrical Engineering and Computer Science department, where she had been a professor since 2003. She received her PhD and MS degrees in EE from the University of Illinois, Urbana-Champaign (2003 and 1999 respectively). Her research interests include image reconstruction, magnetic resonance imaging, compressed sensing, and statistical signal processing.

CBE

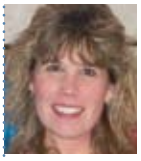
CBE Research Instructor **Rubik Asatryan** joins us from New Jersey Institute of Technology, Newark, where he had been a research professor since 2005. He earned his diploma in Chemistry from Yerevan State University, Armenia (1976) and his PhD in Physical Chemistry from Moscow State University, Russia (1982). His research interests are in the area of molecular modeling and kinetics in atmospheric chemistry, combustion and catalysis.

CSE

CSE Assistant Professor **Robert Platt** earned a PhD in CS from the University of Massachusetts, Amherst (2006), after which he was team lead for Robonaut 2 control and autonomy at NASA Johnson Space Center (2006–2009), and a research scientist at MIT (2009–2011). Platt is interested in planning, control, and machine learning for robotics with a focus on systems that are partially observable, noisy, or difficult to model. He is particularly interested in robot manipulation and assembly.

CSE Assistant Professor **Jing Gao** earned a PhD in CS from the University of Illinois, Urbana-Champaign (2011) and a MEng (2004) in CS from Harbin Institute of Technology (China). Her research interests are in data and information analysis, particularly data mining and machine learning. She seeks to develop novel data mining techniques for emerging data intensive applications, such as cyber security, health care, bioinformatics, multimedia, energy and sustainability.

CSEE



MCEER Business and Financial Staff Assistant **Bonnie McKay** has been with UB since 2000. Her experience here has included work for several areas, including the Center for Computational Research, and the NYS Center of Excellence in Bioinformatics and Life Sciences. She earned a BS in Business, Management & Economics from Empire State College (2011). Her background is in administration, finance, and human resources.

EE

EE Assistant Professor **HyungSeon Oh** earned a PhD in Electrical and Computer Engineering from Cornell University (2005) and a MS in Materials Science and Engineering from Cornell (2002). Prior to joining UB, he was an engineer at the National Renewable Energy Laboratory. His primary research interests include analysis and control of nonlinear electric power systems, impact and feasibility assessment of economic implications for renewable and conventional energy technologies, and transmission network modeling.

EE Assistant Professor **Uttam Singisetti** earned a PhD from University of California, Santa Barbara (UCSB) in Electrical and Computer Engineering (2009) and a MS from Arizona State University (2004). His research interests include advanced GaN and novel III-N devices for THz electronics, nano-electronics in emerging novel materials, energy-efficient nano-electronics, transport in nanoscale heterostructures. He was an assistant project scientist in UCSB Professor Umesh Mishra's research group prior to joining UB.

MAE

MAE Assistant Professor **Manoranjan Majji** earned his PhD and MS from Texas A&M University in AE (2009 and 2006 respectively). His research interests are system identification, computational vision, control theory and autonomous systems. While developing smart sensing technologies and algorithms, Majji's group is also involved in developing platforms for motion emulation of autonomous systems.

Goings

RETIRING ARE:

During his 33-year tenure, EE Professor **Wayne A. Anderson** (BS '61 MS '65 PhD '70 EE) served the School widely, including positions as departmental chair and associate chair, director of the Center for Electronic and Electro-Optic Materials, and associate director of the Center for Advanced Photonic and Electronic Materials. His accomplishments also include establishing the School of Engineering's initial clean room, over 15 years ago. His industry consulting included work for Exxon Enterprises, Leica, Vivadent, and others. His research interests include semiconductors, photovoltaics, thin film deposition methods, thin film transistors, and photodetectors. After retiring he will continue some research activities, participate in Christian volunteer activities, travel, and play golf.

EE Professor **Donald D. Givone** joined the School of Engineering in 1963. Throughout his career, his dedication to teaching and mentorship was recognized by the UB Student Association's Milton Plesur Excellence in Teaching Award (1992), and twice with Tau Beta Pi's Professor of the Year Award (1968 and 1998). Givone served the department on several committees, especially providing support as graduate admissions director. Among his publications he authored the books Introduction to *Switching Circuit Theory* and, more recently, *Digital Principles and Design*, in addition to co-authoring *Microprocessors/ Microcomputers: An Introduction* (all published by McGraw-Hill).

EE Research Professor **Douglas C. Hopkins** (BS '75 MS '77 EE) joined the School's faculty in 1997. He is an Institute of Electrical and Electronics Engineers (IEEE) Senior Member and a Fellow of the International Microelectronics and Packaging Society. His awards include IEEE's Region I 2001 Outstanding Contribution to Education, Research and Professionalism award, and IEEE's Third Millennium Medal in 1999. He is president and co-founder of DensePower, LLC and also actively consults as an expert witness through D.C. Hopkins & Associates, LLC. His service has included positions as director of the Electronic Power and Energy Research Laboratory, and associate director of the Electronics Packaging Laboratory. Hopkins' primary research areas are in electronic energy systems. His early research career was at General Electric and Carrier Conditioning, and he has held visiting faculty appointments with the U.S. Army, NASA, and the Ohio Space Institute. He is now developing an advanced electronics packaging laboratory at North Carolina State University.

MAE Professor **Ching-Shi Liu** joined the School in 1967 in the Engineering Science department and became a member of the MAE faculty in 1980. His research interests covered fluid mechanics, boundary layer stability, dynamic systems. He contributed extensively to the development of several MAE courses, including MAE 608: Viscous Hypersonic Flow, developed under the NASA sponsored Graduate Program in Hypersonics. His visiting professorships included two in Taiwan, China, at the National Central University in Chung Li, and at the National Academy of Science in Nankang. His contributions to community and university service have included acting as a technical liaison and interpreter between local industries and representatives from China, and cultural exchanges with college student groups from Taiwan. He was actively engaged as a student mentor and with academic committees for undergraduates and graduates.

CSE Associate Professor **William J. Rapaport** (affiliated with Philosophy and Linguistics) served with the SNePS (Semantic Network Processing Systems) Research Group as associate director and with the Center for Cognitive Science. He received the SUNY Chancellor's Award for Excellence in Teaching (1981), the *American Philosophical Quarterly* Essay Prize (1982), and was elected first president of the Society for Minds and Machines (1991–1993). His grants and fellowships include awards from the National Science Foundation, the National Endowment for the Humanities, and the Research Foundation of SUNY. In addition to publishing widely on his cognitive science research, he is a well-known local restaurant reviewer. He is continuing his activities as a researcher, and is writing a text on philosophy of computer science. He and his wife will continue to restore Lucille Ball's childhood home in Celoron, NY.

National Academy of Engineering (NAE) member, National Medal of Science winner, SUNY Distinguished Professor of CBE **Eli Ruckenstein**'s prolific and pioneering contributions to chemical engineering have been rewarded with numerous distinctions, including the 2004 National Academy of Engineering Founders Award, the 2002 American Institute of Chemical Engineers (AIChE) Founder's Award, AIChE's 1988 Walker Award, the 1977 AIChE's Alpha Chi Sigma Award, the 1986 American Chemical Society's (ACS) Kendall Award, the 1994 ACS Langmuir Lecture Award, the 1996 ACS E.V. Murphree Award, the 1985 Alexander von Humboldt Foundation's Senior Humboldt Award, and the 1985 NSF Creativity Award. Ruckenstein joined the School's faculty in 1973, and was the first full-time SUNY system professor elected to the NAE. A leading influential chemical engineer, he has made numerous contributions to modernizing research and development in key areas of chemical engineering. Ruckenstein will continue doing research. He is a fellow of AIChE, which, on its 100th anniversary, designated him as one of 50 eminent chemical engineers of its "Foundation Age."

CBE Professor **Mike Ryan** has been a leading figure at the university and the School, serving as Engineering Associate Dean of Student Services for nine years, as UB's Undergraduate Education Vice Provost and Dean, and as a lead in the university's middle states accreditation more recently. His many honors and awards include Tau Beta Pi New York Nu Chapter's Eminent Engineer Award (2004). His extensive service and his contributions to education were recognized with three UB Service Excellence Awards, two ASEE Campus Representative Awards, and several best paper awards. His many other distinctions include UB Chapter of the Golden Key International Honor Society Honorary Member, the American Institute of Chemical Engineers' Western New York Section Professional Achievement Award, and the American Society for Engineering Education St. Lawrence Section's Dow Outstanding Young Faculty Award. He will continue directing the university accreditation process.

CSE Associate Professor **Peter D. Scott** (with appointments in EE, Physiology and Biophysics) published widely on his research in computer vision and information visualization, and controls, signals, and systems. He received the SUNY Outstanding Inventor Award in 2003. Later he was PI on a large Air Force research project to create software to improve disaster response. Current University of Southern California President **C.L. Max Nikias** (MS '80 PhD '82 EE) was one of Scott's many students. Scott served the department on dissertation committees and shared his interest in image processing by teaching it to many CSE students. Among Scott's interests are digital cameras, signal processing, and motorcycles. As a dedicated professor, Scott made an impact on the university and community.

CSE Professor **Stuart C. Shapiro** (with affiliations in Linguistics and Philosophy) joined UB in 1977. He served twice as CS chair, and as founding CSE chair, and as SNePS Research Group director. More recently he was Center for Cognitive Science director, in addition to his active roles in several other areas including the Center for Multisource Information Fusion. He was chair of ACM's Special Interest Group on Artificial Intelligence, and was Principles of Knowledge Representation and Reasoning, Incorporated president. His distinctions include Association for the Advancement of Artificial Intelligence Fellow, IEEE Life Senior Member, and the UB Exceptional Scholar Sustained Achievement (2002) and the Association for Computing Machinery Distinguished Scientist (2006) awards. His activities as a writer and editor reflect his research interests in artificial intelligence. In addition to continuing his professional activities, Shapiro is secretary of the Amherst Industrial Development Agency Board of Directors.

MAE Professor **Andres Soom** joined UB in 1977. His teaching and research contributions have been in the areas of noise control, mechanical design, machinery condition monitoring, and tribology: the study of friction, lubrication and wear. He is most proud of his successful PhD students who have gone on to receive NSF CAREER and PECASE awards and other recognitions. He actively assumed service and leadership positions including MAE Graduate Studies director, MAE chair and interim chair, School of Engineering Research and Graduate Education associate dean, and was very engaged in establishing industry-sponsored master's degrees for company engineers, with major programs at National Grid/Niagara Mohawk and Praxair. He is a Fellow of the American Society of Mechanical Engineers.

