



BUFFALOENGINEER

FALL 2011

Faculty Nationally Recognized



Bruneau

Corso

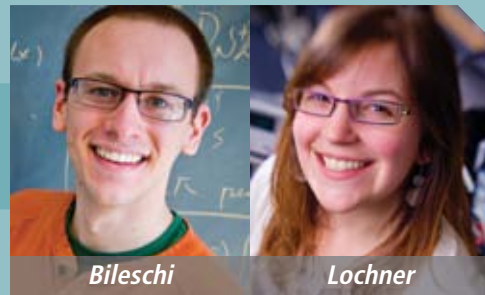
Reinhorn

Singla

Faculty

- Bruneau (CSEE): ASCE Winter Award
- Corso (CSE): Army Young Investigator Award
- Reinhorn (CSEE): ASCE Newmark Medal
- Singla (MAE): NSF CAREER Award

Student Scholars



Bileschi

Lochner

Students

- CSE's Bileschi: Goldwater Scholar
- EE's Lochner: NSF Fellowship

Development

- Davis Hall Spaces Named for Tak, Pilitsis, Boveja
- Garman Gift

Alumni

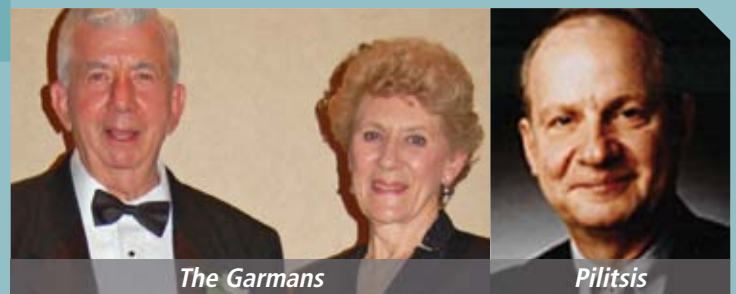
- Stevens: Dean's Award Winner
- Agrusa, Boyle, Hammond: Alumni Awards

Generous Donors



Tak

The Bovejas



The Garmans

Pilitsis

Alumni Award Winners



Stevens

Agrusa

Hammond

Boyle

Greetings, on the occasion of my first message as acting dean:

In line with the university's "Three E" strategic objectives of Excellence in education and research; Engagement with community and partners; and Efficiency in use of resources, I have outlined goals



for our School in the areas of faculty hiring, retention, and research; student quality and retention; improving our metrics and rankings; and optimizing and improving our facilities. As the School of Engineering moves forward with its objectives and its planned growth, I am looking forward to meeting its updated and its existing goals.

Congratulations to our faculty members whose achievements have been recognized by the academic community at large, with prestigious national and international honors: CSEE Professor **Michel Bruneau** won the American Society of Civil Engineers (ASCE) Winter Award, while CSEE's Clifford C. Furnas Professor of Structural Engineering **Andre Reinhorn** won ASCE's Newmark Medal. CSE Assistant Professor **Jason Corso** earned a US Army Young Investigator Award, and MAE Assistant Professor **Puneet Singla** earned the National Science Foundation (NSF) CAREER Award.

We are also proud of our students who have earned top awards – CSE's **Max Bileschi** (pursuing a dual major in Mathematics) is a Barry Goldwater Scholar, and EE's **Claire Lochner** graduated and received an NSF Graduate Research Fellowship. In addition to these impressive accomplishments, please read

on to learn of the many ways in which our alumni, faculty, staff, and students have been recognized with academic, regional, and SUNY awards too numerous to name here.

Strong support for the School continues to come from our generous alumni – **Sharad K. Tak** (MS CS '69), **John V. Pilitsis** (MS '70 PhD '75), **Raj K. Boveja** (BS IE) and his wife Sonia, **Joe Y. Chuang's** (PhD CBE '72) Firefly Foundations, and **Don Donewirth** (BS ME '50) – who have given gifts to name spaces in Davis Hall. Patricia (MS Nursing '79) and Richard Garman have also given generously to the School. Please read the Development section for details on these and other gifts, and to learn how you too can contribute to our School's success.

Please visit my quarterly report online at: www.eng.buffalo.edu/dean/quarterlyReports/ to learn more, and enjoy the remarkable output of our colleagues, students, and alumni detailed in this issue.

Sincerely,

Acting Dean Rajan Batta

Inside This Issue: Cover Stories 3 Alumni 4 Students 7 Education 13 Faculty & Staff 14
Research 18 Development 24 Pre-College 25 Class Notes 27

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

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

*denotes dues-paying Alumni Association members

Departmental Research Highlights:

- BME:** Titus, TCIE, Assist on Dynamic Eye Patent, p. 18
BME's Kim Researching Photodynamic Therapy, p. 23
- CBE:** Takeuchi, Marschilok: Carbon Nanotube Substrate Electrodes for Lightweight, Long-life Rechargeable Batteries, p. 21
Nitsche Models How Drugs and Chemicals Pass Through Skin, p. 19
- CSE:** Govindaraju, Jayaraman, Menon Develop Smart Tracking System, p. 21
Kosar Researches New Computing Paradigm, p. 19
UB Engineering Team Researches Cyber Transportation Systems, p. 23
- CSEE:** UB Engineering Team Researches Cyber Transportation Systems, p. 23
Earthquake Engineering Techniques for Resilience, p. 20
- EE:** Gan Captures Rainbow, p. 22
Signals, Communications, and Networking Group, p. 22
- ISE:** Paquet Leads Industrial-Based Research, p. 22
UB Engineering Team Researches Cyber Transportation Systems, p. 23
- MAE:** UB Engineering Group Accepted as NSF e-Design Partner, p. 20
MAE Team Shows Strength in Single Atom Bridges, p. 18
Singla Earns CAREER Award for Uncertainty Analysis, p. 18

Cover photos are courtesy of Doug Levere, Nancy J. Parisi, and of the individuals shown

Faculty Earn Top Awards



Michel Bruneau

CSEE Professor Michel Bruneau
*American Society of Civil Engineers (ASCE) 2011
George Winter Award*

The Winter award recognizes the achievements of an active structural engineer embodying a humanistic approach and concern for matters technical and social, through art, science, soul, and intellect.

Michel Bruneau's groundbreaking research includes work on steel plate shear walls and seismic evaluation and retrofit of steel truss bridges. His work has resulted in updated seismic design requirements

Continued on page 17



Jason Corso

CSE Assistant Professor Jason Corso
US Army Research Office Young Investigator Program (YIP) Award; Air Force Office of Scientific Research (AFOSR) Defense University Research Instrumentation Program (DURIP)

CSE's **Jason Corso** earned the US Army YIP award for his project entitled, "GBS: Guidance by Semantics – Using High-Level Visual Inference to Improve Vision-based Mobile Robot Localization."

Corso's multi-disciplinary project researches the employment of robots, also known as unmanned

Continued on page 17



Andrei Reinhorn

CSEE's Clifford C. Furnas Professor of Structural Engineering, Andrei M. Reinhorn
ASCE 2011 Nathan M. Newmark Medal

The Newmark Medal recognizes an ASCE member whose contributions in structural mechanics have substantially strengthened the scientific base of structural engineering.

Andrei Reinhorn's pioneering contributions include experimental and analytical methods in structural dynamics, design of response-control systems for earthquake-resistant buildings, as well as

Continued on page 17



Puneet Singla

MAE Assistant Professor Puneet Singla
National Science Foundation (NSF) CAREER Award

MAE's **Puneet Singla** earned the NSF CAREER award for research project entitled, "Uncertainty Propagation and Data Assimilation for Toxic Cloud Prediction," which seeks to develop new mathematical tools for accurate characterization and propagation of uncertainty in mathematical models, and fusion of model output with sparse, noisy data, to determine estimates of the actual physical phenomenon and statistical measure of confidence in those estimates.

Continued on page 17

Alum's Gifts Name Spaces in Davis Hall

We are grateful to School of Engineering alumni and their families for their generous gifts, which will name spaces in Barbara and Jack Davis Hall in their honor.



Sharad K. Tak Smart Room

Sharad K. Tak (MS CS '69), a UB Alumni Association's Distinguished Alumni Award winner, attended UB on a fellowship and was among the first to receive an MS degree in computer science here. Tak established the System and Applied Sciences Corporation (later ST Systems Corporation, which sold to Hughes Aircraft in 1991). He is now an entrepreneur with global ventures in infrastructure development, which he has consolidated under the aegis of ST Group. Tak was a key volunteer in the UB Engineering School's feasibility study for a proposed fundraising campaign, much of which was designated for Davis Hall.



RKB Conference Room

Raj K. Boveja (BS IE) and his wife **Sonia** are co-founders of OCR Services, Inc. Raj is OCR's president and CEO, and Sonia is chairperson. For over 20 years they have been working through OCR to provide software and related services for international trade, supply chain compliance, and homeland security. OCR's strategic direction was inspired by Raj Boveja's work with the US Departments of Commerce, State, and Treasury, where he consulted on the integration of software solutions for the international trade community. Before founding OCR, Sonia Boveja was a business executive with a BS from the University of Maryland.



John V. Pilitsis Conference Room

John V. Pilitsis (MS '70 PhD '75 IE) is co-founder, retired president, and CEO of Cyoptics, Inc., a global optoelectronics company. Prior to Cyoptics, Inc., Pilitsis was an 18-year veteran of AT&T/Lucent Technologies, and served as the president of Lucent Optoelectronics for five years. He is widely credited with leading the turnaround of Optoelectronics and its global growth. In addition to his gift to the building, Pilitsis, a Dean's Advisory Council member, has long been a supporter of the School at the Delta Society level, the School of Engineering's top circle of donors.

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Robert G. Whelen

Alum Whelen a Champion of Change

Robert G. Whelen (BS '85 CE) is Harris Corporation vice president of Real Estate and Environmental, Health and Safety and chairman of the Board of the Economic Development Commission of Florida's Space Coast. Whelen participated in the Obama administration's Champion of Change program, which nominates those for participation who embody the ideals of "out-innovate, out-educate, and out-build the rest of the world." Whelen was part of a roundtable discussion on the impact of the retirement of the Space Shuttle on the Space Coast economy, and actions the administration could effect to mitigate this economic impact.

In Memoriam

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

- Floyd E. Adamson, BS EE '57
- Jack H. Blackmon, PhD EngSci '66
- Thaddeus F. Bryzinski, BS EE '50
- Robert K. Busch, BS CE '85
- James N. Carr, BS ME '52
- Elise R. Colvin-Shelley, BS ME '79
- John F. Fuchs, BS EE '79
- Lawrence H. Gill, BS ME '64
- Owen S. Hall Jr., BS IE '50
- Kenneth W. Kells, MS CIE '70
- Robert L. Knight, BS ME '52
- Andreas Langner, BS EE '85, PhD CE '88
- Donald Otto Oetinger, BS ME '50
- Raymond A. Schneider, BS EE '53
- Rainer Troeltzsch, BS EE '70
- Joseph H. Westsik, BS ME '59
- Maynard K. Wright, MS ME '61



With their awards at the 2011 UB Alumni Association Achievement Awards ceremony (l to r): Russell L. Agrusa—Clifford C. Furnas Award; Gina Bronkie Hammond—Distinguished Alumni Award; and James D. Boyle—Volunteer Recognition Award

UB Alumni Association Awards to Engineering Alums

Russell L. Agrusa: Clifford C. Furnas Award



For distinguished engineering, natural sciences, or mathematics alums in a science field

Russell L. Agrusa (BS EE '76) is founder, president and CEO of Massachusetts-based ICONICS Inc., a major developer of open-connectivity and standards-based visualization software, HMI and supervisory-control and data-acquisition applications for manufacturing and building automation.

Agrusa, a Dean's Advisory Council (DAC) member since 2005 and Delta Society member, was awarded the School's highest honor, the Dean's Award for Achievement, in 2010. He and his wife Paula, also a UB alum, have strongly supported education at UB and the School through their generous gifts, including a gift to Barbara and Jack Davis Hall, which names the Agrusa Auditorium.

He cites his UB degree as a great contributor to his personal success. In his May 2010 commencement address he stated, "I believe universities are the incubators of ideas and jobs, helping create the future generations of engineers and computer scientists in Western New York and across the country."

Gina Bronkie Hammond: Distinguished Alumni Award



Recognizes exceptional career accomplishments, community or university service, or research and scholarly activity

*Gina Bronkie Hammond (MS CS '73) enjoyed a career of almost 40 years in progressively challenging positions on the leading edge of the computer science and engineering industry field, most recently as director of Integrated and Support Operations of the Capital Region Army Programs at CSC (formerly Computer Sciences Corporation).

At CSC, Hammond managed sophisticated contracts employing hundreds of employees. Her work spanned many different areas of governmental contracting in both civilian and defense divisions.

Hammond, the 2009 recipient of the Dean's Award for Achievement, is an active DAC member, and was the first to contribute a major gift in support of the new engineering building, Davis Hall. Her gift, which names a CSE lab in her honor, reflects Hammond's confidence in UB Engineering's future, and its comprehensive vision to positively impact the region, the state, and beyond, through collaboration and research innovations.

James D. Boyle: Volunteer Recognition Award



For outstanding volunteer accomplishments, making the community a better place to live and work

***James D. Boyle** (BS CIE '78) has been an enthusiastic, dedicated UB Engineering Alumni Association (UBEAA) volunteer and leader for over 20 years. Boyle is a long-standing board member and has held the position of UBEAA board president for the past three years, having served the organization continuously since 1991. He works tirelessly to recruit members and always assists with the organization's premier events.

During his tenure as UBEAA president, participation in UBEAA-sponsored events has increased each year, and membership has also risen. In addition to the UBEAA's premier events — the UB Engineering Tailgate party at UB Football games, and the UB Engineers at UB Basketball, which hosts a pizza reception — UBEAA also sponsors student scholarships and several other student activities and popular alumni activities, which build spirit and foster engineering education. These include the annual Engineer of the Year Award; a kickoff celebration for Engineers Week; and the Order of the Engineer, a national effort to foster a spirit of pride and responsibility in the engineering profession.

Boyle has had a long and varied career as a civil engineer, working on many significant projects for both the Erie County Highway Department and the U.S. Army Corps of Engineers, where he is currently a civil engineer. Boyle and his wife, *Ellen (UB Nursing '78) have two children, Thomas and Katie.

UB Engineering Alumni Association's 2011 Engineer of the Year: Catherine H. Pilarz



(L to R): Brian Peer, Michael Dray, Catherine Pilarz, John Kociela, Michelle Barker, then-Dean Harvey G. Stenger Jr.

Catherine H. Pilarz (BS ME '80) was named 2011 Engineer of the Year by the UB Engineering Alumni Association (UB EAA). Since 2001, Pilarz has been product safety senior director at Mattel/Fisher-Price (East Aurora, N.Y.), where she has worked since 1980 in successively responsible positions. Mattel/Fisher-Price designs manufactures and markets toys and family products sold in more than 150 nations around the world.

Pilarz was also recently named 2011 Chair of ASTM International (formerly the American Society for Testing and Materials). She has served on the ASTM board of directors since 2006, and supports the ASTM in many roles — as vice chair of new projects for ASTM Committee F15 on Consumer Products; co-chairman of Subcommittee F15.18 on Cribs, Toddler Beds, Play Yards, Bassinets, Cradles and Changing Tables, and a participant in many other F15 subcommittees. She was honored with the 2006 ASTM Award of Merit and accompanying title of fellow for her contributions to F15, a committee of more than 900 concerned entities, including manufacturers, end users, and consumer advocacy groups.

Pilarz is a member of the American Society of Mechanical Engineers and the American Society for Quality (ASQ). Through ASQ, she has earned the designations of certified reliability engineer and certified quality engineer. Pilarz also holds an MBA from Canisius College (Buffalo, N.Y.).

Hire UB Engineering Co-op and Intern Students

We encourage our alumni and industrial partners to consider employing UB Engineering students through our Co-operating Engineering Education Program.

Co-op students have completed their junior year, including coursework in their major, and many have business-success skill training through the Engineering Career Institute. They are prepared for challenging, value-added technical assignments.

Internships are also available.

Please consider employing one or more of these students.

For more information, contact:

Dean C. Millar, Assistant Dean
412 Bonner Hall, (716) 645-0971
University at Buffalo
dcmillar@buffalo.edu
www.eng-intern.buffalo.edu

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:

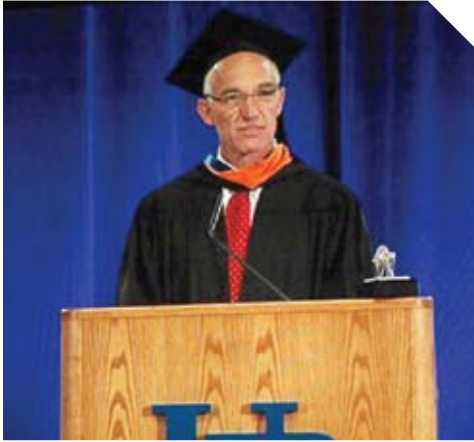
External Affairs
UB Engineering Office
412 Bonner Hall
University at Buffalo
Buffalo, NY 14260-1900

UB Career Services: An Alumni Resource

- **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

2011 Dean's Award: Scott D. Stevens, PE



Scott D. Stevens

This year's Dean's Award for Achievement recognized **Scott D. Stevens** (BS CIE '79), PE, founder and CEO of Dimension Fabricators, Inc. (Glenville, N.Y.), a manufacturer of concrete reinforcing steel products for complex construction projects.

Scott Stevens' career began as a facilities engineer for the space shuttle program at Lockheed Martin. In 1984, he founded Dimension Fabricators, Inc. Under his direction, the company has grown immensely, to become highly regarded for its fabrication and delivery solutions on grand scale, challenging concrete reinforcing projects. Dimension has produced parts and assemblies for many of the northeastern United States' sizable highway bridges and buildings, including the Boston Central Artery (Mass.), the U.S. Coast Guard Headquarters (Washington, D.C.), and the Pearl Harbor

Memorial Bridge (New Haven, Conn.). In 2010, to accommodate its steady growth, the company relocated to the former Super Steel Schenectady plant, further supporting the region's economy and future.

Stevens is a director on the Concrete Reinforcing Steel Institute's board, a volunteer to high school economics classes, and a pilot for Angel Flight, a charitable organization that transports patients via private aircraft. He has been a UB Engineering Dean's Advisory Council member since 2005 and received the 2010 Engineer of the Year Award, the UB Engineering Alumni Association's highest award.

Scott and his wife, Coleen (UB Physical Therapy '79) are faithful supporters of UB Engineering and other UB programs. They gave a generous gift to the School's new building, Barbara and Jack Davis Hall, where the courtyard will be named in their honor.


Scott and Coleen have three sons, Gregory, Todd, and Daniel, all of whom have pursued the study of civil engineering.

Order of the Engineer Induction



The following engineers, several of them employees of the Niagara Power Vista, New York Power Authority, Lewiston, N.Y. (where the photo was taken), were inducted into the Order of the Engineer. The induction was conducted by UB Director of University Accreditation, CBE Professor Mike Ryan and Senior Associate Dean Robert E. Barnes (MS '76 PhD '84 IE). Officers are listed first, then names appear in alphabetical order: William F. Klepser, Jr., PE, President; Joseph F. Kessler, First Vice President, PE (BS EE '93, MEng '00, also holds a UB MBA); Christopher Andrzejewski, PE (BS CIE '94); Anthony J. Dell'Isola, PE; Eugenio [Gino] Forte, PE; Harry François, PE; Thomas R. Gilmartin; Martin Hudi (BS ME '84); Peter Kovachi (BS ME '06); Eustace A. Mendez, PE; Francis Nalbach (BS EE '97); John Notaro (BS ME '57); Wallace J. Ochterski, PE; Timothy W. O'Connor, PE; James D. Rankin; Angel Rivera; Robert M. Roskwitalski, PE (BS EE '04); Marco M. Scofidio, PE (BS CIE '80); Douglas R. Strang, Jr. (MEng IE '95); Edward G. Szpala, PE; William J. Wirth, PE (BS ME '64); Lawrence Zamojski, PE. Photo: NY Power Authority

Alumni Membership – One Amount Pays All

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

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

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

THANK YOU MEMBERS

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

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

UB Engineering Alumni Association 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)
- *Anthony S. Markut (BS IE '80)
- *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)

CSE Team Wins First Place in Panasci Technology Entrepreneurship Competition

A team of CSE PhD students **Smruthi Mukund** (MS CSE '08), **Anurag Bhardwaj** (MS '08 PhD '10 CSE), **Achint O. Thomas** (MS '07 PhD '10 CSE), and CSE's SUNY Distinguished Professor **Venu Govindaraju** earned the Henry A. Panasci Jr. Technology Entrepreneurship Competition. Created by the UB School of Management and the UB Office of Science, Technology Transfer and Economic Outreach, the award facilitates and promotes the commercialization of UB-generated technologies, to create viable businesses in Western New York.

The winning team received seed funding and in-kind business services to launch Lectio Labs, a web-based interface to help users discover new information through shared interests and networks.



(L to R): Accepting the Panasci Award: Venu Govindaraju, CSE SUNY Distinguished Professor; Srirangaraj Setlur, of UB Center for Unified Biometrics and Sensors; and PhD student Smruthi Mukund

CSEE Student Ratnagarán Awarded ABCD of WNY Graduate Fellowship in Bridge Engineering



The Association for Bridge Construction and Design – Western New York Chapter (ABCD of WNY) awarded a generous fellowship to CSEE student **Benny Jebuna Ratnagarán**, for his research project entitled, "Integrated Project Delivery for a Curved Steel Girder Bridge using Bridge Information Modeling," which employs a bridge-oriented integrated project delivery method called BRIM (Bride Information Modeling). The project applies virtual design and construction approaches in an ongoing bridge replacement project at the I-190/I-290 interchange in Buffalo.

Presenting the check to Benny Jebuna Ratnagarán was ABCD of WNY President, Seth Kaeuper, PE (left) and CSEE Associate Professor, ABCD Board Member Stuart S. Chen, PE (right).

Engineering Commencement 2011

Outstanding students selected to participate in Engineering's commencement ceremony were (l to r): Banner Carrier **Antonio Upia** (BS EE '11); **William Seychew** (BS EnvE '11), who gave the salutation; Tau Beta Pi NY Nu chapter President **Brandon Tarney** (BS EE '11), who gave the student address; and **Richard Linares** (MS AE '11), who gave the farewell. UB Interim Provost Harvey G. Stenger Jr. conferred degrees, while Acting Dean Rajan Batta thanked faculty and students for their fine work, and wished them continued success. For speeches and a video of the event, please visit: www.eng.buffalo.edu/Commencement/2011.



(L to R): Antonio Upia, William Seychew, Brandon Tarney, and Richard Linares

Student Bileschi Earns Prestigious Goldwater Scholarship

CSE and Mathematics student and UB Honors College scholar **Maxwell "Max" Bileschi** won a Barry M. Goldwater Scholarship and Excellence in Education award, given nationally to outstanding undergraduate sophomores and juniors studying mathematics, science, or engineering. Bileschi is one of 275 students to win the award.

Bileschi's research has been internationally recognized. A computer game concept that he designed was purchased by an Australian educational software firm. Bileschi designed the game while a high-school senior, to teach



AP biology students about evolutionary structures in plants. Also, two research papers produced in his freshman year, with UB Mathematics Professor Thomas Cusick and CSE student **Dan Padgett**, are under review for publication. Bileschi completed the papers while participating in the National Science Foundation's URGE to Compute research program. Bileschi was chosen to co-present his findings at the 2010 Young Mathematician's Conference at Ohio State University, where his team earned an honorable mention.



UB SAE's diesel-powered snowmobile performing in the SAE Clean Snowmobile Challenge acceleration and handling events

SAE Clean Snowmobile Challenge

For the fourth straight year, the UB Society of Automotive Engineers (SAE) had the only diesel sled competing at the national SAE Clean Snowmobile Challenge. The collegiate design competition was held at Michigan Technological University. Buffalo's entry placed fourth overall. Entries were ranked for design, performance, practicality, ride, and other factors.

26th Annual Engineering Scholarship Reception

The 2011 School of Engineering Scholarship Reception was an evening dedicated to recognizing our students who won scholarships and awards during the 2010–2011 academic year.

Congratulations to the exceptional students honored, and their families. Our sincere appreciation goes to our generous donors for their support, and to the event's sponsors, LP Ciminelli and the UB Engineering Alumni Association.



ISE student awardees and faculty



BME student awardees and faculty

Award List

American Institute of Chemical Engineers

Awards: Outstanding Junior: **Karl Barber**, CBE;

Outstanding Senior: **Ryan Barton**, CBE

American Society of Civil Engineers Julian

Snyder Endowment Fund Scholarship:

Emily M. Nuding, CSEE

American Society of Civil Engineers Student of

the Year Award: **Kyle R. Doyle**, CSEE

Robert P. Apmann Award: **David B. Clarke**,

CSEE; **William Seychew**, CSEE

Joseph and Adele Augustyn Memorial Book

Award: **Tara Feuerstein**, BME; **Elizabeth**

Newell, ISE

Association of Old Crows Scholarships: **Alex**

Vertlieb, CSE; **Jonathan Grimaldi**, EE

David M. Benenson Memorial Scholarship:

Andres Uzquiano, ISE; **Dipan Shah**, CSE;

Andrew J. Ring, AE; **Bodiyabaduge Dulantha**

Fernando, CSE; **Derrek Drass**, CSEE

Joan G. Bennett Memorial Scholarship:

Meredith Canty, ME; **Daniel Rider**, EE

Adarsh Bhagat Memorial Scholarship:

Jennifer Haggerty, ME

Beth Cheshire Moran Award: **Julie Cercone**, CSE

Bird Technologies Fellowship Program: **Matthew**

Ferree, EE; **Manoj Devendhiran**, EE

Chemical and Biological Engineering Academic

Excellence Awards: **Christopher Owen**, CBE;

Andrea Belair, CBE; **Joseph Ferrar**, CBE;

Vijay Singh, CBE; **Jonathan Cole**, CBE

Civil, Structural and Environmental Engineering

Chair's Graduate and Undergraduate

Recognition Awards: Graduate: **Maria**

Koliou, CSEE; Undergraduate: **Jeremy W.**

Battesh, CSEE

Clark Patterson Lee Engineering Scholarship:

Benjamin C. Nichols, CSEE

Cobham Mission Systems Engineering

Scholarship: **Alex N. Byrley**, EE; **Shane R.**

Sanfilippo, EE

Dean's Scholars: **Ivie Aifuwa**, CBE; **Laura**

Chamberlain, SEAS; **Jonathan Cole**, CBE;

Belle Cunningham, CBE; **Mark Falinski**, CBE;

Francis Fonseca, ME; **Kathleen Gajewski**,

CSEE; **Lindsey Garay**, MAE; **Jonathan Jones**,

MAE; **Steven Kapturowski**, MAE; **Kayla**

Kisenwether, MAE; **Peter Kuchera**, SEAS;

Garth Lester, ME; **John McGreevy**, MAE;

Ragin Mickens, CSEE; **Julia Morrissey**,

SEAS; **Paul Nixon**, CSE; **Andrew Ortiz**, ME;

Kerry Poppenberg, SEAS; **Steven Powell**,

CSEE; **Aaron Selkridge**, MAE; **Alexander**

Valencia, Eng Physics; **Andrew Wise**, MAE;

Raldolf Zingo, ME; **Jessica Blank**, SEAS;

Kemal Cabuk, ME; **Violet Castor**, EE; **Lauren**

Coviello, SEAS; **Alexander Elhage**, ME; **Erika**

Salem, ME; **Lisa Rae Zoldos**, EE

Graduate Dean's Scholars: **Rohitesh Gupta**,

CBE; **Yongjia Fan**, CBE; **Zahrasadat Lotfian**,

CSEE; **Lei Lin**, CSEE; **Yi Liang**, CSE; **Meng**

Liu, CSE; **Daniel Snitzer**, MAE; **Michael**

Mercurio, MAE; **Panya Chanawangsa**, CSE;

Zhouhan Yang, CSE; **Kent Carolus**, ME

Richard E. Dollinger Energy Systems Institute

Graduate Scholarship: **Daniel Muffoletto**, EE

Engineering Alumni Association Scholarships:

Kyle R. Doyle, CSEE; **Tara Feuerstein**, BME;

Claire Lochner, EE

Engineering Cooperative Society Award:

Mark Muffoletto, EE; **Antonia Upia**, EE;