Appointment

Congratulations on the following appointment:

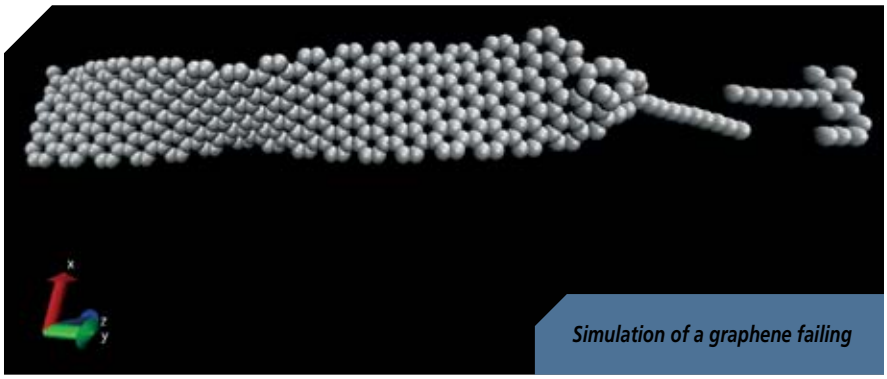
CSEE Professor and Chair **Andrew Whittaker**, was named MCEER Director.

Cemal Basaran: ASME EPPD Excellence in Mechanics & US Naval Awards

Continued from page 3

Basaran also received a US Office of Naval Research (ONR) award, for his project entitled, "The Framework for Next Generation Power Electronics Using Nanomaterials." For this project, Basaran and his team are working to develop power electronics devices from graphene nano ribbons and single walled carbon nanotubes. These one-atom thick materials are expected to replace traditional metals in electronics. Currently, the specific task at hand for Basaran and his group is to develop quantum mechanics and molecular dynamics simulation models to predict electro-thermo-mechanical properties and behavior of these nano materials under high current densities and high temperatures that are dominant in power electronics.

Basaran, EPL director since 1999, is an ASME fellow. Among his other awards are 2005 ASME Journal of Electronic Packaging Associate Editor of the Year; a 1997 US Navy ONR Young Investigator Award; and the 1997 UB Riefler Award, which honors outstanding junior faculty in the School of Engineering.



Simulation of a graphene failing

Interim Provost, Former Dean Stenger Named Binghamton University President

Harvey G. Stenger Jr. appointed Binghamton University president

Upon SUNY Chancellor Nancy Zimpher's recommendation, the SUNY Board of Trustees approved **Harvey G. Stenger Jr.**'s appointment as Binghamton University president effective January 1, 2012.

Stenger's post as UB interim provost and executive vice president for academic affairs began in April 2011. Throughout his outstanding tenure as dean (2006–2011), our School's progress was impressive, thanks to his leadership abilities, his commitments to innovation and academic excellence, and his great successes in forging partnerships inside and outside the university. Stenger's major accomplishments as dean were many, and included collaborating to launch the new BME department with School of Medicine and Biomedical Sciences Dean Michael Cain, and overseeing the building of Barbara and Jack Davis Hall – from planning and conception to funding, construction, and naming of the building and its spaces. As dean, he helped make many strong faculty hires, improved engineering student diversity and quality, improved research lab quality, and applied a spirit of dynamism and innovation across the School's many enterprises. Under his leadership, a redesigned freshman-year engineering curriculum was created, and in 2008, the ABET accreditation process for the School's eight programs was completed. Stenger oversaw many generous philanthropic gifts to the School, including the largest in the School's history at that time, from Barbara and **Jack Davis** (BS IE '55).

Obituaries

The School of Engineering extends condolences to the friends and family of our colleagues.

We mourn the passing of **Wilson Greatbatch** (MS EE '57), our alumnus, faculty member, and world-renowned inventor of the implantable cardiac pacemaker, whose ever-curious mind led him to new discoveries into his nineties. A winner of the U.S. Medal of Technology and the Engineering Dean's Award, he was recognized widely for his life-saving/life-improving invention. According to a *New York Times* obituary, he held 325 patents. Greatbatch was inducted into the National Inventors Hall of Fame in 1986. He held several honorary science doctorates, including one from the State University of New York. A member of the National Academy of Engineering, he won its Russ Prize in 2001, in recognition of outstanding bioengineering achievement with widespread use that improves the human condition. Greatbatch's wife, Eleanor, died in January 2011.

UB Engineering warmly remembers retired MAE Professor **Robert "Bob" E. Mates**. His 35 years of service included working as UB's Center for Biomedical Engineering director and a research professorship in Medicine. His gift for teaching earned him the SUNY Chancellors Award for Teaching Excellence in 1991. An active member and fellow of the American Society of Mechanical Engineers (ASME), he served in ASME leadership roles for 25 years and received its Dedicated Service Award. His honorary society memberships included Sigma Xi, Phi Beta Kappa, Tau Beta Pi, Phi Kappa Phi and Pi Tau Sigma. He also received awards from the Buffalo Public Schools, where he volunteered doing technical and vocational education. His wife, Gail, with whom he journeyed to every continent except Antarctica, survives him.

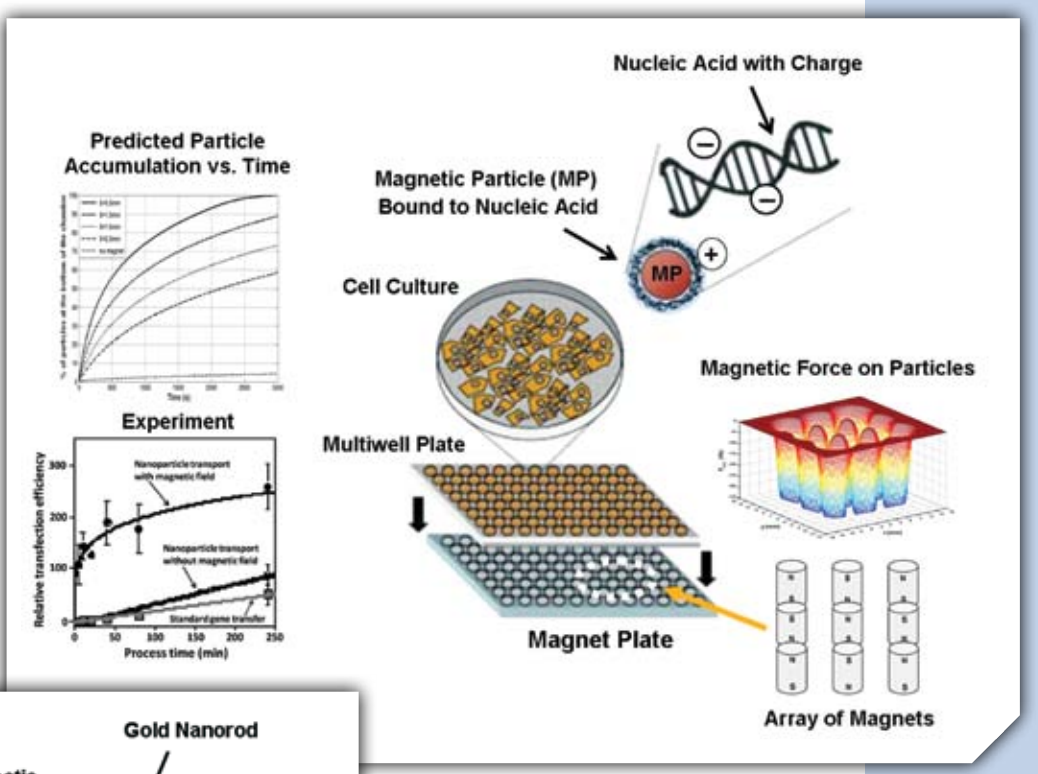
MAE Professor Emeritus **Dale Taulbee**, a Detroit native and Michigan State University alumnus, who joined UB Engineering's faculty in 1963, will be greatly missed. His passion for teaching and mentoring was recognized with the 2008 UB Milton Plesur Award for Excellence in Teaching. Out of concern for the high cost of textbooks that his students incurred, he wrote and published an affordable course book for his junior-level class. He also published widely on his research, which focused on fluid mechanics, computational methods, and turbulent flows, with applications ranging from aerospace sciences to bioengineering. Taulbee taught 24 different graduate and undergraduate courses throughout his tenure; he was major professor to 17 PhDs and over 40 masters. His service also included positions as MAE graduate studies director and department chair. Taulbee enjoyed the outdoors and was a member of the Niagara Sailing Club and the Buffalo Canoe Club. A devoted father and husband, he is survived by his wife, the former Joan White, and their four children.

CBE and EE's Furlani Models Emerging Bioapplications of Magnetic Particles

Edward Furlani

CBE and EE Professor Edward Furlani has developed models for predicting the transport of magnetically tagged biomaterial, for applications such as *in vivo* drug delivery for cancer therapy, and microfluidic-based bioseparation for diagnostics.

Furlani's work has appeared this year in the journals *Nanomedicine*, *Biomaterials* and *Microfluidics and Nanofluidics*. Most recently, he and CBE student **Xiaozheng Xue** have modeled magnetofection, a process in which magnetic particles with surface-bound gene vectors are magnetically attracted to target cells to enable transfection (Fig. 1). Magnetofection is performed using conventional multiwell culture and magnet plates. Target cells are located at the bottom of the wells, and rare-earth magnets beneath the wells provide a magnetic force that attracts the particle-gene vector complex towards the cells. Furlani has developed models to predict the magnetic force on the particles, their transport dynamics, and accumulation on cells. He is using the models to determine the feasibility of scaling the process to the microscale, using microfabricated multiwell systems to achieve enhanced performance. His work on magnetofection appears in *Pharmaceutical Research*, and this research is partially supported by grants for materials modeling from Cabot Corp and EMD Chemicals.