Shanney Lacey, IE

D. Richard Ferguson Memorial Scholarship:

Joshua C. Ulrich, ME

Richard E. Garman Undergraduate Scholarship:

Sean Gaffney, CSEE; **Gabriel Lagrutta**, CSEE;

Ayed Yamin, CSEE

Lester (MS '64, PhD '69 EE) and Karen Gerhardt

Dean's Scholarship: **Syed Muhammed**

Muazza Azam, EE; **Tyler Matthews**, EE

Robert H. and Catherine H. Goldsmith

Fellowship: **Kelly Duval**, CSEE; **Jacob Joyce**,

CSE; **Christopher Van Loon**, ME

Matthew R. Grappone Book Awards: **Michael**

D'Angelo, CSE; **Daniel Padgett**, CSE;

Michelle Reelee, CBE; **Jessica Utzig**, BME;

Yinnan Chen, EE

Matthew R. Grappone Memorial Scholarship:

Bethany Griswold, CSE

Graduate School Ambassador Award: **Nasi**

Zhang, CSEE; **Armin Masroor**, CSEE;

Chandrakanth Bolisetti, CSEE; **Hu Ding**,

CSE; **Swapnoneel Roy**, CSE; **Dan Schlegel**,

CSE; **Sangkook Lee**, EE; **Raj Panchapakesan**,

EE; **Gayatri Venugopal**, EE; **Xinhui Zhu**, ISE;

John Coles, ISE; **Aziz Naim**, MAE; **Yong Won**

Seo, MAE; **Supriya Singh**, MAE; **Ankitkumar**

Fajalia, CBE; **Yukun Li**, CBE; **Nandina**

Mondal, CBE

Professor William R. Greiner Engineering

Scholarship: **Mitchell Slomowicz**, MAE

International Society of Automation (ISA) Award:

Peter Francis Goergen IV, MAE

Robert B. Kleinschmidt Memorial Scholarship:

Ryan Green, EE

Paul J. Koessler Memorial Scholarship: **Timothy**

Kaiser, CSEE

Yong H. Lee Scholarship: **Jin Wei Ru**, ME

Society of American Military Engineers

Scholarship Dinner Dance Committee Award:

Anthony Lechanski, EnvE

James W. and Nancy A. McLernon Engineering

Scholarship: **Justin Storms**, AE; **Daniel**

Snitzer, ME; **Stephen Arlington**, ME;



CSEE student awardees and faculty



CBE student awardees and faculty

Brad Darrall, ME; Josh Berard, ME; Sourobh Ghosh, ME; Kyle R. Doyle, CSEE; Khoi M. Nguyen, EE; Will Seychew, EnvE; David B. Clarke, EnvE; Kathleen Gajewski, CSEE; Wesley Frechette, CSEE; Carl Hempel, CSEE; Jimmy Xiangyu Wu, CSE; Ivie Aifuwa, CBE; Margaret Scott, ME; Cecilia Simon, EE; Adam Czerniejewski, EE; Shaun Setlock, CBE; Joshua Feiler, EE

The Samuel R. McLernon and the Nancy Stillwell McLernon Memorial Scholarship: **Megan Hann, CBE**

Mechanical and Aerospace Engineering Award: **Brian Bojko, MAE**

Dean Paul E. Mohn Memorial Book Award: **Mohit Bansal, CSE**

Lawrence and Amanda Megan Scholarship: **Bich Vu, CSE**

Moog Graduate Fellowship: **Yanshu Li, EE; Katherine Fitch, MAE**

National Grid Stray Voltage Award: **Thomas Michael DiSanto, EE**

Niagara Specialty Metals: **Justin Storms, AE; Kayla Kisenwether, ME**

S.P. Prawel Award: **Joanne M. White, CSEE**

Presidential Fellowships: **Dipanshu Bansal, CSEE; Ming Shao, CSE; Marcia Torrico, EE; Nicholas Fortenbery, ISE; Kevin Suffoletto, MAE**

R. R. Rumer Award: **Benjamin C. Nichols, CSEE**

Stephen B. Sample Honors Scholarship: **Phillip Tucciarone, CE**

Senior Scholar Awards: Applied Sciences Group: **Robert Dygert, CSE; Robert Finton, EE; John W. Danforth Company: Bradley Darrall, MAE; UB Engineering: Ivie Aifuwa, CBE; Andrea Belair, CBE; Shuen Shivan Wang, CBE; Jonathan Rivera, CSEE; William Seychew, CSEE; Carl Hempel, CSEE; Austin Miller, CSE; Jesse Hartloff, CSE; Xiaoying Huang, EE; Yen Jen Chen, EE; Michael Mercurio, MAE; Adonis Pimienta-Penalver, MAE**

George G. Schenk Scholarship: **Eric Mikada, CSE**

Irving H. Shames Outstanding Teaching Assistant Award: **Pierre R. R. Gautreau, CSEE**

R. P. Shaw Award: **Daniel Gifford, CSEE**

Schomburg Fellowship: **Kevin Bryant, EE; Sabrina Casucci, ISE; Edward Chew, CSEE; Maria Dolores Cortes Delgado, CSEE; Hila Dvora, CBE; Tolanya Gibson, EE; Megan Hannigan, ISE; Carrie Hinners, CSEE; Katherine Shaul, CBE**

Naida Irizarry Shaw and Max Kay Scholarship – In Loving Memory of Eleanor Kay: **Wembley G. Leach Jr., CSE; Jeffrey Chu, CSE; Michael Chen, CSE; Alexander Haynie, CSE**

Bhaw D. Shukla Scholarship: **Daniel Snitzer, ME**

Silent Hoist and Crane Materials Handling Prize: **Jaewook Jeong, ME; Matthew Filion, ME; John Venturo, AE; Matt Nelpurackal, ME; Tara Feuerstein, BME**

Felix Smist Scholarship: **Donald Besecker, EE; Stephen Briggs, MAE; Angelica Corby, CBE; Kenneth Dawley, MAE; Leana DeSouza, AE; Anthony Grisafi, CSE; Kristina Kolp, CBE; Daniel Kromphardt, MAE; Christina Pinzone, SEAS; Carol Sawyer, EnvE; Rachel Styn, EE; Charles Tabone, MAE**

Amina and Sabuali Tarmohamed Education Scholarship: **Zubair Trabzada, CSEE**

Frederick Thomas Award: **Hung Duc Phan, ISE; Zhihao Liu, ISE**

Thomas/Karwan Industrial Engineering Undergraduate Scholarship: **Jenna Marie Wegrzyn, ISE**

United Illuminating (UI) Company Scholarship: **Sean K. Monckton, EE**

Watts Engineering and Architecture Minority Scholarship: **Mariano Hernandez, ME**

Thomas G. Wilde Family Scholarship: **May Gin Cheung, ISE; Mingh Li, ISE; William Charles Hughes, ISE**

Gustav and Greta Zimmer Research Scholar Awards: **Bradley Darrall, MAE; Alexandre Lovallo, MAE; Jenna Curry, MAE; Ron Heichman, MAE; Alex Borsuk, MAE; Richard Bottom, MAE; Daniel Snitzer, MAE**



MAE student awardees and faculty



CSE student awardees and faculty

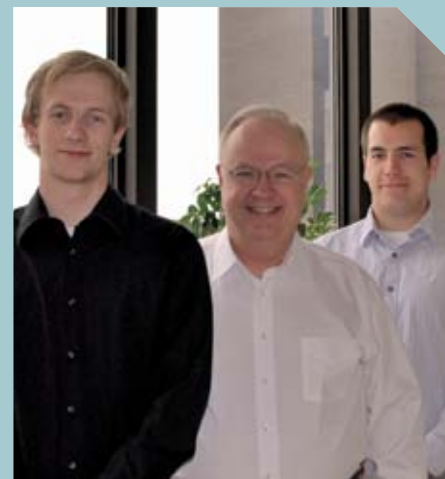


EE student awardees and faculty

Smist Scholar Kromphardt's Engineering Family

Three **Kromphardt** family members are pursuing UB Engineering degrees. The father, **Dan** (center), is a Felix Smist Memorial Scholarship winner pursuing an ME degree, while **Ben** (right) is an AE major, and **Joseph** (left) is a CE major.

The Smist fund was established by **Jim Smist** (BS CE '80) and his wife Mary, to honor Jim's late father, **Felix Smist** (BS ME '65), who persevered to complete his degree after 16 years of part-time study, which he achieved while working full time and raising a family.



Lochner Earns NSF Fellowship and SUNY Chancellor's Award

Claire M. Lochner (BS EE '11) was recognized with a 2011 National Science Foundation (NSF) Graduate

Research Fellowship. She was also honored with a State University of New York (SUNY) Chancellor's Awards for Student Excellence, for SUNY students who have best demonstrated the integration of academic excellence with other aspects of their lives.

Lochner, a Barry M. Goldwater Scholar and recipient of UB's

Claire M. Lochner

John D. Gallatin International Honors Scholarship, has conducted several research studies at UB and UCLA and has been published internationally. She has also served as an officer of Tau Beta Pi, Engineers for a Sustainable World, and the Institute of Electrical and Electronics Engineers. Lochner is entering the PhD program at University of California at Berkeley's Department of Electrical Engineering and Computer Science, with a departmental graduate fellowship.

NFTA Good Going Award for Environmental Affairs Department

Under the leadership of AE and ME student **Mike Alcazaren**, the UB Student Association (SA) Environmental Affairs Department won the 2011 Good Going Award for Best Earth Day Outreach for an Organization. Sponsored by the Niagara Frontier Transportation Authority (NFTA) and given at the Annual Buffalo Niagara Earth Day

Celebration, the award recognizes outstanding efforts of regional organizations to improve the environment and promote environmentally sustainable habits.

Alcazaren stated the newly-formed department works to create a culture of climate awareness in the SA and on campus. The group has quickly distinguished itself with a rich slate of events that appeal to the larger community, as well as to students.

The department was formed in the spring of 2010 after the UB chapter of Engineers for a Sustainable World (ESW), a national engineering student organization, successfully proposed the idea to SA.



May Cheung with her winning research poster

Celebration of Academic Excellence: Student Posters

The following students presented at UB's Center for Undergraduate Research and Creative Activities (CURCA) Celebration of Academic Excellence.

ISE student **May Cheung** earned the event's top award, the 2011 Undergraduate Research and Scholarship Award of Distinction, for her research project (listed below) with ISE Assistant Professor **Jun Zhuang**.

The following student-mentor teams participated on these projects:

BME:

Yang Li with BME Assistant Professor **Chulhong Kim**: "Recovery of optical absorption in quantitative photoacoustic tomography"

CBE:

Karl Barber with CBE Assistant Professor **Sheldon J. Park**: "ERK2-peptide interaction on yeast cell surface"

Ryan Barton, with CBE's SUNY Distinguished Teaching Professor **Carl R. F. Lund**: "Study of Acid Catalyzed Hydrolysis of Fructose and Formation of Humins"

EE:

Derek Brim with Jennifer Zirnheld: "The Characterization of Electrochemical Devices"

Antonio Upia with Jennifer Zirnheld: "Rechargeable Electrochemical Energy Storage"

EnvE:

Elizabeth Hennessey with Ecosystem Restoration through Interdisciplinary Exchange (ERIE) Director **David Blersch**: "Use of Algae in Pollutant Removal"

William E. Seychew with CSEE Professor **Joseph Atkinson** and Geography Professor Sean Bennet: "Hydraulic Cover Stones"

ISE:

May Gin Cheung with **Jun Zhuang**: "The Games Between Oil Companies and the Government"

MAE:

Josh Weisberger with MAE Professor **Joseph Mollendorf**: "Heat Transfer in a Foam Insulated Brick"

ME:

Alex Borsuk with New York State Center for Engineering Design and Industrial Innovation Research Associate **Andrew Olewnik** (BS '00 MS '02 PhD '05 ME): "Understanding Bicycle Riding Dynamics"

Michael Sparks with EE Assistant Professor **Jennifer Zirnheld** (BS '93 MS '97 PhD '04 EE): "Various methods to characterize electrochemical cells"

Research Exploration Academy

Students applied their research skills to biomedical engineering topics for Research Exploration Academy projects, which were executed under the direction of Academic Director, CSEE Professor **James N. Jensen**. All projects listed below were mentored by Jensen and Biology student Jennifer Trapani.

- Vivaswath Ayyar (Biology), Anna Krasopoulos, Susan Lorenz (both of Pharmacy), **Varun Vruddhula** (AE): "Rebuilding the body: An insight into the potential of stem cells"
- Thomas Cleland (Pharm.), Margaret Camanzo (Psych.), Rachel Sokoloff (Sociol.), **Chihu Ikechi-Uko** (ME): "Inkjet Organs: An Examination of Computer-Aided Tissue Engineering and Bioprinting"
- Justin LaMarca (Pharm.), Natalie Licata (Linguistics), Rauwolfia Mannan (Biology), **Lumiere Valentine** (AE): "Reducing Liver Transplantation Rejection Rates with Bone Marrow"
- Kan Hong Zheng (Undecided), Shirin Vartak (Biol.), **Paul-Andrae G. Lewis** (CSEE), Aaron Wray (Biochem.): "Artificial Circulatory System: Can It Be Done?"

Graduate Poster Competition

The School of Engineering's annual poster competition enhances student participation and recognizes doctoral students' progress and academic quality. Posters are prepared exclusively by students, and judged by the directors of graduate studies and by Graduate Student Association presidents of engineering departments. The top three placeholders are honored at a luncheon and receive a certificate. Each contestant earns a monetary award.