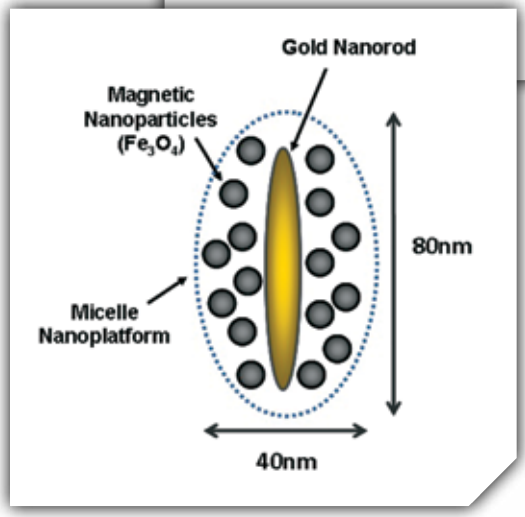


Fig. 1. (above) Magnetofection and modeling results

Fig. 2. (left) Nanoplatform

Magneto-plasmonic Nanoplatforms Applications Research

Professor Furlani is also leading research on applications of magneto-plasmonic nanoplatforms. These consist of magnetic nanoparticles and a gold nanorod embedded within a phospholipid-based micelle structure as shown in Fig. 2. Furlani, along with CBE student Xue, EE students **Ratna Reddy** and **Qian Xie**, and Physics student Atcha Kopwitthaya are working with Professors **Mark Swihart** (CBE), **Chulhong Kim** (BME), **Paras Prasad** (Chemistry) and members of his Photonics Institute, to study the potential use of these platforms for targeted photothermal therapy. The idea is to use a magnetic force to enable targeting and accelerated cellular uptake, and then use laser-induced heating of the gold nanorods to destroy the cells. Preliminary results indicate feasibility of this approach.

Mark Swihart

Chulhong Kim

BME: In-Silico Electrophysiology of Stem Cell Derived Cardiocytes

Randall Rasmusson

Emmanouhl Tzanakakis

An interdisciplinary team comprised of Physiology and Biophysics Professor, BME Associate Professor **Randall Rasmusson**, Obstetrics-Gynecology Associate Professor Glenna C.L. Bett, BME and CBE Associate Professor **Emmanouhl Tzanakakis,** and Assistant Professor of Medicine Thomas Cimato has been awarded a highly competitive American Heart Association Grant-in-Aid of Research. The team is developing computer models of the complex electrical signaling in cardiac myocytes derived from human-induced pluripotent stem cells (h-iPSCD cardiac myocytes), whose great potential usefulness can be applied to cardiac repair, drug safety design and testing, and clinical diagnosis and research. Very little is known about these artificially created myocytes, as this particular preparation was published in the past three years.

The main hypothesis driving the entire field of research is that cardiac myocytes derived from induced pluripotent stem cells recapitulate the activity of cardiac myocytes. The team's main goal is to examine the component currents in a quantitative fashion and develop in-silico models to test the behavior of stem cells compared to native myocytes. They can then be used to interpret drug safety screening and aid in the development of newer and safer drugs. These experimentally based computer models will ultimately be used to automate the use of h-iPSCD cardiac myocytes in human genetic predisposition to cardiac arrhythmias. Thus, the team's computer models will help advance the diagnostic component of individualized medicine.

The computer models will also make possible more rational design of therapeutic strategies for cardiac repair. By identifying potential complications introduced into the bioelectric control system, life threatening arrhythmias can be avoided or minimized. This will advance the development of post-infarction repair technologies.

CBE's Neelamegham Researching Glycans

Besides proving nutrition and contributing to diabetes, sugars decorate most secreted and cell surface proteins in the human body. They play a regulatory role in physiological and pathophysiological processes, starting from conception and development, to diseases like inflammation, thrombosis, and cancer. Mathematical principles and engineering design are playing an increasingly important role in the study of such sugar, or "glycan structures."

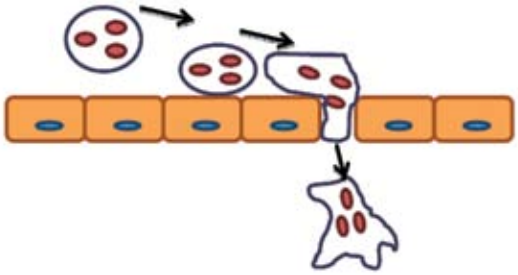
In this regard, biochemical engineering reaction network analysis performed in the laboratory of CBE Professor **Sriram Neelamegham** is revealing key glycosylation checkpoints that hematopoietic stem cells use to home to the bone marrow during transplantation, and the process by which white blood cells home to sites of inflammation. His laboratory earned support from a program project PO1 grant supported under the auspices of the Program of Excellence Award from the National Heart Lung and Blood Institute of the National Institutes of Health (NIH).

Sriram Neelamegham

Working collaboratively on this project are researchers from Roswell Park Cancer Institute (RPCI) – immunologist Joseph Lau, in molecular and cellular biology; Michael Nemeth, medicine; Khushi Matta, cancer biology; and Song Liu, biostatistics; from Harvard Medical School and Brigham and Women's Hospital – Drs. Robert Sackstein and Karin Hoffmeister; and from University of New Hampshire – Vernon Reinhold.

The researchers seek to define how sugar modifications regulate the production of blood cells and how those cells could be modified for therapeutic effect, such as treatment for leukemia and other blood cancers, or to improve outcomes in bone-marrow transplantation.

Blood cells crossing the endothelial barrier: similar glycans regulate homing to the bone marrow and sites of inflammation



Nigerian Commission Partnering with UB to Build Nanomedicine Research Capacity

The National Universities Commission of Nigeria selected UB's Institute for Lasers, Photonics, and Biophotonics (ILPB) as its partner to form the Nigerian American Nanomedicine Organization, which will establish joint research centers in Nigeria and at UB's ILPB.

Acting on behalf of UB ILPB, CBE Professor and Director of Graduate Studies **Mark Swihart** helped develop the NANO agreement to build nanomedicine research capacity, through a Nigerian commission partnership with UB. Swihart is Director of the UB2020 Strategic Initiative in Integrated Nanostructured Systems. Establishment of NANO also represents the culmination of an effort led by **Folarin Erogbogbo** (PhD CE '09), who grew up in Lagos, Nigeria, and is now research assistant professor and group leader for cancer nanotechnology in UB ILPB.

Mark Swihart

Folarin Erogbobo

The collaboration focuses on a new generation of biocompatible, silicon-based nanomaterials that Erogbogbo has developed based on research begun with Mark Swihart, when Swihart was his doctoral advisor. The goal is to develop nanomaterials for the *in vivo* and *in vitro* diagnosis and treatment of human diseases, especially cancer.

The UB portion of the organization will be headed by SUNY Distinguished Professor **Paras N. Prasad**, (with appointments in Chemistry, Physics, EE, and Medicine), who is UB ILPB director.

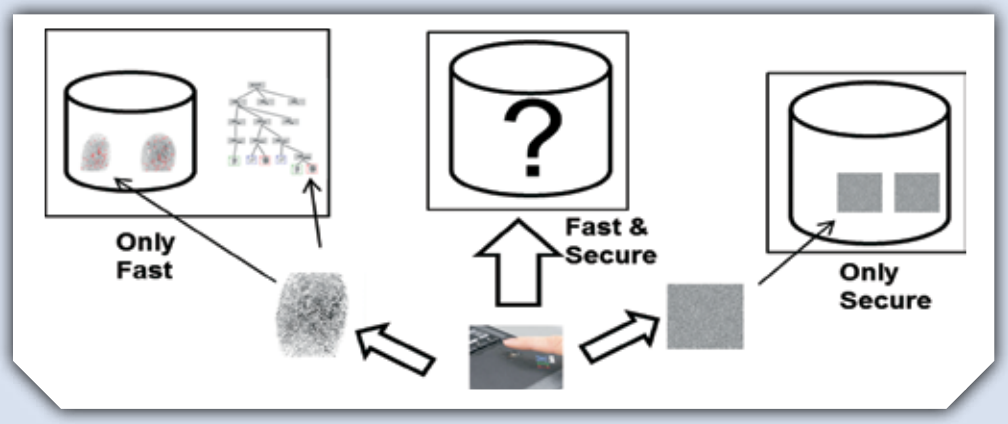
CSE's Govindaraju and Rudra Research Fingerprints as Passwords

CSE's SUNY Distinguished Professor **Venu Govindaraju** (MS '88 PhD '92 CSE) and CSE Assistant Professor **Atri Rudra** are the primary investigators on "Integrating Privacy Preserving Biometric Templates and Efficient Indexing Methods," a research project sponsored by the National Science Foundation.

The long-term aim of the team's project is to replace passwords with fingerprints. While passwords are difficult to remember and require periodic updating, fingerprints are essentially a constant that could potentially be used in several places. The project aims to design new hashes for fingerprints that have the two properties of obfuscating the fingerprint so that the hash does not leak much information, and of allowing for fast matching of a fingerprint against a database of stored hashes.

Passwords are popular as there exist hashes for strings that have the two properties above. These existing hashes do not work for fingerprints, as it is nearly impossible to obtain two identical scans from the same finger: e.g., the finger might be in different positions for the two scans. This project will use error-correcting code theory – the same math that allows CDs and DVDs to work in the presence of scratches – to handle the "errors" in fingerprint scans.

CUBS Research Scientist **Sergey Tulyakov** and CSE PhD student **Jesse Hartloff** are contributing to the research.



New hashes for fingerprints, to provide security and speed

Venu Govindaraju

Atri Rudra

2011 Ground Water Remediation Award for Treatment Wall at Nuclear Site

A permeable, in-ground treatment wall recently built at West Valley Demonstration Project earned the National Ground Water Association's 2011 Ground Water Remediation Award, for outstanding science, engineering and/or innovation of remediating groundwater.

CSEE Professor **Alan Rabideau** and **Shannon Seneca**, a CIE PhD candidate through the NSF-sponsored ERIE (Ecosystem Restoration through Interdisciplinary Exchange) program, were an important part of the team contributing to AMEC Geomatrix's (Amherst, N.Y.) award-winning design, which contains over 2,000 metric tons of zeolite to capture Strontium-90 through a process known as sorption. In 1999, Rabideau first demonstrated that zeolite, composed primarily of the volcanic mineral clinoptilolite, would be suitable for groundwater remediation. Later, he and Seneca tested predictions on the duration of effectiveness of a zeolite treatment wall. According to UB geology alumnus Rick Frappa, AMEC Geomatrix principal hydrogeologist and vice president, "The permeable treatment wall at West Valley is the first-in-the-world reactive barrier installed using a continuous trenching machine to treat *in-situ* Strontium-90." Frappa led the team that designed the wall, with support from Scott Warner (AMEC in Oakland, Calif.) and the partnership of West Valley technical staff.