CBE: Ankitkumar Fajalia, "Competitive Interactions in Surfactant Solutions: A Neutron Scattering Investigation"; **Kok Hong Lim**, "Designed Streptavidin with Improved Affinity and Stability"

CSE: Ashirwad Chowriappa, "Lidation of Robotic Surgery Simulator (RoSS)"; **Aditya Wagh**, "Human-Centric Data Fusion in VANETS"

CSEE: Petros Sideris, "Hybrid Post-Tensioned Precast Concrete Segmental Bridges"; **Afsoon Nicknam**, "Direct Displacement-Based Seismic Design of Propped Rocking Wall Systems" (second place)

EE: Sangkook Lee, "Optimal Transmission Power per Round for Hybrid-ARQ Rayleigh Fading Links"; **Girish Bohra and Ann Ratchanok**, "Graphene: From Pencil to Nanoelectronics" (third place)

ISE: Michael Jenkins and Geoff Gross, "Towards Context-Aware Hard/Soft Information Fusion: Incorporating Situationally Qualified Human Observations into a Fusion Process for Intelligence Analysis"; **John Coles and Matt Henchey**, "Decisions in Disaster Recovery Operations: A Game Theory Perspective on Actor Cooperation, Communication, and Resource Utilization"

MAE: Christoph Hoog Antink, "Tumor Motion and Deformation Estimation for Intensity Modulated Radiation Therapy" (first place); **Sivapalan Baskaran**, "Piezo Flexo Actuator Using Asymmetric Configuration of Electrode"



First-place winner Christoph Hoog Antink, MAE

Teams Place in National Competitions: Concrete Canoe and Steel Bridge



(L to R, all students are CIE unless otherwise noted): Members of the Concrete Canoe and Steel Bridge teams together. Front row: Faculty Advisor Todd Snyder, Walter Kaniecki, Derrek Drass, Robert Kline, Yomar Martinez, Maxwell Todd, Nicholas Vesly; Second row: Steel Bridge Team Advisor John Gast, Luke Scannell, Dylan Chen, Karen Bellanca, Fei Xie, Ted Battesh/Dan Levine, Kyle Doyle (trophy), Ashley Tarasco, Isabel Gonzalez, Leah Wzientek, Chris Agro, Jeremy Battesh; Back row: Eugene Foo, John Ellis, Kip Whittchen, Justin Carroll, Francis Mahaney, Luke Althaus, Mike Pelino (ME), Alexis Sigeti, Joe Olivereo, Lee Talley, Benjamin Flamio

After coming out on top in regional competitions, UB's American Society of Civil Engineers' (ASCE) teams were among the best and brightest to compete with students from other top engineering schools in ASCE national competitions.

UB's ASCE Concrete Canoe Team placed 16th in its final product and 13th in its total race points at the ASCE 2011 National Concrete Canoe Competition, held at the University of Evansville, Indiana. The chapter's Steel Bridge Team placed 11th in construction speed and 6th in lightness at the ASCE's 2011 National Steel Bridge Competition, held at Texas A&M University.

CSEE Instructor **Todd Snyder** (MEng CIE '96) is the UB-ASCE Faculty Advisor.



Concrete canoe team members in their canoe



Steel bridge team, with bridge

UB SEDS Students Win Air Force Nanosat Program Spot

Students from UB Students for Exploration and Development in Space (SEDS) were selected to compete with eleven other schools in an elite U.S. Air Force-sponsored University Nano-satellite Program, which funds teams to develop their own flight-ready spacecraft and a mission of their own design, with the added potential of seeing their project go into space if selected for the final round.

Four of the team members – **Michael D'Angelo**, **Daniel Pastuf**, **Richard Linares**, and **Calvin Lau** – recently traveled to the University of Colorado, Boulder for the Student Hands-On Training workshop, Year 1 (SHOT1), where they built a 1.6-pound "balloon sat" satellite, which was launched to an altitude of over 18 miles and took several photos.

UB's Nano-sat project, Glados, will gather light data on unresolved space objects to determine their shape, orbit, and material characteristics. The satellite will also observe unique space events called glints, wherein an observed satellite acts as a mirror, strongly reflecting the Sun's rays. A glint makes an object significantly brighter, allowing for observation of details typically too dim to be seen, such as Iridium flares. This technology has many potential applications in characterizing the space environment, especially for geostationary objects. The process can potentially increase space-situational awareness, and our knowledge of non-cooperative satellites and debris objects. Further information regarding the UB program can be found at <http://www.ubseeds.org/nanosat>.



(L to R) On the nano-satellite team: **Dan Kozlowski (CompE)** – command and data handling team, **Michael D'Angelo (EE, CompE)** – the team's program manager, **Daniel Pastuf (ME, AE)** – (the team's chief engineer), **Lisa Alagna (Math)** – command and data handling team, **Zachary Pace (Physics, Math)** – the team's science and optics lead, **Calvin Lau (AE, ME, EE)** – structures lead, **Jonathan Gambacorta (AE, ME)** – thermal lead, **Nicholas Sinno (BS ME, AE '11)** – operations director, **Yang Li (BS EE '11)**, currently an EE graduate student) – power lead, **Nathan Ohmit (CompE)** – communications lead, **Alex Wende (EE)** – power team, and **Mathew Bowers (EE, ME)** – structures team. Not pictured: AE PhD student **Richard Linares**, the team's principal student investigator, and MAE Professor **John L. Crassidis**, the team's PI.



CAD renderings of Glados, courtesy of Nanosat Team



Outgoing TBP President **Brandon Tarney** with 2011 Professor of the Year, MAE Adjunct Assistant Professor **Edward M. Kasprzak (MS '98 PhD '07)** (right) and 2011 TA of the Year, CSEE's **Kyle A. Eudene (BS CIE '10)** (left)



New inductees (l to r): **John McGreevy**, **Michael Rossi**, **Yukie Furukawa**, **Justin Storms** (all AE), and **Robert Morrow** (CE). Not pictured: **Chad Colwell (EnvE)**, **Vijay Singh (CE)**, and **Cassandra Whitford (CE)**

Tau Beta Pi Recognitions and Induction

Friends and family gathered to congratulate Tau Beta Pi NY Nu chapter's new members and its Professor and TA of the Year.



(L to R): TBP advisor **Kris Schindler (BS '93 MS '96 PhD '01 EE)**; outgoing Webmaster **Dan Snitzer (ME)**; incoming External Vice President **Greg Maloney (EE)**; outgoing Recording Secretary **Ryan Barton (BS CBE '11)**; Acting Dean **Rajan Batta**; outgoing President **Brandon Tarney (EE)**; incoming Internal Vice President **Michael D'Angelo (EE)**; outgoing Internal Vice President **Claire Lochner (BS EE '11)**; incoming President **Steve Hsieh (CS)**; Chief Advisor, Senior Associate Dean **Robert E. Barnes (MS '76, PhD '84 IE)**; incoming Corresponding Secretary **Brian Dolan (AE)**. Not pictured: Incoming Recording Secretary and Corresponding Secretary **Syed Muazza Azam (EE)** and Webmaster **Andrew Ring (AE)**

ISE Student Ergonomics Team Wins Annual North American Ergonomics Design Competition

Team CogitoErgoSumians won the eTools Prize this year in the Ergonomics Design Competition for Student Teams, with the faculty advisement of Assistant Professor **Gwansob Shin**.

The team, pictured left to right with the award, was comprised of ISE students **Michael P. Jenkins**, **Xinhui Zhu**, team leader **Piyush Bareria**, **Nicolette McGeorge**, and **Yijun Liu**.

Finalist teams competed with a 48-hour project after receiving training in eTools, Auburn Engineers, Inc.'s ergonomics job analysis software. The project required students to evaluate and solve ergonomic



dilemmas the competition posed involving analyzing the ergonomics of a photographer's job and ergonomic consideration in preparing a major collegiate football field for a game.

2020 Initiatives Advance

After several years of negotiation with the State University of New York system and state officials, UB President **Satish K. Tripathi** announced that the New York State Legislature passed Governor Cuomo's NYSUNY 2020 bill. The legislation will positively impact the university and public higher education in New York State, and the region's economy and quality of life.

The bill includes a new rational tuition and "tuition plus" plan for SUNY's campuses, which enables families to plan for college education costs in a predictable way, for the first time in SUNY history. Funding has agreement to stay with the universities.

UB will use the funding provided by this tuition plan to increase the quality of academic programs for students, hire new faculty, and to invest a portion of tuition revenues into need-based financial aid, to ensure equitable access.

By authorizing capital funding from the Governor's NYSUNY 2020 Challenge Grant program and other sources, this legislation also allows UB to advance its plans to relocate the School of Medicine and Biomedical Sciences in downtown Buffalo, where UB medical education, research, and clinical care will more effectively leverage regional hospitals and research partners.

IE Video Wins Emmy Award

An educational video produced for the Institute for Industrial Engineers in partnership with ISE Chair **Rakesh Nagi** won a New York Emmy Award from the National Academy of Television Arts and Sciences NY Chapter. UB Center for the Arts production staff produced the video, which won in the category of Informational/Instructional: Feature/Segment, and features alum **Patrick S. Sunderlin** (BS IE '85), Lockheed Martin missiles and fire control director and deputy vice president of operations (Orlando, Fla.).

The video, "Industrial Engineers Make A Difference," (at www.youtube.com/watch?v=ZpDoLX_9K4) focuses on the impact of industrial engineers across many industries.

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 class lists and more program information. For additional information, contact the EngiNet™ Office at (716) 645-0956 or enginnet@eng.buffalo.edu.

Programs Promote Infrastructure Improvement and Resilience

Held in Buffalo, Quake Summit 2011—Earthquake & Multi-Hazards Resilience: Progress and Challenges, combined the annual meetings of UB's MCEER and the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES). The Summit featured nearly 100 presentations on the latest earthquake engineering and multi-hazards resilience research, and hosted 325 participants from throughout the US. The Summit involved MCEER's collaboration with NSF's largest funded earthquake engineering program, NEES.

Participants were offered a field trip to Taylor Devices, Inc., a leading manufacturer of seismic dampers, and to UB's Structural Engineering and Earthquake Simulation Laboratory (SEESL), a NSF NEES experimental site.

The Summit's technical program chairs were Thalia Anagnos (San José State University), CSEE Professor, MCEER Director **Andre Filiatrault**, and CSEE Professor and Chair, NEES Director **Andrew Whittaker**. The program, which was intended for earthquake engineering and hazards researchers, students, and practitioners, included a graduate student symposium which featured presentations by UB CSEE students **Maikol Del Carpio Ramos** and **Joshua Rocks**.

A related MCEER program offered to improve extreme events education is the Université Quisqueya-UB/MCEER Earthquake Engineering Seminar series in Haiti, which has reached 500 Haitian architects and engineers with its fourth offering, including some from Haiti's Ministry of Public Works, Transport and Communication. The program's success is evidenced in that nearly 50 percent of all engineers in Port-au-Prince have, so far, attended. Instructors included **Andre Filiatrault** and CSEE doctoral candidate, Haitian native **Pierre Fouché**.

In response to the 2010 Haiti quake, UB and the Rochester Institute of Technology (RIT) have created the Information Products Laboratory for Emergency Response (IPLER) as a technology, policy and business development incubator to facilitate interaction and innovation among university researchers, and private and public sector providers. The IPLER program is made possible through the National Science Foundation Partnership for Innovation program, with additional funding for certain programming from the World Bank, and collaborations with partners including the U.N. Foundation, to gather, assess, and share relevant data.

The well-attended Quake Summit poster session and reception offered students a chance to network with NEES and MCEER investigators, industry partners, and fellow graduate students from around the country.



Future Faculty Workshop

The School of Engineering held its annual Future Faculty Workshop, attended by about 30 doctoral students interested in pursuing an academic career. The workshop reviews the responsibilities and rewards of university professors, and aims to help School of Engineering PhD students perform well in the faculty application and interview process, as they seek positions upon graduation.

The half-day event included presentations by, and panel

discussions with, senior engineering faculty members (ISE's SUNY Distinguished Teaching and Praxair Professor in Operations Research **Mark H. Karwan**, NYSCEDII Executive Director and MAE Professor for Competitive Product and Process Design **Kemper E. Lewis**, and CSEE Associate Professor **Adel Sadek**), as well as recently hired assistant professors (ISE's **Alexander Nikolaev**, BME's **Debanjan Sarkar**, and CSEE's **Qian Wang**), and was moderated by Acting Associate Dean for Research and Graduate Education, UB Distinguished Professor of CBE **Paschalis Alexandridis**.



Workshop attendees

Obituaries – With Great Sadness

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



The School of Engineering fondly remembers Professor Emeritus **Charles M. Fogel** ('35 BA '38 MA Physics), a UB Engineering founding faculty member whose lifelong commitments to teaching and service had a profound impact on students and the wider community. His service to the School included acting as its first assistant dean, director of its Industrial Liaison Office, and serving as an early board member of the Buffalo-area Engineering Awareness for Minorities program. He served the university as assistant to the president, assistant executive vice president, acting dean of the graduate school, and director of the Division of General and Technical Studies. Fogel's awards include the highest honors given by UB, the School of Engineering, and its alumni associations: UB's President's Medal, UB Alumni Association's Samuel P. Capen and Distinguished Alumni awards, UB Engineering's Dean's Award for Achievement, and the UB Engineering Alumni Association's Engineer of the Year. He is survived by his wife of 63 years, Bernice, and their three sons: Paul, Lorin, and Howard.



UB Engineering mourns the passing of dedicated educator and mentor, Professor **James Whalen**, who served the EE Department since 1970, when he joined as an assistant professor. He was department chair from 1995 to 1998, and director of EE Undergraduate Studies from 2001 to 2010. Before joining UB, Whalen was a U.S. Naval Officer at the National Security Agency (Fort Meade, Maryland). His research focus was in electromagnetic compatibility, microwaves, and semiconductor electronics. He did consulting work for several institutions, and collaborated with the United States Air Force Laboratory. He taught graduate courses at Moog Industrial Group (East Aurora, NY), and online, via UB Engineering's EngiNet. He was a founding faculty member of the SUNY EE Online Program. Whalen was a Senior Life Member of the Institute of Electrical and Electronics Engineers, a member of the Electromagnetic Compatibility (EMC) Credentials Certification Panel, and a member of Tau Beta Pi and Eta Kappa Nu. He is survived by his wife of 51 years, Barbara, three children, Elizabeth, Catherine, and Thomas; and three grandchildren, Lauren, Ava, and Edward. He is also survived by his brother Richard and two sisters, Margaret and Mary.

Professors Fogel and Whalen are each being commemorated with memorial scholarship funds. To learn more about the Professor Emeritus Charles (Charlie) M. Fogel and the Dr. James Whalen Scholarship Funds, please visit the Development section.

Faculty Inventors Recognized

A reception by the UB Office of Science, Technology Transfer, and Economic Outreach (STOR) recognized faculty inventors who earned patents. UB Vice President for Research (VPR) (with appointments in BME and EE) **Alexander Cartwright** spoke about research at UB, and President **Satish K. Tripathi** offered closing remarks.