West Valley–UB Team (left to right): CIE PhD candidate Colleen Bronner, CIE PhD candidate Shannon Seneca, AMEC-Geomatrix's Rick Frappa, CSEE Professor Alan Rabideau, MS graduate student Erin Johnson, AMEC-Geomatrix's Doug Bablitch

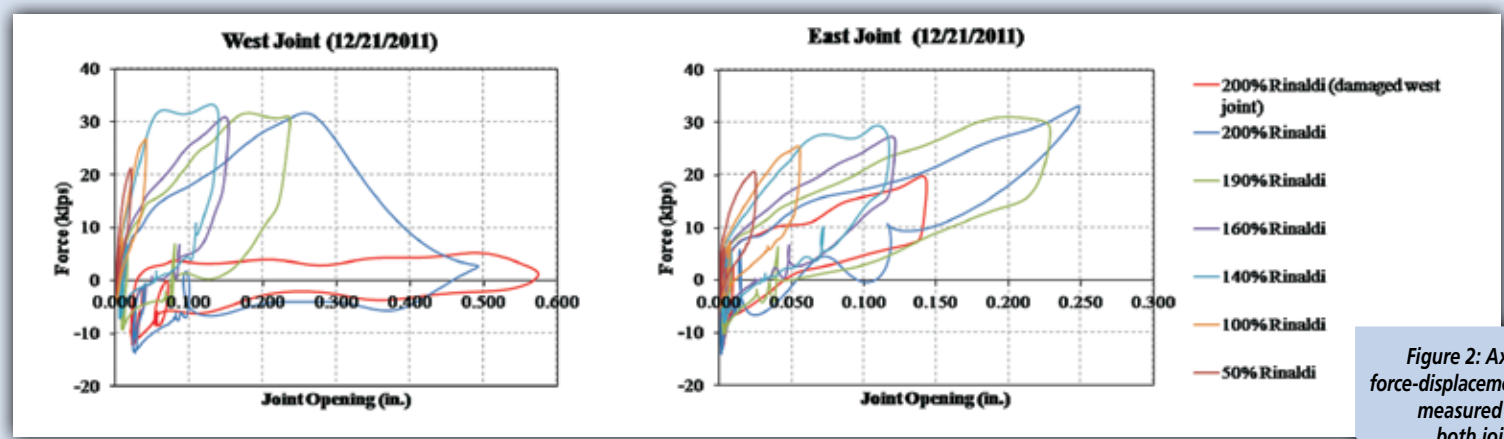


Figure 2: Axial force-displacement measured on both joints

Andre Filiatrault

Amjad Aref

CSEE's Filiatrault and Aref: Co-PIs on NSF Pipeline Investigation

Throughout the US, aging underground lifelines require rehabilitation, especially those in seismic risk areas. Of the nation's 2.1 million-plus kilometers of water and wastewater system pipeline, nearly half are 50–100-years old and made of cast iron.

CSEE's Professors **Andre Filiatrault** and **Amjad Aref** are co-PIs on a three-year experimental and analytical investigation of critical underground lifelines to quantify their earthquake response and qualify the use of in-situ polymeric lining technologies with the objective of transforming the seismic risk for these underground lifelines. This NEES (Network for Earthquake Engineering Simulation) research project is funded by the National Science Foundation and was awarded to Professor Thomas O'Rourke, Cornell University, as PI.

During the fall of 2011, the first phase of dynamic testing on full-scale piping systems, retrofitted with fiber reinforced polymer lining, using the UB NEES laboratory (NEES@Buffalo), twin re-locatable shake tables were performed (figure 1 below). Each specimen measured 30 feet in length and incorporated two bell-spigot type joints, and was water pressurized at 45 psi. Three specimens were tested under monotonic, cyclic, and seismic excitation. For the first two specimens, each joint was tested individually using a single shake table. For the third specimen, both shake tables were activated under increasing amplitude seismic motions. Figure 2 (above) shows the axial force-displacement measured on both joints. Failure of the West joint can be seen at amplitude of 200% of the Rinaldi record from the 1994 Northridge Earthquake. Additional testing will be conducted over the next two years employing different pipe configurations and lining materials.

Contributing to the research were CIE doctoral candidate **Zilan Zhong, Tim Nealon** (MS CIE '11), and undergraduate Karol Przelazloski (Mathematics).

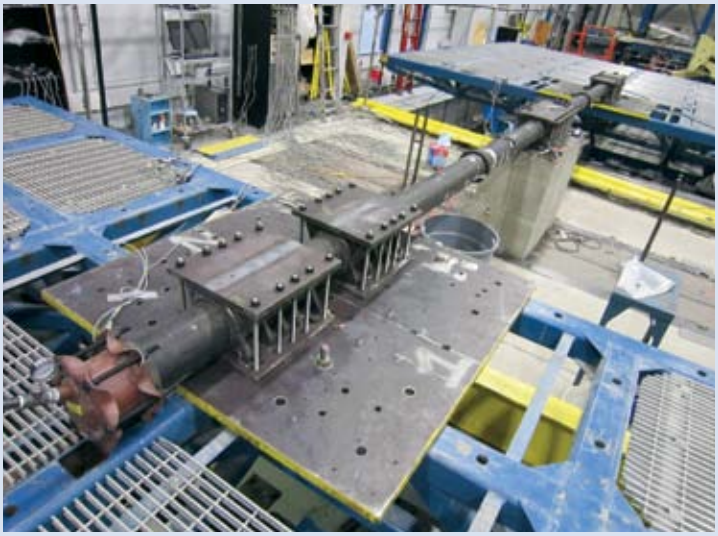


Figure 1: UB NEES twin re-locatable shake tables

25 YEARS

UB TCIE Celebrates 25th Anniversary

MRC Bearings of Chautauqua County, NY, was losing customers and employees in the mid-1980s. Its production levels and overall integrity were at stake as a generation of workers began retiring, leaving hard-to-fill job openings due to a lack of skilled labor.

The UB School of Engineering and Applied Sciences helped the company stay competitive with expertise in quality and process control, as well as management skills from the UB School of Management, and training programs to sustain the aerospace bearings manufacturer.

Success evolved into the 1987 founding of UB's Center for Industrial Effectiveness, known as TCIE. Twenty-five years later, TCIE still connects businesses and professionals from New York State and beyond with UB Engineering resources.

"A major goal of TCIE was, and still is, to help companies that are already here to prosper," said TCIE Co-founder, ISE SUNY Distinguished Professor Emeritus **Colin Drury**. "This has created or retained thousands of jobs and kept the region competitive."

Services include:

- Engineering Solutions: research & development projects
- Operational Excellence: strategy-driven solutions for business
- Professional Development: certification courses & workshops
- SPIR Grant: subsidized technically advanced engineering projects

Visit www.tcie.buffalo.edu.

CSEE's Whittaker Tests Squat Walls Against Seismic Load

Structural walls, widely used as seismic lateral-force-resisting components in buildings and nuclear facilities, are mostly squat, at aspect ratios of 1.0 or less. Analysis of squat wall seismic test data shows that current design equations result in a significant bias and scatter in the ratios of estimated to measured strength, and thus stand out among reinforced concrete structural elements for the large uncertainties in characterizing their behavior. Such bias and uncertainties are unacceptable for modern performance assessment methodologies, for which unbiased estimates of strength and stiffness are needed as a function of deformation and load history.

CSEE Professor and Chair **Andrew Whittaker** is PI on a three-year National Science Foundation-funded NEES (Network for Earthquake Engineering Simulation) investigation of squat walls to quantify their response to seismic loading. Squat wall specimens were tested using the UB NEES laboratory (NEES@Buffalo) 200-mton static actuators and reaction wall-strong floor equipment system (figure 1). These included large size, low aspect ratio reinforced concrete shear walls subjected to quasi-static cyclic loading to failure. Instrumentation used to capture the performance of each specimen included; string potentiometers, strain gauges, and a Krypton 3D displacement measurement system. The collected data are used to illustrate the global behavior of each specimen (figure 2), determine displacement fields across the face of each specimen, and monitor the load path through the specimen to the foundation. Analyses of the data resulting from these tests was enhanced with the application of a novel ICcrack crack detection, measurement, and tracking system developed internally by UB NEES IT Manager **Goran Josipovic**.

CSEE student researchers included doctoral student **Bismarck Luna** and **Josh Rocks** (MS CIE '12).

Figure 1: Squat wall testing at UB NEES Lab

Andrew Whittaker

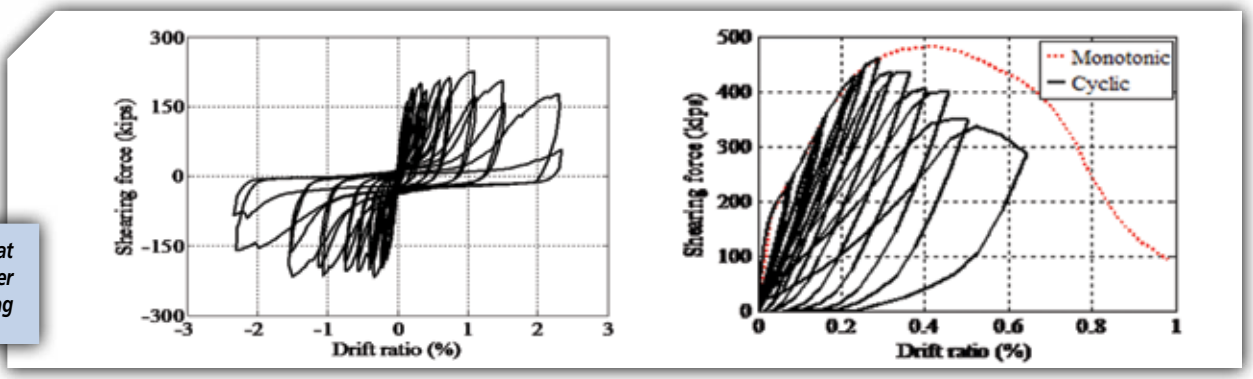
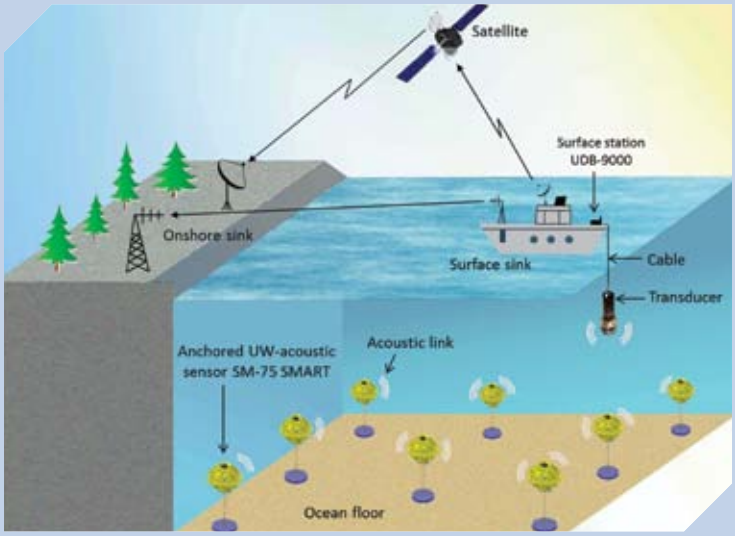