School of Engineering Visionary Innovators and their Industrial Partners recognized:



Kesavadas

Lee

Alexandridis

- MAE Professor **Thenkurussi ("Kesh") Kesavadas**: for the system for endovascular telerobotic access, with Simulated Surgical Systems Management Company, LLC's Khurshid A. Guru, Roswell Park Cancer Institute's director of robotic surgery and UB clinical assistant professor of urology.

The team also won the Creative Entrepreneur of the Year award at the Niagara Frontier Intellectual Property Law Association's (NFIPLA) 36th annual Inventor of the Year Award Dinner.

- BME Associate Professor **Te-Chung Lee** (with an appointment in biochemistry): for the production of YY1 antibody, with Millipore Corporation.
- UB Distinguished Professor of CBE, and Acting Associate Dean for Research and Graduate Education, **Paschalis Alexandridis**: for controlled synthesis of nanocrystals and nanoparticles by a gas-emulsion process and controlled synthesis of polymorphic nanostructures using templates, with Global EIS.

School of Engineering inventors and their patents recognized:

- CSE Professor **Chunming Qiao** and collaborators **Dahai Xu** (PhD CS '05) and **Yizhi Xiong**, former CSE postdoctoral associate: patent for Efficient Trap Avoidance and Shared Protection Method in Survivable Networks with Shared Risk Link Groups and a Survivable Network.
 - UB Distinguished CBE Professor **Paschalis Alexandridis** and collaborator **Toshio Sakai**, former CBE post-doctoral associate: patent for Preparation of Metallic Nanoparticles.
 - CBE Professor **Mark Swihart**, Rosemary Dziak, and Robert J. Genco, both of Oral Biology, with their collaborators YoungBum Park, formerly of Oral Biology, and Hiran Perinpanayagam, formerly of Periodontics and Endodontics: patent for Calcium Sulfate Based Nanoparticles.
 - EE Professor, VPR **Alexander N. Cartwright**, EE Associate Professor and BME Co-chair **Albert H. Titus**, and Chemistry Chair, SUNY Distinguished Professor Frank V. Bright, and their collaborators **Vamsy P. Chodavarapu** (MS '03 PhD '06 EE), and Rachel M. Bukowski, formerly of Chemistry: patent for pH-Change Sensor and Method.
 - BME and CSE Professor, CSE Chair **Aidong Zhang**, Pharmaceutical Sciences Associate Professor Murali Ramanathan, and their collaborators **Young-Rae Cho** (PhD CS '09) and **Woo-Chang Hwang** (BS/MS '03 PhD CS '09 CS): patent for Bridging Centrality: A Concept and Formula to Identify Bridging Nodes in Scale-Free Networks.
- Zhang and her team also won second place in the NFIPLA's physical sciences category.

UB Partners Day Recognizes Kesavadas and Guru

MAE Professor **Thenkurussi "Kesh" Kesavadas** earned the 2011 UB Partners Day UB Faculty Entrepreneur Award, with his Simulated Surgical Systems collaborator, Dr. Khurshid A. Guru, director of robotic surgery at Roswell Park Cancer Institute.

Kesavadas and Guru co-founded Simulated Surgical Systems, LLC, a pioneer in the development of robot-assisted surgical simulators. The simulators are designed to reduce surgical error and make robot-assisted surgical education economically feasible. The award recognizes the important role of translating inventions and discoveries of UB scientists and scholars in ways that benefit society.



Kesavadas (right) with Guru

Comings, Goings, and Changes

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

Comings

BME



BME Assistant Professor and Kenneth A. Krackow, M.D. Orthopaedic Research Laboratory (ORL) Director **Mark Ehrensberger** earned an MS (2002) and a PhD (2008) in Bioengineering from Syracuse University. His research interests are in orthopaedic biomaterials and

biomechanics. While continuing to build upon the core strength of the ORL in biomechanics research, Ehrensberger is also developing a new research track that focuses on understanding the biological and electrochemical interactions present at the surface of metallic biomaterials used in orthopaedic surgery.

CBE



CBE Academic Coordinator **Marlo Kerr** earned a BS ('03) in Business Administration from UB and a MS in Education from Canisius College ('06). She has experience teaching high school business and worked in academic advising for UB's Biomedical Sciences

Undergraduate department. She is currently pursuing a UB MS in Higher Education Administration.



CBE Assistant Professor **Blaine Pfeifer** earned a PhD in CE from Stanford University in 2002. He had been a Tufts University assistant professor prior to his current appointment. From an engineering perspective, his work seeks to influence genetic, metabolic, cellular,

and process events required for the production of a therapeutic product. The compounds and processes he strives to produce target diseases that include cancer, bacterial infections, and diabetes.

CSE



CSE Assistant Professor **Geoffrey Challen** earned a PhD in CS from Harvard University (2010). Advised by Matt Welsh, he developed new energy-efficient protocols for low-power sensor networks and applied these innovations to monitoring active volcanoes, eventually performing three deployments on erupting volcanoes in Ecuador. At UB he is working with colleagues to establish the first 1,000-node participatory smartphone testbed and investigating more power-efficient and sustainable smartphone architectures.

CSEE



CSEE Graduate Academic Coordinator **Sara Calarco** recently completed her UB MS in Higher Education Administration. After earning her BS in Communications from SUNY Fredonia ('05), Sara was a marketing coordinator for Curbell Plastics, in Orchard Park.

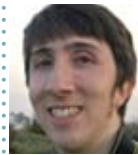
EE



EE's James Clerk Maxwell Professor, Power Center for Utility Explorations Director **Alexander Domijan** earned a ME ('82) in Electric Power Engineering from Rensselaer Polytechnic Institute and a PhD ('96) in EE from the University of Texas, Arlington. He had served as

tenured professor at the University of Florida and at the University of South Florida, and was director of the Florida Power Affiliates and Power Quality Laboratory. An originator of flexible, reliable, intelligent, electric energy delivery systems, commonly known as smart grids, his research

interests are in energy systems, power infrastructure, smart grids, electric power quality, electrical measurements, demand response and demand side management, and flexible-reliable-intelligent-electrical-energy-delivery-systems.



EE Assistant Professor **Nicholas Mastrorarde** earned his PhD (2011) in EE from the University of California (UC), Los Angeles, and his MS (2006) from UC Davis. His research interests are in the areas of energy-efficient multimedia systems, resource allocation and

scheduling in wireless networks and systems, parallel video encoding and encoding, dynamic power management, cross-layer design, Markov decision processes, and reinforcement learning.

ISE



ISE Assistant Professor **Murat Kurt** earned an MS (2007) and a PhD (2011) in IE from the University of Pittsburgh. His research applies methodologies of Markov decision processes, game theory and integer programming on healthcare and maintenance optimization problems.



Noelle Matthews has joined the ISE department as graduate affairs assistant. Her prior experience includes working as a Tompkins Cortland Community College admissions advisor and as Canisius College's assistant director of undergraduate admissions. Noelle holds a

master's of professional studies in Human Resource Management (Stony Brook University). Congratulations on her recent marriage to Tim Matthews, University Honors College assistant director.

ENGINEERING DEAN'S OFFICE



Christina Escobar has joined the Dean's Office as a staff assistant to the dean. Her experience at UB includes working for the School of Pharmacy and the Dental School, and later on, a Research Foundation employee. Christina earned her bachelor's from Daemen College, and

she has a background in administration, customer service, and finance.



David Love has joined the Dean's Office as a Financial Information Resource Management staff assistant. He earned an MBA from UB and a BS in Accounting from Hilbert College. His experience includes work in the insurance industry and assisting at UB's Human Resources Benefits department.

ENGINEERING DEVELOPMENT



Patrizia Latvala is now a Development director for the School of Engineering, the School of Architecture and Planning, and STOR. Patrizia joined UB in 1995 as an assistant director of Prospect Research. In 1997, she became assistant director of Gift Planning, and was promoted to

director of Planned Giving in 2000. During that time she contributed greatly to the overall success of the Office of Planned Giving.



Bethany Mazur is an assistant development officer with experience as an associate attorney for Mura & Storm. Bethany has been actively involved with development and event planning for community organizations. She holds a BA in Economics and a JD from UB.

Goings

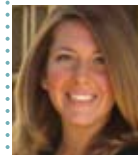


Ken Peebles joined UB Facilities in 1974, and after a break working with private industry, he became Engineering's laboratory equipment designer and later was promoted to supervisor. Ken cites his most gratifying accomplishment as starting the Student Machine Shop and

increasing the hands-on experiences of many students, which helped to expand Engineering Club activities. He plans to continue to enjoy life outside of UB, on a full-time basis.



Michelle Sacco was an integral part of the School's EngiNet program, where she worked for 10 years after contributing 14 years of service to UB's Millard Fillmore College. Michelle enjoyed working with the EngiNet Distance Education students, and Engineering faculty and staff.



Jenine Trzewieczynski is now Erie County SPCA's Campaign Development director. Jenine had been assistant director of Development for nearly four years, during which she made invaluable contributions. We also congratulate Jenine on her recent

marriage to Dan Linenfels, **Donna Linenfels**'s nephew.

We thank the following for their service to the School and wish them success: CSE Teaching Assistant Professor **Adrienne Decker**, MAE Assistant Professor **David Forliti**, CSE Assistant Professor **Michalis Petropoulos**, ISE Assistant Professor **Gwanseob Shin**, and CSEE's **Xueting Tong**.

Appointments

Congratulations to the following faculty and staff on their appointments:



UB Distinguished CBE Professor **Paschalis Alexandridis**, Associate Dean for Research and Graduate Education



CBE Professor **Mark Swihart**, Graduate Studies Director, CBE Department



MAE Professor **Gary Dargush**, MAE Department Chair (re-appointment)



James Friedman, former assistant to the dean, is now the assistant to the interim provost.

CSEE's Lee: 50 Years of Dedication

CSEE's SUNY Distinguished Professor and UB Samuel P. Capen Professor of Engineering, Dean Emeritus **George C. Lee**, was presented with an award in appreciation of 50 years of dedicated and outstanding teaching, research, and service to UB Engineering. Acting Dean **Rajan Batta** recognized Lee's exceptional accomplishments at the School's commencement ceremony, calling the half-century milestone "unbelievable and incredible." Lee is a winner of the U.S. President's Award for Excellence in Science, Mathematics, and Engineering Mentoring.



2011 UB Exceptional Scholars

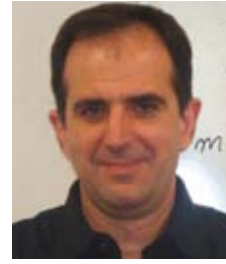
The following professors were honored with a UB Exceptional Scholar Sustained Achievement Award:



Hui Meng, MAE



Sriram Neelamegham, CBE



Dimitrios Pados, EE



Mark Swihart, CBE

The following assistant professors received the university's prestigious UB Exceptional Scholar Young Investigator Award:



Jason Corso, CSE

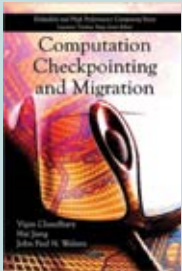


Atri Rudra, CSE

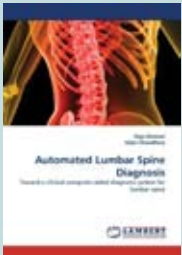


Puneet Singla, MAE

Faculty Achievements



CSE Associate Professor **Vipin Chaudhary** published *Computation Checkpointing and Migration* (Nova Science Publishers), with co-authors Hai Jiang and John Paul N. Walters. The book addresses fault-tolerance via checkpointing in supercomputers and existing strategies to provide rollback recovery to applications.



With Raja Alomari, **Vipin Chaudhary** also published *Automated Lumbar Spine Diagnosis: Toward a Clinical Computer-aided Diagnosis System for Lumbar Spine* (Lambert Academic Publishing).

Tommaso Melodia (right) received the *Computer Networks Journal* Editor of the Year Award.



Deborah Chung



Nancy Schiller

Chung Earns Honorary PhD

MAE Professor **Deborah D.L. Chung** was awarded an honorary doctorate from the University of Alicante, Spain, for her international recognition as a scientist specializing in smart materials and carbon composites. Chung was an early recipient of the SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities. She was named an Innovator by the Upstate Alliance for Innovation, and a SUNY Outstanding Inventor.

Librarian Schiller Profiled

Engineering Librarian **Nancy Schiller** has been with UB for over 20 years. In her recent profile, published in *UB Libraries Today*, she talks about her background prior to joining UB and her enjoyment in working with "grey literature," materials rich in technical detail but hard to identify and track down. Schiller particularly enjoys working with the many students pursuing engineering studies. Her staff profile is online at: library.buffalo.edu/nschiller.

Top SUNY Chancellor Awards

CBE's Alexandridis

SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities



Paschalis Alexandridis

CBE's UB Distinguished Professor and Acting Associate Dean for Research and Graduate Education **Paschalis Alexandridis** earned the award for a record of sustained scholarship in his field. Alexandridis' research, on creating and manipulating molecular organization at the nano- and micro-scale, has applications in pharmaceuticals, coatings, inks, and thermoplastic elastomers.

His other awards include the SUNY Chancellor's Award for Excellence in Teaching and the Jacob F. Schoellkopf Award from the Western New York section of the American Chemical Society for outstanding work in chemical engineering.

CBE's Townsend

Chancellor's Award for Excellence in Service

CBE Graduate Admissions Secretary **Dawn Townsend** earned the SUNY Chancellor's Award for Excellence in Classified Service, which recognizes superior performance and extraordinary achievement by employees in classified service positions.



Dawn Townsend

CBE Chair, Professor **David Kofke** noted that Townsend's interactions with so many potential students make her the face of the CBE department. Kofke called her "a trusted advisor and advocate" for current students.

UB Faculty Award for Excellence in Mentoring Undergraduate Research and Creative Activity

EE Assistant Professor ***Jennifer Zirnheld** was an inaugural recipient of the new UB faculty mentoring award, which recognizes faculty whose commitment to mentoring gives undergraduates opportunities to conduct research and scholarship that are not routinely available at many institutions.

Zirnheld supervises undergraduates in her lab, some of whom cite her as a critical factor in their academic and career success. She also serves as faculty advisor for engineering clubs and supervises interns from the Collegiate Science and Technology Entry Program, the Buffalo-area Engineering Awareness for Minorities program, and the SUNY Louis Stokes Alliance for Minority program.



Jennifer Zirnheld

Faculty Earn Top Awards... *Continued from page 3*

Michel Bruneau

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. *Engineering News-Record* recently featured an interview with Bruneau, about the damage sustained by structures in the Christchurch, New Zealand earthquake.

In addition to Bruneau's contributions to structural engineering and seismic hazard mitigation, the award takes into account his work as a fictional author, which has received critical acclaim, and which relays the hazard mitigation story to a broader audience. Bruneau has written two novels – one in English and one in French. The most recent, *Shaken Allegiances*, exposes human behavior and a society's breakdown when an earthquake strikes an unprepared city.

Jason Corso

ground vehicles, to accomplish such military operations as surveillance, search-and-destroy, search-and-rescue, soldier aid, communication chaining, and terrain mapping. The 2001 Congressional Defense Authorization Act stated that one-third of ground combat vehicles should be unmanned by 2015.

These unmanned ground vehicles will provide human radio-operators with sensory feedback from either line-of-sight visual observation or remote sensory input, e.g., video cameras. The robot's ability to detect objects of interest and potential threats may keep soldiers at a distance from potentially dangerous situations. Corso is engineering unmanned ground vehicles that incorporate his cutting-edge research in comprehensive image understanding to make better use of visual

information to support their mission than do current unmanned ground vehicles.

This research will leverage Corso's AFOSR DURIP grant, "Mobile Robots for Swarm Surveillance Research," which supports the purchase of a tiered fleet of mobile robots.

Andrei Reinhorn

pioneering contributions toward the definition and quantification of earthquake-resilient communities.

Reinhorn is a founder of UB's Structural Engineering and Earthquake Simulation Laboratory (SEESL) and a UB MCEER investigator. His novel modeling and computational approaches have been widely applied to the design of safer buildings; he developed new techniques and trailblazing practical applications in shake-table testing; and developed a strategy for community decision-making in disaster preparation and relief, including ways to strengthen systems, prevent disasters, and prepare communities for decision-making in future events.

Reinhorn developed the first digital controller for large structures and designed complex algorithms for control of multidirectional systems against wind and earthquakes. His retrofit of a US Navy Building (San Diego) received a General Services Administration Award for construction.

Puneet Singla

For more about the research related to Singla's CAREER award, please see the Research section.

Singla recently earned the US Army Research Office Young Investigator Program award for his research project, "To investigate information collection and fusion for space situational awareness," which focuses on information collection and fusion, taking into account the uncertainties in mathematical models to support space situational awareness.

BME and EE's Titus, TCIE, Assist on Dynamic Eye Patent



Albert Titus

BME Co-Chair, EE Professor **Albert Titus** has worked with Chris Mullin, founder and CEO of Dynamic Eye, on a patented product that revolutionizes sunglasses. Mullin's expertise is in optics, electronics, and plastics, while some of Titus's research expertise lies in optoelectronics, visual processing, and electronic routing and packaging design. The newly patented technology

High-tech sunglasses, a prototype



combines sensors and miniaturized electronics to identify and block bright glare. Although not yet ready for the consumer market, the "smart" shades were named a *Popular Science* top 10 invention of 2011.

"Our products let users see more in glare situations than ever before because they reduce direct glare 10 to 100 times more than any other sunglasses," states Mullin.

The technology has potential applications in the automotive, aviation, health care, and recreational sectors.

The lenses are liquid crystal display (LCD) screens, capable of creating dark spots that specifically target glaring light via a technologically advanced pinhole camera embedded in the bridge.

Mullin acknowledged the Office of Science, Technology Transfer and Economic Outreach, for help in acquiring a patent, and TCIE, for help in securing Strategic Partnership for Industrial Resurgence funds available for small companies at UB Engineering.



Puneet Singla

MAE's Singla Earns CAREER Award for Uncertainty Analysis

MAE Assistant Professor **Puneet Singla** has won a National Science Foundation CAREER award for his research project entitled, "Uncertainty Propagation and Data Assimilation for Toxic Cloud Prediction."

The research focuses on developing mathematical tools for accurate characterization and propagation of uncertainty in mathematical models, and fusion of model output with sparse, noisy data, to determine estimates of the actual physical phenomenon and statistical measure of confidence in those estimates. The goal of the research is both to understand how the uncertainty of input variables and the random forcing of winds affect the output of the dispersion model, and to provide a prediction of toxic cloud movement, together with quantitative measures of confidence in that prediction.

MAE Team Shows Strength in Single Atom Bridges

An MAE Laboratory for Quantum Devices team comprised of Professor **Harsh Deep Chopra**, Professor **Susan Zonglu Hua**, and Postdoctoral Fellow **Jason Armstrong** has published research in *Physical Review B* showing that, at an atomic scale, a bridge with a single gold atom connecting a sharp tip to a flat surface is twice as stiff per unit area as macroscopic gold, and that these connecting tips exhibit novel electrical and mechanical properties.

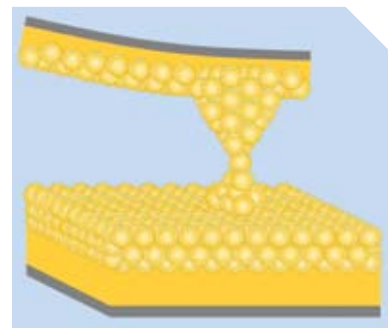
The researchers also demonstrated that these narrow constrictions deform under stress in an unexpectedly ordered fashion. Further work in this direction may show how microscopic effects combine to generate large-scale material properties.

The research has applications in devices with small parts, such as computer circuits. The physical properties of atomic-scale gadgets differ from those of larger, "bulk" counterparts. As the size decreases, researchers need to understand the accompanying changes in material properties, like electrical resistance and mechanical strength.

"Everyday intuition would suggest that devices made of just a few atoms would be highly susceptible to mechanical forces," the researchers said. "This study finds, however, that the ability of the material to resist elastic deformation actually increases with decreasing size." The behavior of nanoscale contacts between metallic materials could give insight into friction and wear on these surfaces.

The sophisticated technology that Armstrong, Hua, and Chopra (a part of which Chopra holds in the picture) invented and built to accomplish the research was recently licensed to Precision Scientific Instruments Inc. PSI was founded by the leaders of Murak & Associates LLC, a management consulting practice; SoPark Corporation, an Electronics Service Manufacturer; and The PCA Group, a consulting firm that offers total technology solutions. All four cofounders were educated at UB, and one of them, Gerry Murak, said, "It's really meaningful to know that our education is coming full circle back to UB."

Support for the work came from National Science Foundation, Division of Materials Research.



Experiments show that a single gold atom connecting a sharp tip with a flat surface is twice as stiff per unit area as macroscopic gold.

Photo: J. N. Armstrong/SUNY-Buffalo

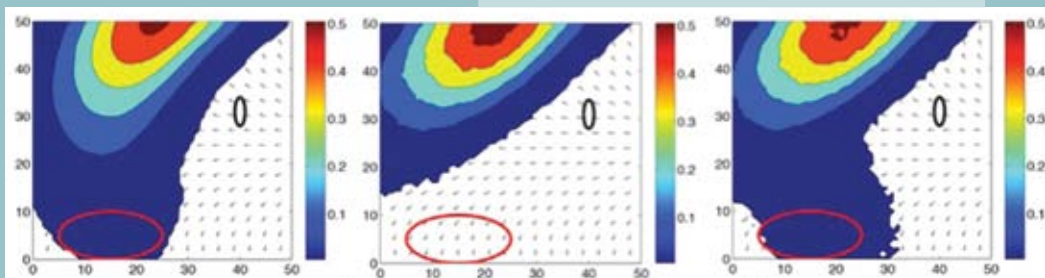


Jason Armstrong (left) and Harsh Deep Chopra (right)



Susan Hua

Hazard Maps: Probability of hazard material concentrations being more than 0:0001. Small black ellipse represents the initial source uncertainty and red ellipse represents a populated area of interest.



Uncertainty analysis of dispersion of toxic clouds, and the generation of accurate hazard maps of toxic material dispersion and multi-hypothesis forecasting for appropriate disaster management are important for timely and accurate threat assessment from natural or man-made incidents (e.g., the Chernobyl Nuclear Power Plant disaster or Eyjafjallajökull volcano eruption incidents).

The quantitative understanding of uncertainty is essential for creating predictions used to inform policy making or mitigation solutions. Singla's research proposes fusion of observational data with numerical simulation to provide greater understanding of physical phenomenon than either approach alone can achieve.



Tevfik Kosar

CSE's Kosar: Researches New Computing Paradigm

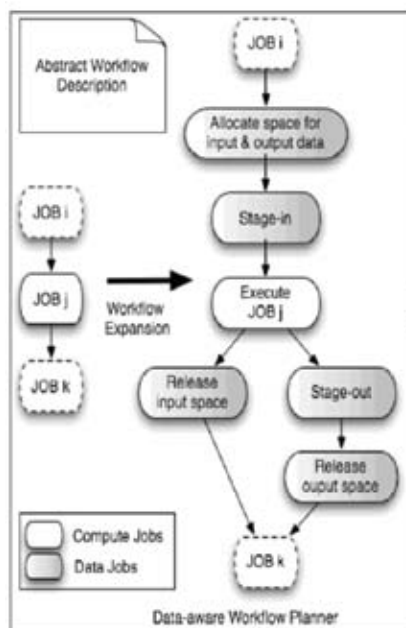
CSE Associate Professor Tevfik Kosar is leading three related National Science Foundation (NSF) funded projects that address the "data deluge" caused by basic data-handling issues that arise when increasingly large amounts of data pass through networks.

Kosar introduces a novel approach to the planning and management of data movement tasks and data resources through the "data-aware distributed computing" paradigm, which establishes the theoretical background for data-aware scheduling via development of novel mathematical models and algorithms. Funded by the prestigious NSF CAREER Award, Kosar's approach treats data resources and the tasks related to data access and movement – not simply as the side effects of computation – but as first-class entities, just like computational resources and computing tasks. Traditional distributed computing systems closely couple data handling and computation, making remote access and retrieval of data the main bottleneck in the end-to-end performance and reliability of large-scale data-intensive applications.

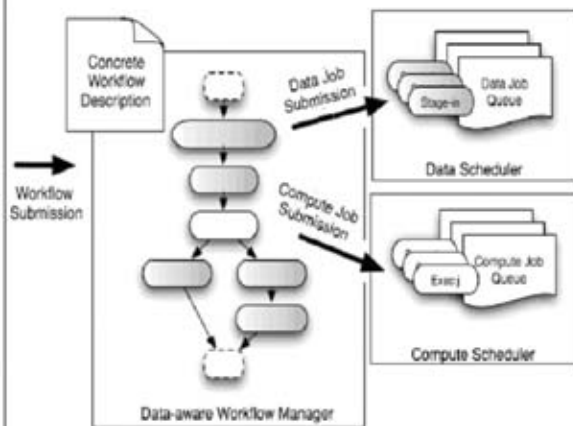
Kosar received a follow-up grant from NSF's Strategic Technologies for Cyberinfrastructure program for implementing his group's new computing paradigm as an open-source production-quality software called the Stork Data Scheduler (SDS). SDS aims to mitigate the end-to-end data handling bottleneck in petascale distributed computing systems. Considered to be among the first examples of data-aware scheduling and optimization tools, SDS has been actively used in many application areas, from coastal hazard prediction and storm surge modeling, to digital sky imaging, and multiscale computational fluid dynamics.

Some of SDS's functionalities include data aggregation and caching; peer-to-peer and streamed data management; early error detection, classification, and recovery; job delegation and distributed data scheduling; integration with workflow planning and management; scheduled storage management; optimal protocol tuning; and end-to-end performance prediction services.

Kosar's related NSF-Microsoft "Computing in the Clouds" award allows porting the SDS to the Microsoft Azure Cloud-computing platform. One of just thirteen projects to pass NSF's rigorous peer-review process, the NSF-Microsoft award allows access to Microsoft's Windows Azure, and to a support team for rapid cloud technology integration.



Workflow Planning



Workflow Execution

Kosar's team expands scientific workflows to include the necessary data-placement steps, such as stage-in and stage-out, and other important steps supporting data movement.

CBE's Nitsche Models How Drugs and Chemicals Pass Through the Skin



Johannes Nitsche



Computer model used in analyzing drug diffusion around a hair follicle

CBE Professor Johannes Nitsche's theoretical research on skin permeability is elucidating the pathways, mechanisms, and rates by which different molecules are absorbed through skin.

His work directly impacts the development of transdermal drugs, and the assessment of risks associated with chemical exposures in the workplace and other settings.

Nitsche explains, "You could have a great drug and know exactly what dose you want in the bloodstream — that's a pharmacological question. But what concentration and formulation you need in a patch to achieve what you want in the bloodstream — that's a complicated physical problem in diffusion that a chemical engineer is ideally suited to solve. Similarly, the actual danger posed by a chemical depends partly on its toxicity, but also largely on the extent it can penetrate into the body. Transport of molecules from point A to point B is an important part of any medical problem. Transport is where I enter the picture."

Following an important mechanistic theory of steady state barrier permeability, the most recent areas of his research focus have been the impact of molecular binding to skin proteins on rates of absorption, drug/chemical diffusion in epidermis below the surface barrier, and hair follicles as short-cut pathways through this barrier.

Nitsche's project began over a decade ago with a sabbatical leave at the Procter & Gamble (P&G) company. It has been funded by grants from the National Science Foundation, P&G, and NIOSH. The research has appeared in the *Journal of Pharmaceutical Sciences*, *Chemical Engineering Science*, and elsewhere. Nitsche's collaborators are Professor Gerald B. Kasting (University of Cincinnati James L. Winkle College of Pharmacy) and Dr. H. Frederick Frasch (National Institute for Occupational Safety and Health – NIOSH).

UB Engineering Group Accepted as NSF e-Design Partner

The National Science Foundation's (NSF) e-Design Center has accepted UB Engineering's New York State Center for Engineering Design and Industrial Innovation (NYSCEDII) in its prestigious Industry-University Collaborative Research Center for e-Design.



The image (below) shows a Cameron Turbo-Air® 6040 high-pressure centrifugal compressor. Cameron and NYSCEDII are working together on the development of an e-Enabled New Product Development Process that will assist Cameron in improving the efficiency of developing these increasingly complex systems while supporting opportunities for innovation.