Figure 2: Illustration of squat wall global behavior under seismic loading

MRI Grant for Underwater Networking Lab



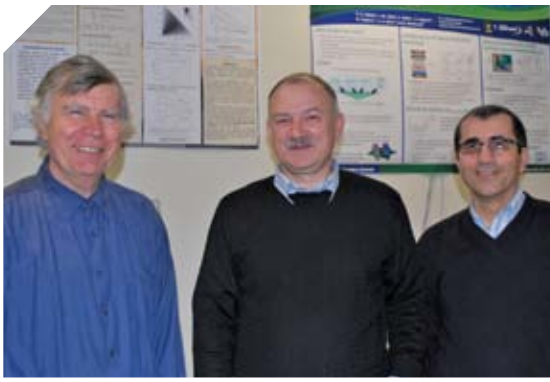
Architecture of the Proposed Underwater Networking Testbed at UB

EE's Assistant Professor **Tommaso Melodia**, Professor and Chair **Stella Batalama**, Professor **Dimitris Pados**, Associate Professor **Weifeng Su**, and CSEE Professor **Joe Atkinson** received a new National Science Foundation Major Research Instrumentation (MRI) grant to develop a unique underwater acoustic networking testbed, in collaboration with Teledyne Benthos, a leading manufacturer of underwater equipment.

Through this project, the researchers will establish a new "underwater networking laboratory," and develop the first reconfigurable, rapidly deployable underwater networking testbed based on the Teledyne Benthos Telesonar modem, which is already a key component in multiple U.S. Navy programs, and which forms the backbone of the great majority of wireless tsunami warning systems worldwide. The proposed testbed will provide the first worldwide publicly available shared platform to perform underwater networking experiments and assess the performance of underwater multiple-input multiple-output (MIMO) signaling strategies and cooperative relaying on underwater links. The developed platform will be a unique tool instrumental in advancing the research community's understanding of underwater networking and communications.

EE Researchers, with Army Lab, Enhance Quantum Dot Nanomaterial Efficiency

EE SUNY Distinguished Professor Vladimir Mitin, RF SUNY Research Associate Professor Andrei Sergeev, and EE Assistant Professor Nizami Vagidov, working together as OptoElectronic Devices (OPEN) LLC researchers, are developing unique quantum dot nanomaterials that combine strong generation of photocarriers by infrared radiation and long photoelectron lifetime.



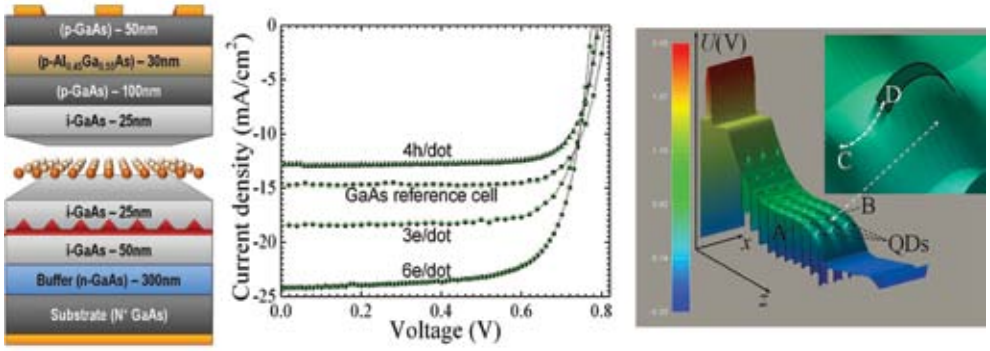
(L to R): Mitin, Sergeev, Vagidov

Use of quantum dots for harvesting infrared radiation (IR) for sensing and photovoltaic applications has been well-researched. But intensive investigations show very limited success, because together with infrared harvesting, quantum dots initiate inverse relaxation and recombination processes, which suppress photoresponse and increase generation-recombination noise.

The OPEN LLC researchers have innovated the separation of the areas of IR absorption from the areas of photoelectron transport by three-dimensional potential barriers that are created by charged dots and ionized impurities. *SPIE News Room* reported on this in "Nanostructures for long photoelectron lifetime" (March 2010). Theoretical modeling by the researchers showed that such quantum dot medium placed in a solar cell can provide an additional 20% to the conversion efficiency of the cell, so the total efficiency of the cell will reach 45%.

Recently the approach has gotten solid experimental verification. In strong collaboration with Army Research Lab invesigators Kimberly Sablon and John W. Little, and Kitt Reinhardt from AFOSR, the OPEN LLC researchers have demonstrated that conversion of infrared energy adds 5% to the cell efficiency, and they believe that the additional 10% will be demonstrated soon. Sablon, Little, Mitin, Sergeev, Vagidov, and Reinhardt published a paper on the enhanced efficiency in *NANO Letters*: "Strong Enhancement of Solar Cell Efficiency Due to Quantum Dots with Built-in Charge."

Mitin presented the research at a session on emerging energy companies recently, at the Advanced Energy 2011 conference, for commercializing the new, highly efficient solar cell technology. The developing technology may be applied widely to various photovoltaic structures. The technology is currently covered by three provisional patents, and OPEN LLC researchers are seeking to apply the technology to the areas of sensing and imaging. Mitin, Sergeev, and Vagidov credited much of the research's success to advanced nanofabrication expert Kimberly Sablon.



(L): Quantum dot structure, diagram; (center), solar cell comparison, with different levels of doping; (R) the 3-d potential profile in quantum-dot structures. Image credit: Sablon, et al, 2011.

EE's Litchinitser: DoD DURIP Award for Metamaterials Research

Continued from page 3

Litchinitser seeks to create nonlinear ultra-compact metamaterial devices, including electro-optically and nonlinear-optically tunable components for use in various circuits, converters, and devices. A possible result is an ultra-compact photonic microchip enabled by metamaterials, capable of outpacing signal processing speeds of similarly sized traditional electronic microchips which, Litchinitser points out, are limited in their capacity for speed.

The award funds the purchase of a variable angle spectroscopic ellipsometer (VASE) system (Fig. 1a), an optical characterization tool for retrieving the key electromagnetic parameters of optical metamaterials and novel materials for plasmonics (Fig. 1b) essential for the realization of functionalities at visible and near-infrared wavelengths.

EE PhD student **Apra Pandey** is assisting with transformation optics research on nonlinear optical devices that enable reconfigurable optical structures capable of being switched from light concentrators, to a variable focal length lens (Fig. 1c-d).

They also design metamaterial structures to manipulate spin and orbital momentum of the light beam such as those shown in Fig. 1e-f. This work is being done together with Litchinitser's PhD students Pandey and **Jinwei Zeng**, in collaboration with UB Vice President for Research, EE Professor **Alexander Cartwright** and his PhD student **Xi Wang**.

These very fundamental studies are likely to enable such important DoD applications as large depth-of-focus imaging systems and enhanced secure free-space communication systems.

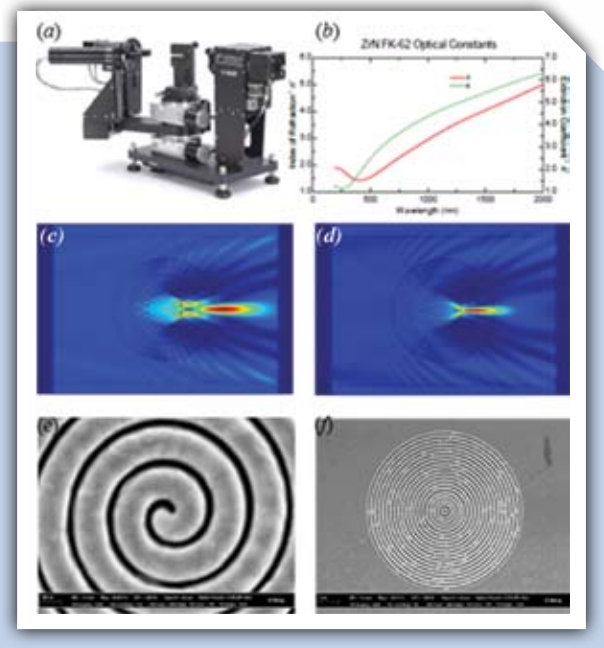


Figure 1. (a) Variable angle spectroscopic ellipsometer (V-VASE) system; (b) Optical constants for ZrN – potentially new material for plasmonics; (c)-(d) Variable focus nonlinear lens; (e)-(f) Structures to manipulate spin and orbital momentum of light.

ISE's Kurt Models How to Value Kidney Exchanges

Murat Kurt

Transplantation is the most viable renal replacement therapy for end-stage renal disease (ESRD), a leading cause of death in the U.S. Paired kidney exchanges (PKEs) overcome many difficulties in matching patients with incompatible donors, but the transplantation timing and the effects of disease severity on this timing have not been addressed yet. ISE Assistant Professor **Murat Kurt**'s research models patients' transplant timing decisions in a prearranged PKE and elucidates how their life expectancies can be used to calibrate edge-weights in graphs forming patient-donor pairs.

A PKE requires compatibility among the pairs' willingness to exchange, because transplantation surgeries occur simultaneously. As a patient's health is dynamic, Kurt's research team considered the transplant timing decisions in a PKE under patient autonomy and formulated the resulting decision process between the pairs as a probabilistic dynamic game. They developed a systematic mathematical-programming-based approach to characterize the optimal equilibrium of the game, socially, and analyzed implications from various perspectives.

Using large-scale nationally representative clinical data from United Network for Organ Sharing and University of Pittsburgh Medical Center, Kurt empirically confirmed that randomized strategies, which are less consistent with clinical practice and rationality of the patients, do not yield a significant social welfare gain over deterministic strategies. He quantified the social welfare loss due to patient autonomy and demonstrated that the current practice of maximizing the number of transplants may be undesirable. The research also showed that matching patients at similar disease stages yields more preferable outcomes in terms of social welfare gain.

Collaborating on the research are University of Pittsburgh's ISE Professor Andrew Schaefer, Health Policy Management Professor Mark Roberts, and Boston College Economics Professor Utku Unver, with support from the National Science Foundation. A related article by the team won an INFORMS best paper award – see the Faculty Accomplishments article for details.

ISE's Bisantz and Lin Designing Patient Tracking System Interfaces

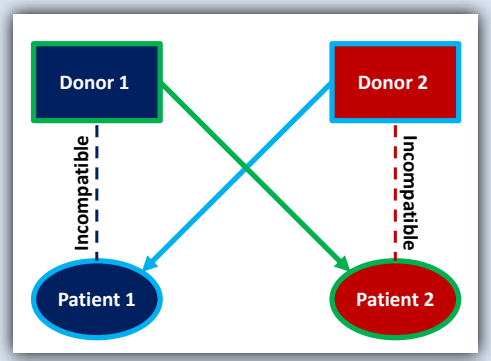
Ann Bisantz

Li Lin

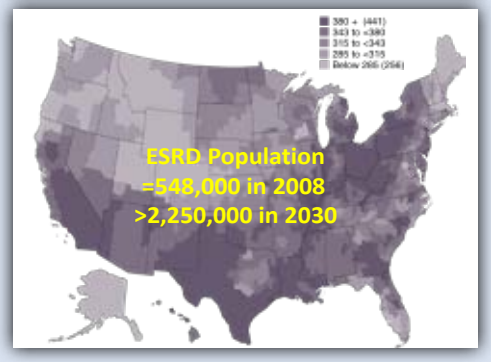
ISE Professors **Ann Bisantz** (BS '89 MS '91 IE) and **Li Lin**, ISE Undergraduate Studies director, have been awarded a three-year grant from the Agency for Health Care Research on Quality, for research on the design of system interfaces for patient tracking in hospital emergency departments. Electronic patient tracking systems are rapidly replacing long-standing, manual status boards (typically, wipe-off whiteboards) which were developed by clinicians and staff to capture patient demographics, staff assignments, medical statuses, and treatment plans.

The new systems provide important benefits, including the ability to integrate with electronic health record systems. However, past research (including that of the UB team) shows that they also impose new constraints on use, miss the opportunity to best support the work of the healthcare providers, and introduce new sources of error and unanticipated consequences. The project includes cognitive work analysis techniques to identify information needs for a variety of caregivers and staff; prototyping and evaluation of novel display concepts; and validation within a clinical simulation setting.

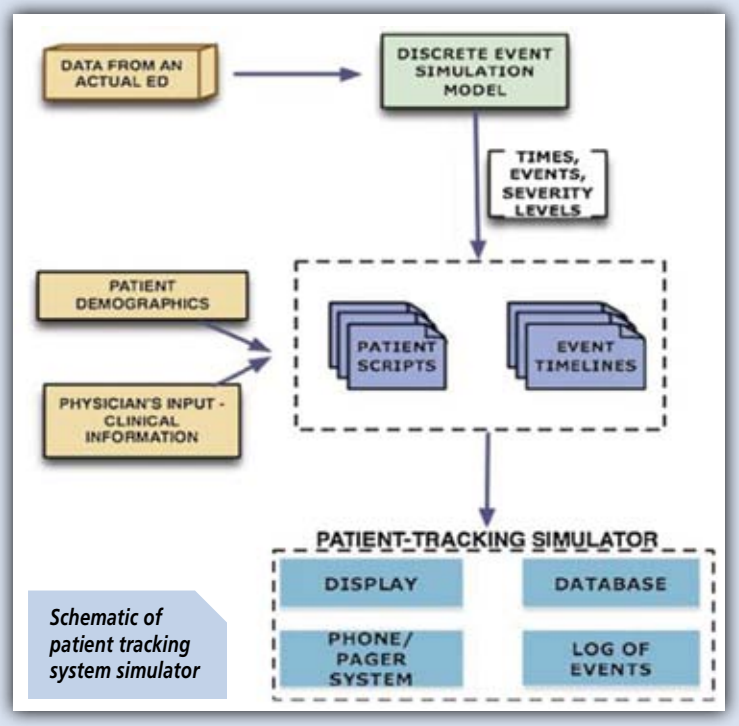
The UB team (which includes IE graduate students **Theresa Guarrera**, **Nicolette McGeorge**, **Sabrina Casucci**, and **Longsheng Sun**) is partnering with Terry Fairbanks, M. D., director of the National Center for Human Factors Engineering in Health Care at the Medstar Institute for Innovation in Washington, D.C., Robert Wears, M.D., Ph.D. (University of Florida) and Shawna Perry, M.D. (Virginia Commonwealth University) on the project.



An illustration of a PKE: the donors are incompatible with their intended recipients, but Donor 1 is compatible with Patient 2 and Donor 2 is compatible with Patient 1.



ESRD is the ninth leading cause of death in the U.S. The map illustrates the country's 2008 ESRD incidence (per million).



Schematic of patient tracking system simulator

NSF Center for e-Design Update

UB's NSF Center for e-Design connects industry partners with resources, and the Center grows as a result of these synergistic collaborations.

As UB completes its first year as a member of the prestigious National Science Foundation's Center for e-Design, significant progress on several projects has been achieved with its initial industry partners – Cameron Compression, CUBRC, Dresser-Rand, and Moog, with plans for continued collaboration in 2012 and the addition of select new industry partners.

The NSF e-Design designation benefits all those participating. UB engineering faculty can engage industry on collaborative projects that concurrently advance academic research and industrial practice. The program also provides funding opportunities and encourages synergistic collaboration between faculty at UB and at other e-Design institutions, and between industry partners locally and nationally. Industry partners gain access to: research occurring at all member institutions; expert design researchers; talented students; and an organizational means of identifying pertinent research, and of pursuing funding sources. They join partners across multiple industries, including Ansys, General Motors, Raytheon, Pratt & Siemens, and Whitney. Finally, the center itself is influenced by the research priorities of its industry partners.

UB's current industry partners are leveraging the Center's capacities in several ways:

Rajan Batta

CUBRC is working with Interim Dean, ISE Professor **Rajan Batta**, on developing automated assessment and emergency response in transportation networks.

Ken English

Dresser-Rand is working with NYSCEDII Deputy Director **Ken English** (BS AE '95 MS '98 PhD '01 ME) to create an ideal IT infrastructure for the execution of engineering design automation services.

Kevin Hulme

Moog is working with MAE Senior Research Associate **Kevin Hulme** (BS '94 MS '96 PhD ME '00) to explore varying levels of fidelity in driving simulators for young driver training.

To learn more about the e-Design program and membership, visit www.e-design.buffalo.edu or email iucrc-e-design@buffalo.edu.

Andrew Olewnik

In ongoing work with Cameron, New York State Center for Engineering Design and Industrial Innovation (NYSEDII) Research Associate **Andrew Olewnik** (BS '00 MS '02 PhD '05 ME) is developing an e-enabled new product development process, with effective implementation in 2012.

U.S. Patents Awarded

The following School of Engineering faculty members were issued new U.S. patents:

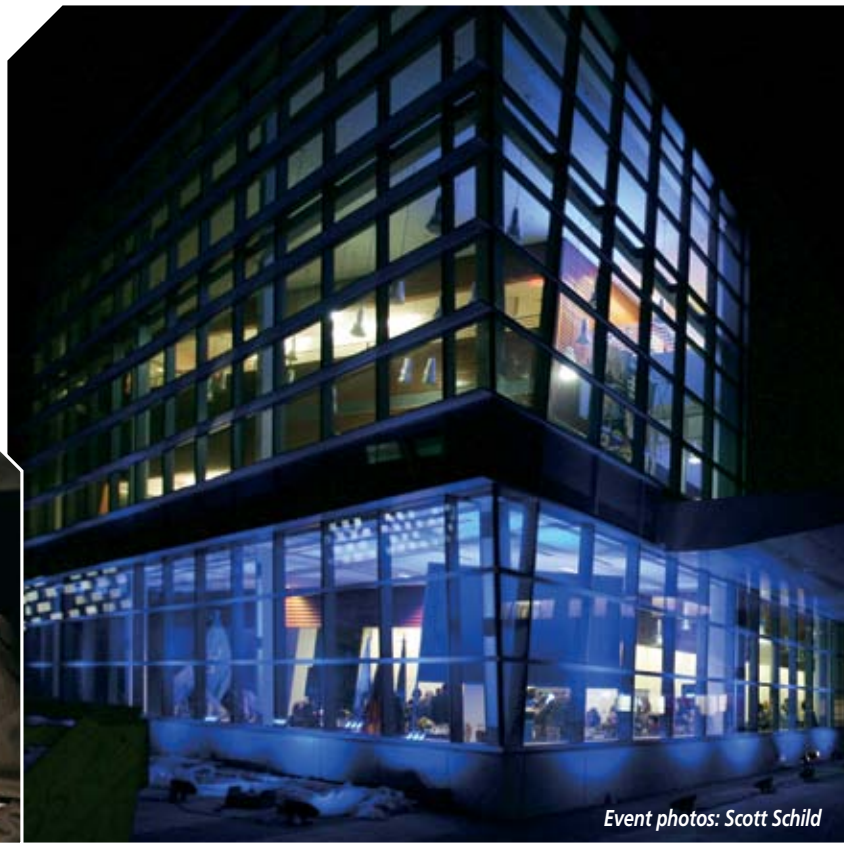
- "Augmentative Communications Device for the Speech Impaired Using Commercial-Grade Technology," CSE Teaching Assistant Professor **Kris Schindler** (BS '93 MS '96 PhD '01 EE) and CSE Lecturer **Michael Buckley** (BS EE '78);
- "Device for Merging Fluid Drops or Jets," CBE Professor **Edward P. Furlani** (BS EE '77, MA '80 PhD '82 Physics), with collaborators: Gilbert A. Hawkins, Zhanjun Gao, Yonglin Xie, and Kam C. Ng;
- "Production of Photoluminescent Silicon Nanoparticles Having Surfaces that are Essentially Free of Residual Oxygen," SUNY Distinguished Professor of CBE **Eli Ruckenstein** and CBE Professor **Mark Swihart**, with collaborator: **Fengjun Hua**, formerly of CBE;
- "Sensor and Method of Sensing Having an Energy Source and Detector on the Same Side of a Sensor Substance," BME Co-Chair, BME and EE Associate Professor **Albert H. Titus** (BS '89 MS '91 EE), UB Vice President for Research and Economic Development, EE Professor **Alexander N. Cartwright**, and SUNY Distinguished Professor of Chemistry Frank V. Bright;
- "Secure Fingerprint Matching by Hashing Localized Information," CSE PhD candidate and Center for Excellence in Document Analysis and Recognition Research Scientist **Sergey Tulyakov** (MS CS '00) and SUNY Distinguished Professor of CSE **Venu Govindaraju** (MS '88 PhD'92 CS), with collaborators: **Faisal Farooq** and **Sharat Chikkerur**, both formerly of CSE.