Kemper Lewis

Harvey G. Stenger Jr., UB's interim provost, said the designation is "a big win" for UB and local companies, which can form partnerships with NYSCEDII for help on engineering design projects. Stenger credited NYSCEDII Executive Director, MAE Professor **Kemper Lewis** for attaining the achievement, which joins UB with a group of top-rated engineering schools including those at Brigham Young University, Carnegie Mellon University, the University of Central Florida, the University of Massachusetts-Amherst, and Virginia Tech. To become part of the program, UB established a core group of Western New York company partners – Cameron, CUBRC, Dresser-Rand, Moog, and TheraSyn Sensors – who propose research projects with UB, and gain access to other e-Design universities' research, and to top students in the center who are available for internships and employment.

The e-Design program assists industries by providing access to university research that companies would not have access to otherwise. NYSCEDII has been working with Cameron Compression Systems (CCS), a division of Houston-based Cameron, on advancing an e-Enabled New Product Development Process, a project to recast the New Product Development (NPD) process to improve efficiency and opportunities for innovation. NYSCEDII is helping CCS increase its market share with new products, while providing better quality and service to customers, and it is helping CCS develop metrics to drive design decisions and discover areas where design collaboration can be matched with IT solutions. Cameron Compression NPD Project Manager Tom Gerber said, "A solid NPD process provides a structured platform that allows for and promotes positive team dynamics," leading to the best solution, "by sparking creativity and innovation through trust and motivation." He continued, "The e-Enabled process, in development through the Cameron/NYSCEDII partnership, allows for this environment to be extended throughout Cameron's global operations," fostering efficiency of communications and resources.

NYSCEDII Research Associate **Andrew Olewnik** (BS '00 MS '02 PhD '05 ME) is lead researcher on the research team, which includes NYSCEDII Deputy Director **Ken English** (BS AE '95 MS '98 PhD '01 ME), Professor Kemper Lewis, and MAE PhD students **Phil Cormier** (BS '06 MS '08 ME) and **Erich Devendorf** (BS '05 MS '07 PhD '11 ME).



Earthquake Engineering Techniques for Resilience

Several researchers are investigating earthquake engineering techniques to promote preparedness and the adoption of more stringent seismic provisions.



Gilberto Mosqueda

CSEE Associate Professor **Gilberto Mosqueda** is a co-PI on tests performed on a five-story building in Japan. Keri Ryan (University of Nevada, Reno) is the project's lead researcher, with another co-PI, Stephen Mahin (University of California, Berkeley) on the team, which tested friction

and elastomeric base isolation systems against powerful earthquake forces over a three-week period. The tests were performed at a Hyogo Earthquake Engineering Research Center (E-Defense) earthquake simulation facility, home to the world's largest hydraulically activated "shake-table," with the highest weight capacity for 3-D shaking. The tests are a major step towards better understanding the performance of seismic isolation systems at full-scale and could lead to earthquake-proofing technology that enhances the seismic performance of important facilities such as hospitals and other emergency-response facilities as well as new regulations for the seismic design of nuclear power plants.



Andrew Whittaker

In conjunction with Quake Summit (see Education section article), MCEER organized a professional development seminar for practicing engineers, jointly sponsored by MCEER and the American Society of Civil Engineers (ASCE) Buffalo Section, with the School of Engineering awarding PDH credits to participants. The seminar featured speakers who served on the ASCE 7 Seismic Committee and subject-specific technical committees, including CSEE Professor and Chair **Andrew Whittaker**.



Photo: Michel Bruneau



Michel Bruneau

On behalf of MCEER, CSEE Professor **Michel Bruneau** visited Christchurch, New Zealand days after a major earthquake struck to investigate damage to bridges and steel buildings. Though most of these performed well (particularly compared to other types of construction that suffered much damage during this earthquake), a few fractures developed in the links of steel eccentrically-braced frame (EBF) structures. Notably, those in a three-story parking garage did not fare well—one fractured and the other deformed. Redundancy in the overall structure prevented the garage from collapsing. While the damage posed a mystery, Bruneau remarked in a recent *Engineering News Record* interview that, "Seeing their performance is helpful because we get to see the results of the latest seismic design provisions in New Zealand," which are on par with those in the US.

Photo left: Earthquake-induced fracture in a steel EBF in a Christchurch, NZ parking garage.



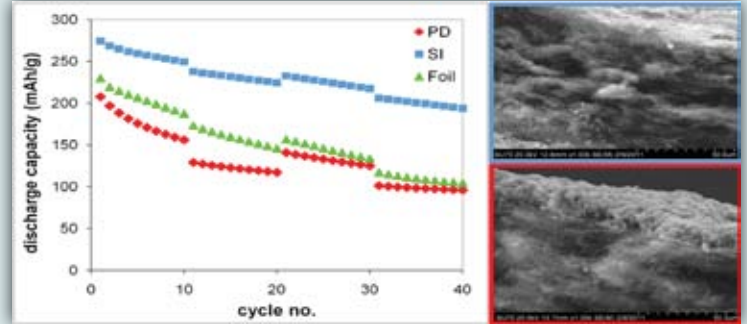
Esther Takeuchi



Amy Marschilok



Kenneth Takeuchi



The use of carbon nanotube substrates as novel cathode supports can provide marked cathode energy density improvement.

CBE Team: Carbon Nanotube Substrate Electrodes for Lightweight, Long-life Rechargeable Batteries

SUNY Distinguished Greatbatch Professor of BME, CBE, EE, and Chemistry **Esther S. Takeuchi** (NYSTAR Center for Advanced Technology co-director), CBE, EE, and Chemistry Research Assistant Professor **Amy Marschilok**, and SUNY Distinguished Teaching Professor of Chemistry **Kenneth J. Takeuchi** are publishing research in *Energy & Environmental Science* showing that when carbon nanotube substrates are employed as novel cathode supports, they provide opportunity for 20-60% cathode energy density improvement, by replacement of conventional inert materials.

Co-authors on the paper are CBE PhD graduate student **Chia-Ying Lee** and **Aditya Subramanian** (MS CE '11).

Lighter weight and longer life batteries for electrochemical energy storage are needed for many applications including transportation, portable electronics, and biomedical devices. Gravimetric energy density and cycle life considerations are especially important for aerospace applications, where lithium-ion can afford significant mass and volume advantages over alternative Ni-Cd and Ni-H₂ battery technologies.

Conventional lithium-ion battery cathodes are prepared from mixtures of carbon (conductive additives), polymer (binder), and active material particles which are coated onto metallic foils (current collector) to form composite electrodes. Inclusion of inert materials as part of the battery electrode

significantly decreases energy density as they contribute to the weight and volume of the electrode, but not to its energy content.

The team's work demonstrates the viability of using novel metal oxide/carbon nanotube substrate (CNT-S) electrodes in rechargeable cells. The researchers believe this to be the first reported use of CNT-S for lithium battery cathodes without the use of a supporting metal current collector. Calculations show that the use of CNT-S can increase the cathode specific capacity by 20–60%, due to the low mass of the CNT-S and elimination of binders and other inert conductive carbons typically added to conventional composite cathodes on foil current collectors.

CSE Team Develops Smart Tracking System

SUNY Distinguished Professor **Venugopal Govindaraju**, CSE Professor **Bharat Jayaraman**, and Visiting Scientist **Vivek Menon** (Assistant Professor, Amrita University, India) have developed a new method of indoor tracking that can improve security without the use of continuous or obtrusive surveillance methods (constant filming or radio frequency identification tags). Their research is to appear in IEEE Computer Society's flagship publication, *Computer*.

The method involves comparing the face images gleaned from video captures at various access points against a biometrics database of known building occupants.



Venugopal Govindaraju

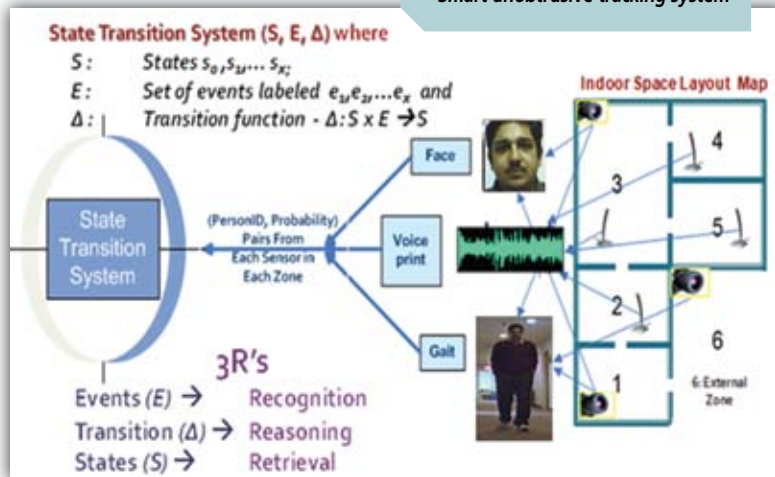


Bharat Jayaraman



Vivek Menon

Smart unobtrusive tracking system



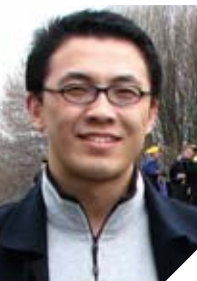
In order to compensate for the variations caused by lighting or facial expression, the method reasons over the tracks of people in order to judge whether they could be at a certain location at a certain time. This "spatio-temporal" reasoning increases accuracy by eliminating "false positives," as the system only identifies individuals with valid trajectories.

When researchers ran computer simulations of the tracking system, they were able to identify and trace the whereabouts of individuals with a high degree of accuracy, even when employing images from low-quality cameras as the means of identification.

The tracking solution elegantly combines recognition, reasoning, and information retrieval – three areas of computer science that are studied heavily but usually separately – within a unified framework known as a state-transition system.

The team also presented the research at the "Indo-US Workshop on Developing a Research Agenda in Pervasive Communications and Computing Collaboration (PC3)," co-sponsored by the National Science Foundation.

EE's Gan Captures Rainbow



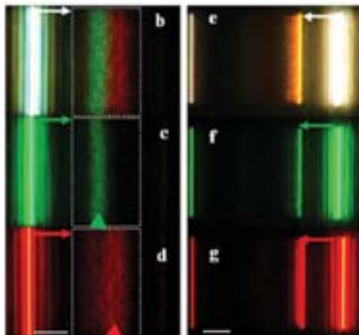
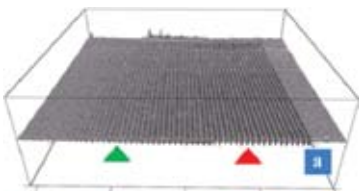
Qiaoqiang Gan

EE Assistant Professor **Qiaoqiang Gan** has used adiabatically graded metallic grating to slow down broadband light waves in visible light, demonstrating a new means to control the group velocity of light waves.

The ability to slow or stop light waves across the various regions of the spectrum is necessary for maximizing their efficiency in storing and transmitting data. By varying the nanotopology of metal surfaces, the optical properties of surface plasmon polaritons can be tailored via surface dispersion engineering. The dispersion relations for this structure vary monotonically with position, so that incoming waves at

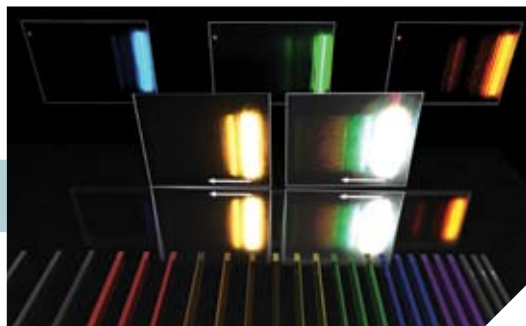
different wavelengths can be "trapped" or localized at different positions along the propagation direction of the grating. Gan's research uses one-dimensional adiabatically graded metallic grating structures to realize this novel phenomenon.

Gan's research published in *Proceedings of the National Academy of Sciences* reports the trapping of a green-red rainbow. Recently, Gan collaborated with Filbert Bartoli's group (Lehigh University) and published another paper in *Applied Physics Letters*, which realized the trapping of a complete rainbow in visible domain.



Trapping of a green-red rainbow

Trapping of a complete rainbow



The research has potential for incorporation into light-based (photonic) logic circuits. Because light waves transmit data with much greater speed than do electrical signals, faster all-optical telecommunication networks may also result, wherein light signals would transmit and route data without requiring conversion to electrical signals and back.

The National Science Foundation-supported research began during Gan's PhD study at Lehigh University, under Bartoli's leadership; Gan's research continues at UB Engineering.

EE's Signals, Communications, and Networking Group

The EE department's Signals, Communications, and Networking Group received several new federal research grants to conduct research in cognitive and cooperative communications and in underwater networking.



Stella Batalama



Tommaso Melodia



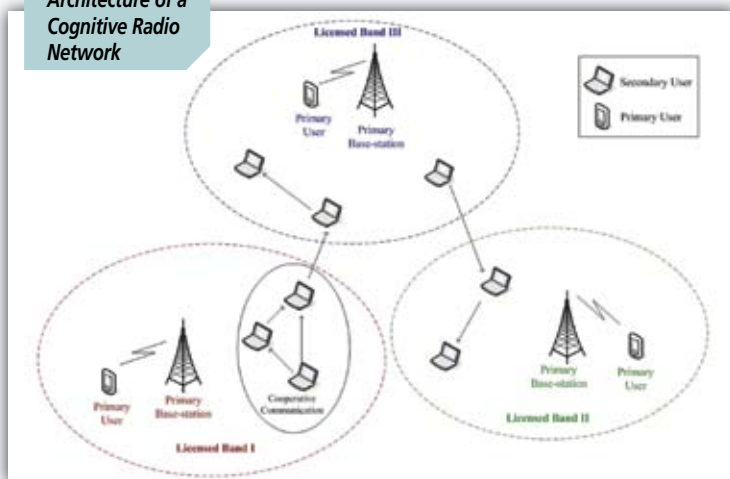
Dimitrios Pados



Weifeng Su

EE Professors **Dimitrios Pados** (PI), **Stella Batalama**, and EE Assistant Professor **Tommaso Melodia** received an Air Force Research Laboratory (AFRL) grant to study routing and spread spectrum channelization problems over cooperative links. EE Assistant Professor **Weifeng Su** received another AFRL grant to conduct research on cooperative assured wireless communications (in addition to another grant discussed in the Research section of the last issue). Melodia (PI), Su, Pados, and Batalama received a National Science Foundation grant to establish the foundations of underwater acoustic MIMO communications and networking. Finally, Melodia and Pados were awarded a Phase I SBIR grant (from the Office of the Secretary of Defense, in partnership with Intelligent Automation, Inc.) and a Phase I STTR grant (from the Air Force Office of Scientific Research, in partnership with Andro Computational Solutions), for the development and potential commercialization of new cognitive networking technology.