Davis Hall Opens

The School of Engineering has enjoyed these milestones with the opening of Davis Hall.

Davis Hall Donor Recognition Event

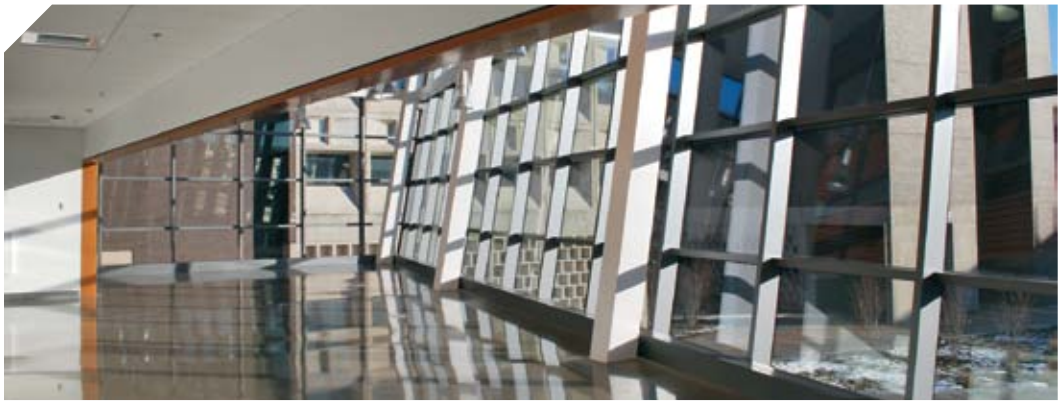
A banquet honoring donors to Barbara and Jack Davis Hall was held weeks prior to the building's opening. The event treated guests to a private tour, and featured the unveiling of media displays that ran new media about the School, its history, programs, and donors. The displays can be seen now in Davis Hall's ground floor. Then Interim Provost **Harvey G. Stenger Jr.** read the SUNY Trustees' proclamation of the naming of the building, and introduced **Jack Davis** (BS IE '55), who spoke of the pleasure he had in giving back to the School and UB, from which he received the education that made him a success. The event was sponsored by Perkins + Will, the architectural firm that designed the building, and was hosted by the School of Engineering and UB.



Event photos: Scott Schild

Move-in and Set-up During Winter Break

Interior photos: Deb Steckler



Sunlight streams into the Salvadore Lounge, days after the building opened this winter.

CSE Undergraduate Advisor Jaynee Straw (right) with student, in the new CSE office

First Class Conducted in Agrusa Auditorium

Interim Dean Rajan Batta provided a brief welcome to the first class ever conducted in Davis Hall's Agrusa Auditorium. The well-appointed room nicely accommodated CSEE Professor Thevanayagam's CIE 334 students.

Thank You, Donors

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.

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

Development staff can be contacted anytime at 1.888.205.2609 or directly, below:

- 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**: bll2@buffalo.edu, 716.645.2133
- Associate **Donna Linenfelser**: dfelser@buffalo.edu, 716.645.0997

Again, we thank all of our donors for their generosity.

Gift Names Davis Hall Space

Norman M. Hayes: Laboratory

Delta Society Chair **Norman M. Hayes** (BS EE '80) has given a generous gift to the School of Engineering to name a laboratory in Davis Hall. Hayes is a founding and continuous member of UB Engineering's Delta Society, an elite and crucially important society of donors that makes a profoundly positive impact on the School through the active support of its members.

"I've always been grateful for how UB opened my eyes to a world of diverse and boundless frontiers when I was a student," said Hayes, "and I'm even more excited now to see how UB Engineering is expanding its role in the Buffalo area and beyond, providing technology, education, vision, and guidance throughout the region. In many ways I think of UB as 'the Stanford University of Western New York.' I can only hope to contribute to the University in this position in any way I can, and with the help of each and every member of the UB Delta Society."

Norman M. Hayes

"I've always been grateful for how UB opened my eyes to a world of diverse and boundless frontiers when I was a student."

Delta Society members like Hayes help maintain and enhance the high standards of academic excellence critical for UB Engineering to be at the forefront of tomorrow's industry and economy. The Society's generosity helps UB Engineering fulfill our commitment to serve ambitious engineering students through special programs and scholarships. Delta Society members also help fund a growing faculty – both in size and quality, and up-to-date facilities, laboratories and technologies, and cutting-edge research.

To learn how easy it is to join the Delta Society, visit http://giving.buffalo.edu/giving-options/leadership/delta or call us at (716) 645-2133.

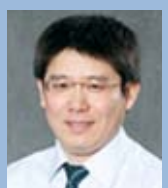
National Grid Room Opens

Thanks to a generous grant to BME from National Grid, 414 Bonner Hall has been updated and outfitted with state-of-the-art teleconferencing and digital presentation technology that will facilitate exchanges of information between the department's facility and health companies in Buffalo's new, high-tech corridor. Please see page 29 to learn about another gift from National Grid.

The room as prepped for the recent Dean's Advisory Council meeting.

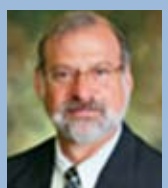
CBE Advisory Board: Inaugural Meeting

CBE's new advisory board has been instituted to provide external perspective on the department, and to spread the word about its great developments. The board of nine industry representatives was selected for their connections to UB and to Western New York. CBE's advisory board members are:



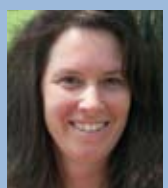
Weidong An FMC site technology manager

Shawn Barrett Life Technologies new product introduction senior manager



Paul Boymel Unifrax worldwide vice president of technology

Gregg Eagan Niacet Corporation manufacturing director



Cynthia Hoover Praxair healthcare and biopharma R&D director

Mike A. Kucharski (BA CE '78), VanDeMark Chemical Company president & CEO

Mitch Pulwer Celgard LLC president

Charles Rader (PhD CE '74), former CEO, IsleChem LLC and former Occidental Chemical vice president

Ian Shankland Honeywell Specialty Materials vice president and chief technogy officer

Alum MacKinnon's Generous Bequest

Alumnus ❊**Roderick G. MacKinnon** (BS '82 EE), an Engineering Delta Society member, has made a generous unrestricted bequest to the School of Engineering. MacKinnon is a civilian U.S. Navy Deputy Program Manager in San Diego, California, in charge of overseeing the design, construction, and maintenance of naval surveillance equipment. He has been employed with the Navy since 1982.

A strong advocate for UB and for public education, his gift is an expression of gratitude for the quality education he received at a time when UB Engineering was the only public school in the state with what he considered to be a strong engineering program. Mackinnon stated that it's his belief that everyone should be able to get a quality education from their state university, and he underscored the importance of having a top engineering school available to all income brackets.

MacKinnon was born in Peekskill, NY and raised in White Plains, NY, where he attended Archbishop Stepinac High School. He has lived in California for 14 years. He enjoys traveling and plans an extensive trip abroad every few years.

Roderick G. MacKinnon

Dean's Advisory Council Meeting

The Dean's Advisory Council (DAC) met for two consecutive days this past fall. Interim Dean **Rajan Batta** discussed the state of the School, its growth, and the relationship between the departmental advisory boards. Student Excellence Initiatives Director **William G. Wild Jr.** (BS '83 MS '87 IE) discussed the initiatives, after which students presented their research projects. Associate Dean for Research and Graduate Education, UB Distinguished CBE Professor **Paschalis Alexandridis** presented plans for research and graduate education. DAC members were invited to attend several events including the Barbara & Jack Davis Hall Donor event (see story in this section), the investiture of President **Satish K. Tripathi**, and the homecoming football game of UB Bulls vs. UConn (see Tailgate story, Alumni section).

Associate Dean of Research and Graduate Education Paschalis Alexandridis addresses the DAC; in the background are graduate students who presented their work.

Edward F. Sverdrup

Edward F. Sverdrup (1930–2011)

The School of Engineering gratefully acknowledges the generous bequest of **Edward F. Sverdrup Jr.** (BS EE '51), to the School of Engineering and Applied Sciences Scholarship Endowment Fund. Sverdrup was a Buffalo native who passed away in the fall of 2011. After earning a PhD from Carnegie Mellon University (Pittsburg, Penn.), Sverdrup served the U.S. Navy in the Philippines and later taught at the U.S. Naval Academy (Annapolis, Md.), and at Carnegie Mellon. He went on to do research for Westinghouse.

Corporate Gifts:
National Grid and Praxair

The School of Engineering thanks our corporate donors for their generosity in supporting our faculty and students.

National Grid

National Grid has given a gift to support an innovative summer program, which will engage high-school students in engineering education during a residential summer camp. The goal of the summer camp is to encourage students to pursue engineering careers by introducing students to the varied possibilities that engineering has to offer.

Praxair

Praxair has given a gift that supports the ISE department's Praxair Professor in Operations Research, currently held by SUNY Distinguished Teaching Professor **Mark H. Karwan**. The gift also supports the Praxair Seminar Series. The seminar funds will be used to invite nationally and internationally recognized researchers to campus, to present their latest findings.

UB Engineering Partnerships with Industry and our Students: A Win-Win-Win!

Alumni and industrial partners–you are very important for engineering students' education. Meanwhile, you will benefit greatly from partnering with us. How?

By hiring qualified UB Engineering intern or co-op students you can assign necessary technical work while evaluating the students as prospective employees.

Students also benefit. While working for you, students will prepare for professional employment by applying their engineering coursework toward necessary projects. Results will be invaluable both for you and for them.

Finally, UB Engineering benefits by strengthening our relationship with you. We provide talent and resources. You provide employment, collaboration, and suggestions that will strengthen us all. You, our students, and UB Engineering: a win-win-win!

For more information, contact:

Dean C. Millar
Director, Engineering Career Institute & Business Relations
412 Bonner Hall, (716) 645-0971
dcmillar@ buffalo.edu
www.eng-intern.buffalo.edu

BEAM's Annual Senior Dinner and Awards Breakfast Events

BEAM's Senior Dinner was an opportunity for students to network with company and college reps and to present their work. In addition to the students who made presentations, speakers included Arthur McKinnon of Prestolite, Tyra Johnson of Blue Sky Design Supply, Don Davis of Moog, and **Marilyn Helenbrook**, BEAM executive director. Scholarships were presented by DuPont, Fisher-Price, R&P Oak Hill, Turner, and Wendel Companies. Table sponsors for the breakfast event included the Charter School of Applied Technology, DuPont, Fisher-Price, General Motors Powertrain Tonawanda, Moog, UB Engineering, Watts Architecture, and Wendel Companies.

BEAM seniors who spoke about their projects included: Hadi Al-Jabi-Lopez, Christian Brickhouse, Isaiah Brown, Samantha Bushway, Alexa Ditonto, Shannon Griffin, Sara Harrod, Tyler Himes, Leanora Karnath, Nhi Kha, Felicia Kiblin, Beth Lotterer, Dominique Mecca, Rachel Melnyk, Crystal Melvin, Michael Mortellaro, Earnest Oliver, Andrew Pleasant, Ariana Rabin, Mary Rose Ricotta, Kailey Seres, An Tram, Ellen Van Dominic Vereen, Dana Voll, Jillian Walsh, Timothy Weppner, Euires Williams, and Huyen Vo.

Former BEAM students currently attending UB who spoke were **Marcus Alexander** (BME), **Michael-Dane Alexander** (EE), and Carl Reeves, Jr. (Architecture). Students who volunteered at BEAM Saturday Academy were **Rosemary Evans** (CSEE) and **Mitchell Muehlberger** (CBE).

At BEAM's Annual Awards Breakfast, awardees were: Corporate Partner of the Year, Cannon Design; Charles Campbell, Sr. Outstanding Service Award, Vikki Hirschey of Occidental Chemical Company; Educational Achievement Award, EE professor **Wayne A. Anderson**; Technical Advisor Award, BEAM Summer and Saturday Programs teacher Niels Andersen; and the Faculty Advisor Award went to Canisius College Physics Professor and Chair, James Lauffenburger.

Guest speakers at the breakfast included former BEAM students **Derek Brim** (EE) and Kristen Baines, a General Mills engineer. BEAM Club students from City Honors and Hutch Tech demonstrated their engineering design projects, and Moog's Don Davis spoke about BEAM Trek. Table sponsors for the breakfast were UB Engineering, Buffalo Public Schools, Career & Technical Education, Cannon Design, General Motors Powertrain, and Tonawanda Moog, Inc.

Carmen Vella presented the elected BEAM officers: President, Arthur McKinnon of Prestolite; Vice President of Programs, Tom Wach of EGW Associates; Vice President of Membership, Carmen Vella, retired from General Motors; Secretary, Milton Cook of Niagara University; Treasurer, Miguel Antonetti of General Motors.

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.

Right: Vikki Hirschey after receiving the Charles Campbell Award

Below: BEAM Club students from Hutchinson Central Technical High School presented a demonstration on helicopters.

Tech Savvy 7

The Buffalo American Association of University Women branch (AAUW) held its seventh annual Tech Savvy conference at UB's North campus. Tech Savvy inspires middle-school girls to pursue careers in science, technology, engineering, and math areas through fun workshops that engage parents, teachers, and interested adults, as well as students. This year's theme, "Tech Savvy Girls: Doing Well by Doing Good" featured a student exercise in pursuing their purpose paths. The conference is made possible with support from AAUW, the Praxair Foundation, the School of Engineering, and WTS, Inc. To learn more about the conference and its founder, please see the Top Awards story with **Tamara Brown** (MEng CE '03), beginning on page 3.

Students from Silver Creek Central School District at Tech Savvy 7.


Ozgur Araz


Stephen Bucilli


Andrew Camm


Jaideep Chatterjee


Donald Coates


Barry Davidson


Mike Demler


Francis Fernando


Richard Helgeson


Pat Irwin


Michael McNally


Arun Mirpuri


Chang Nam


Matthew Plizga


David Schwartz


David Snyder


Mostafa Tanbakuchi


Don Visco

1960s

Donald A. Coates, BS ME '64, spoke at the ASQ Youngstown-Warren Section meeting. Coates is a Kent State University Technology assistant professor.

Jerome A. Malachowski, BS ME '64, patented "Brake system stabilizer assembly."

1970s

Mike Demler, BS EE '76, is OpenSystems Media editorial director.

Mike Putnam, BS ME '70, received the Tenth Annual INDA Award for Lifetime Technical Achievement. Putnam is senior R&D director of PGI (Benson, NC). INDA is a trade association representing the nonwoven fabrics industry.

Thomas R. Schulte, BS '75 MS '77 CE, patented "System for preventing contaminants from reaching a gas purifier" with inventors Michael H. Hawke; **Keith R. Pace** (BS CE '85); Thomas J. Bergman Jr.; Brian D. Warrick; Sandro Di Santo; and Rick Boyer, with the assignee Praxair Technology.

1980s

Barry Davidson, BS AE '81, a Syracuse University MAE Meredith Professor, received ASTM's Wayne W. Stinchcomb Memorial Award for outstanding contributions in the area of composite materials.

Muffett M. George, BS CIE '88, was promoted to a project manager at TVGA Consultants (Elma, NY).

Sharon L. Hilts, BS IE '88, a consultant with Insyte Consulting, served as a director of the Western New York Safety Conference. She also holds a UB MBA.

Steven Mance, BS CE '81, has been named CEO of Defiance Metal Products.

Michael McNally, BS '76 MS '80 CIE, is a University of California Irvine CIE Professor.

David H. Snyder, BA CS '83, is Ellis Medicine vice president and CIO.

Mostafa Tanbakuchi, MS ME '81, was profiled in the *Buffalo News* for rehabilitating the Isaac Perry-designed Tonawanda Armory, and turning it into a banquet and exposition hall.

1990s

Gary L. Freitag, MS ME '90, **Dominick J. Frustaci**, BS '82 MEng '89 CE, and **Mark J. Roy**, MS ME '91, earned a patent for "Laser weld process for seam welded electrochemical devices," with assignee Greatbatch (Clarence, NY).

Lee Fang, MS CIE '90, patented "Post-tensioning retrofit assemblies for reinforcing structural members."

Eric T. Fischlein, BS CIE '97, was promoted to a project manager at TVGA Consultants.

Pat Irwin, BS EE '94, is an electrical engineer for Inficon's thin-film business line.

Edward D. Pettitt, BS ME '98, earned a patent for "Integrally molded motor isolation system" with assignee Delphi Technologies (Troy, Mich.).

Richard J. Helgeson, PhD CIE '98, is dean and professor of Engineering at University of Tennessee, Martin.

✻**David I. Schwartz**, BS '90 MS '94 PhD '99 CIE, is a tenured Interactive Games and Media associate professor in Rochester Institute of Technology's Golisano College of Computing.

Don Visco, BS '92 PhD '99 CBE, is associate dean of the University of Akron College of Engineering (Ohio).

2000s

Ozgur Araz, MS IE '06, is an assistant professor in the University of Nebraska Medical Center's Department of Health Promotion, Social, and Behavioral Health.

Stephen M. Buccilli, PE, MEng CIE '07, is an associate with Watts Architecture and Engineering.

Andrew Camm, BS EE '06, a systems engineer at Harris RF Communications (Rochester, NY) is engaged to UB Development Stewardship Coordinator Katie Hunt.

Jaideep Chatterjee, PE, MS '02 PhD '07 CIE, a senior geotechnical engineer at Burns Cooley Dennis, Inc. (Ridgeland, Miss.), earned his Mississippi PE license.

Francis Fernando, BS '97 MEng '03 EE, Total Solutions Property Management founder and president, served on the Manchester, NH Revolving Loan Committee.

Arun Mirpuri, MS CS '08, is a Qualcomm senior software engineer.

Chang S. Nam, MS IE '00, is a North Carolina IE associate professor. He received a NSF CAREER award in 2010 while teaching at the University of Arkansas.

Andrew L. Odien, BS '05 MS '07 CIE, was promoted to a project engineer at TVGA Consultants.

✻**Matthew Plizga**, BS CIE '04, is the 2011–2012 Engineering Society of Buffalo secretary.

Bhaumik H. Shah, MS ME '04, patented "Two-piece expandable sealing plug" with the assignee KVT Koenig (Madison, Conn.)

Teresa Majchrzak Sigler, BS ME '01, is an engineer in the Mechanical/Electrical/ Plumbing department of Nussbaumer & Clarke, Consulting Engineers and Surveyors.

2010s

Julia Perot, BS ME '11, was profiled in the Rochester, NY *Democrat and Chronicle* for volunteering in Port-au-Prince, Haiti at an orphanage and repairing a damaged water system.

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| Engineers Week 2012 |

Please visit www.eng.buffalo.edu to learn about School events.

This year's Engineers Week (Eweek) celebrations and competitions were a fun and rewarding time for the many students who participated. The events were successful thanks to many, especially returning Student Association Engineering Club Coordinator **Dan Pastuf** (AE) and the student club members, faculty, and representatives from local corporations who assisted. To see more pictures, please visit the UB Student Experience Facebook page: Facebook.com/whatsupub. *Photos: Kosuke Benny Higo*

1. ***The winning Bot Wars team and Eweek winners were UB Society of Automotive Engineers–SAE. Left to right, starting from rear left, all ME except where noted: Muhammad Ikhsan, Matthew Strang, Jeremy Krol (AE), Michael Pelino, Nathan Mayers, Kishen Das, Andrew Koonce; (middle row, l to r): Thomas Heyden, Thomas Scheeler, Robert Neuman, Joshua Friedman; (front row, l to r): Kyle Lynch (ME), the bot, and Joseph Keating***

2. ***CSEE Professor James Jensen generates energy to light a bulb by riding a stationary bicycle. Onlookers include Tanner Kahm (ME) in orange & black sweatshirt and Karen Baumert (EnvE) in blue Eweek tshirt.***

3. ***(L to R): Calvin Russell Holic (CompE) and Andy Bartlett (CIE) drop an egg in their hand-engineered paper parachute.***

4. ***Engineers for a Sustainable World members at Rube Goldberg event (l to r): Mike Alcazaren (AE), Olga Carcamo (CE), Martin Paul (AE), Karen Baumert (EnvE), and, with back to camera Stephen Olesik (AE). Teams were tasked with building a machine that put sugar cubes in a cup of coffee and then stirred it.***

5. ***(L to R): Mrs. Engineer, Olga Carcamo (CE); Student Association Engineering Club Coordinator Dan Pastuf (AE); and Mr. Engineer, Dan Reilly (ME)***