Architecture of a Cognitive Radio Network



ISE's Paquet Leads Industrial-Based Research

ISE Associate Professor and Director of Graduate Studies **Victor L. Paquet** is a departmental coordinator and instructor for the SUNY Occupational Safety and Health Training Project, funded by the National Institute for Occupational Safety and Health (NIOSH).

The program provides hands-on experience for select graduate students from collaborating departments, giving them a concentration in occupational safety and health. Program trainees have gone on to work at such places as the U.S. Occupational Safety and Health Administration (OSHA), NIOSH, and as engineers in private industry.

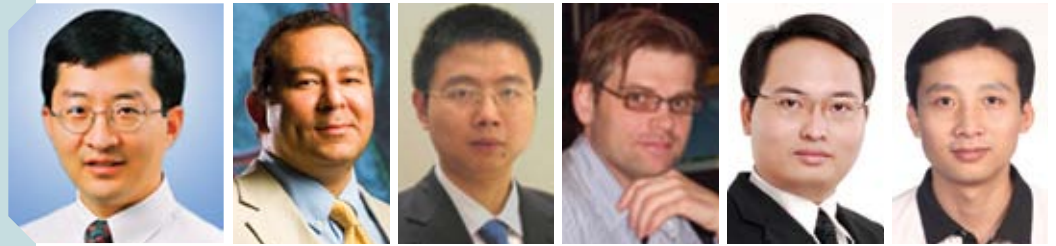
Recently, two ISE graduate students – **Mary Jo Catalano** and **Mark Fenzi** – worked on a project for Whiting Door Manufacturing Company (Akron, NY), a manufacturer of rear roll-up doors for semi-trailers and cargo vans. The project required them to address ergonomic issues related to the process of worker positions during riveting, and drilling operations during door assembly. After observing and performing the operations in the plant, the students presented ideas on modifications to, and a re-design of, the work area, integrated with procedural solutions presented by occupational therapy students.



Victor Paquet

CSE's Qiao Wins Competitive Cisco University Research Program Award

The award, for CSE Professor **Chunming Qiao's** project entitled, "Basic Research in Human Factors Aware Cyber-Transportation Systems," is for research that integrates groundbreaking multi-disciplinary research taking human factors (HF) into account when designing and evaluating new cyber transportation system (CTS) tools and applications to improve traffic safety and traffic operations. The research can be applied to reducing accidents, congestion, pollution, and energy consumption. Qiao's project focuses novel HF-aware algorithms and protocols for prioritization and address routing/scheduling and fusion of various CTS messages, to reduce drivers' response time and workload, prevent duplicate and conflicting warnings, ultimately improving safety and comfort. An integrated traffic and network simulator capable of evaluating these and other CTS algorithms and applications will also result.



Chunming Qiao **Adel Sadek** **Changxu Wu** **Kevin Hulme** **Shan Huang** **Xu Li**

UB Engineering Team Researches Cyber Transportation Systems

CSE Professor **Chunming Qiao** is PI on a National Science Foundation (NSF) funded project in the Cyber-Physical Systems (CPS) program, "CPS: Medium: Addressing Design and Human Factors Challenges in Cyber Transportation Systems." Qiao won a related award from Cisco's University Research Program (see left column article).

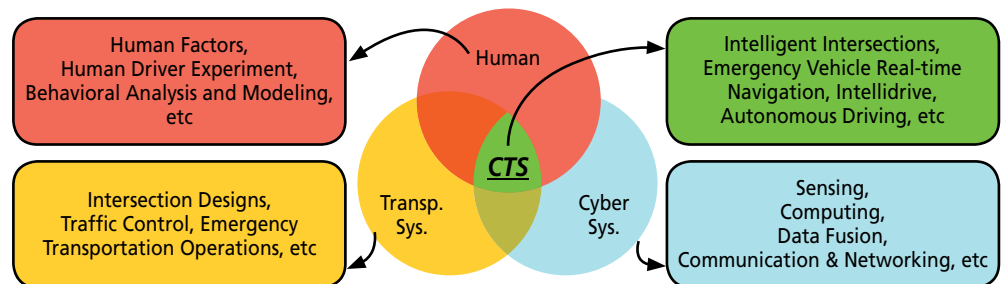
The team working on the NSF CPS-funded project includes CSEE Associate Professor **Adel Sadek**, ISE Assistant Professor **Changxu Wu**, and MAE Senior Research Associate **Kevin Hulme** (BS '94 MS '96 PhD ME '00), and is one of just a handful nationwide to win such an award.

The team's project has two closely related objectives. The first is to design and evaluate new Cyber Transportation System (CTS) architectures, protocols, and applications for improved traffic safety and traffic operations. The second is to design and develop an integrated traffic-driving-networking simulator. The project takes a multi-disciplinary approach that combines cyber technologies, transportation engineering, and human factors.

To improve traffic safety, the project will develop and evaluate novel algorithms and protocols for prioritization, delivery, and fusion of various warning messages to reduce drivers' response time and workload, prevent conflicting warnings, and to minimize false alarms. To improve traffic operations, the project will focus on the design of next-generation traffic management and control algorithms for both normal and emergency operations (e.g., during inclement weather and evacuation scenarios). Both human performance modeling methods and human subject experimental methods will be used to address the human element in this research. As the design and evaluation of CTS applications requires an effective development and testing platform linking the human, transportation, and cyber elements, the project will also design and develop a 3-in-1 simulator that combines the main features of a traffic simulator, a networking simulator, and a driving simulator.

The team members have presented and published results at several conferences and publications including IEEE INFOCOM 2011, the *Journal of Homeland Security*, and the 2011 Human Factors and Ergonomics Society annual meeting.

Other members of the research team are: CSEE Research Scientist **Shan Huang**, CSE Research Scientist **Xu Li**, PhD students **Aditya Wagh** (CSE), **Jingyan Wan** (ISE), and MAE master's student **Ankur Bhargava**.



The research vision and the interactions of the cyber system, transportation system, and the human element

BME's Kim Researching Photodynamic Therapy



Chulhong Kim

BME Assistant Professor **Chulhong Kim** and Roswell Park Cancer Institute Professor and Distinguished Member in Cellular Stress Biology Ravindra Pandey (with an appointment in the Institute of Lasers, Photonics and Biophotonics), are working to improve the efficacy of photodynamic therapy (PDT) under the guidance of photoacoustic tomography (PAT) using photosensitizers-gold nanoparticles (PS-GNPs) conjugates.

The sensitivity of intraoperative fluorescence-guided PDT in past investigations had a sensitivity that was too low, and deeply-seated cell nests could not be imaged, whereas in animal models, PAT has shown advantages in imaging deep-seated tumors. Also, the use of targeted near-infrared absorbing PS-GNPs with minimal-skin phototoxicity will have advantages in photoacoustic image-guided PDT.

Photoacoustic image-guided PDT will enhance therapeutic outcomes in cancer diagnosis and therapy because (i) imaging will aid in identifying the precise location of the tumor; (ii) it will guide and monitor tumor morphology (e.g., vasculatures and necrosis) and function (hypoxia) during therapeutic procedures; and (iii) it will noninvasively evaluate the PDT efficacy immediately after treatment without any additional injection of contrast agents.

The work is supported by a grant from the Roswell Park Alliance Foundation.

TCIE: Your Bridge to Excellence

UB Engineering's TCIE (formerly The Center for Industrial Effectiveness) has a new website to connect businesses and professionals with UB Engineering resources: www.tcie.buffalo.edu. TCIE's services are available to expand product development, develop process excellence, and enhance overall business operations:

- Engineering Solutions: research & development projects
- Operational Excellence: custom business assistance driven by strategic priorities
- Professional Development: certification courses & workshops
- NYS SPIR Grant: subsidized technically advanced engineering projects

Distinguished Alumnus Tyabji Visits

Bytemobile CEO and Chairman **Hatim Tyabji** (MS EE '69) was in town as keynote speaker at Buffalo Niagara's Bright Forum: Aligning Investment and Innovation, a gathering of investors, entrepreneurs, and other professionals. Tyabji generously shared his time for an extensive conversation about the School's current and future status, with the president, provost, dean, chairs, associate deans and senior development officers.



(L to R): Assistant Vice President and Assistant Dean of Development, **Tim Siderakis**; ISE Chair **Rakesh Nagi**, CSE Chair **Aidong Zhang**; EE Chair **Stella Batalama**; Acting Dean **Rajan Batta**; alumnus **Hatim Tyabji**; BME Co-chair, EE's **Albert Titus**; CSEE Chair **Andrew Whittaker**; and MAE Chair **Gary Dargush**

Alum's Gifts Name Spaces in Davis Hall

Continued from page 3

Firefly Foundations Conference Room, and Firefly Foundations Student Lounge

Joe Y. Chuang (PhD CE '72) is founder and president of Delta Fine Chemicals Inc., which has controlling interest in a Chinese pharmaceutical factory that is the largest producer of natural progesterone in the world, and also is the exclusive distributor of its products worldwide, at present predominantly in Europe. Chuang's passion for wine led him to create his own winery, Firefly Vineyards in Napa Valley, of which he is president.

Don Donewirth Student Lounge

Donald J. Donewirth (BS ME '50) is retired from American Standard and Ferro Corp. Since 1993, he has been a volunteer counselor with the Service Corps of Retired Executives. Through his commitment to growth through travel, he has helped over a dozen local companies to explore trade opportunities. Don is a world traveler who believes that travel "isn't just

a change of pace. It's a way to open hearts and minds. You can get stuck in your house and in your community and think this is the only world you need to know, but with the passengers we've met and the places we go, we're much more tolerant of different points of view."



BME and ISE Steering Committees Conduct Inaugural Meetings

The inaugural meetings of the BME and the ISE Industrial Steering Committees convened this summer, and each was productive and informative. These advisory boards are charged with assisting their respective departments in achieving preeminence in education, research, and service, by supporting and advising the chairs in specific areas, especially in strengthening ties to industry.

Biomedical Engineering (BME)

Industry representatives (l to r): Dent Neurological Institute CEO Joseph V. Fritz (BS '81 MS '86 PhD '90); Medtronic's Innovation Excellence Vice President, Mike Hess; President of Moog's Medical Devices Group, Martin Berardi; Director of Development and Testing at Edwards Life Sciences, Russ Joseph; Bausch & Lomb Global Vice President of Research and Development, George L. Grobe, III; and, representing Greatbatch Medical President Mauricio Arellano was Greatbatch's Senior Manager of Materials Research, Ashish Shah (MS '89 PhD '93 EE).



Industrial & Systems Engineering (ISE)



Industry representatives (l to r): Applied Management Systems Partner and Consultant Patrick Abrami (BS '72 MS '75 IE); Treehouse Foods Inc. Business Architect Robert F. Hanley, Jr. (BS IE '90); Praxair Corporate Fellow and Advanced Process Control and Operations Research R&D Group Manager Larry Megan; Hodgson Russ LLP Partner, Business Litigation Group, and Erie County Fiscal Stability Authority Chairman Daniel C. Oliverio (BS IE '78) (see Class Notes for more about Oliverio); Rochester Institute of Technology Kate Gleason College of Engineering Associate Dean, Professor Jacqueline Reynolds Mozrall (PhD IE '94) (not pictured); Breakthrough Skills Continuous Improvement Consultant Lisa Scolnick (BS IE '90); and KPMG Principal Thomas G. Wilde (BS IE '80).

Garman Gift Supports Engineering

Patricia (MS Nursing '79 UB) and Richard Garman (BS CIE '56 Bucknell University), have given a generous donation to the School of Engineering that will be used to significantly enhance a research program in ecological engineering, housed in the CSEE department.

Examples of research targeted through the program include: sustainability of aquatic phytoremediation in the Great Lakes; restoration of ecological processes in streams and watersheds; and a basic research program on fundamental principles of ecological engineering. The fund will be used toward the purchase of equipment and to support research staff. As a legacy, the laboratory in which the equipment will be housed and research conducted will be named in honor of the Garman family.

The Garmans are ongoing and generous supporters of UB and the School of Engineering whose past gifts have funded Richard E. Garman Endowment CSEE scholarships. The couple was awarded the Alumni Association's 2007 Dr. Philip B. Wels Award for their achievements enhancing the UB community's quality of life.



Scholarship Funds Established Honoring Fogel and Whalen

Memorial scholarship funds have been established to continue the legacy of recently deceased School of Engineering educators. Please see the Faculty section for their obituaries.



The Professor Emeritus **Charles (Charlie) M. Fogel** Scholarship Fund honors Fogel's distinguished and productive career in teaching and service to the community. Fogel taught a large percentage of engineering students in the School's early years, as an instructor of introduction to engineering courses. He is well-remembered for teaching the use of the slide rule with an oversized model that now hangs in the School's Office of

Undergraduate Advising. Charlie Fogel also mentored high-school students and remained active as a volunteer well into his 90s.

A memorial to Fogel can be seen at: www.eng.buffalo.edu/academics/faculty/InMemoriam/CharlesFogel/

Contributions to the Fogel fund can be made through a secure online form by visiting: www.eng.buffalo.edu/academics/faculty/InMemoriam/CharlesFogel/ScholarshipFund/



The Dr. **James Whalen** Scholarship Fund commemorates Whalen's forty-year career with UB Engineering's EE department. Whalen dedicated his life to education, mentoring generations of students at and outside of UB. He was a founding faculty member of a SUNY online EE program, taught graduate courses on-site at Moog Industrial Group, and online for the School of Engineering's EngiNet. Whalen was recognized for designing

programs to improve teaching and professional competence, and attained the Institute of Electrical and Electronics Engineers' (IEEE) Senior Life Member status. He is remembered at its web site: <http://theinstitute.ieee.org/people/obituaries/in-memoriam803>

Contributions to the Whalen fund can be made through a secure online form by visiting: https://ubfoundation.buffalo.edu/giving/v4/?gift_allocation=932506992621

Contributions to the Fogel and Whalen funds can also be made by mailing a check payable to "University at Buffalo Foundation," to the address below. In the note field, please be sure to indicate the name of the fund to which your contribution should be applied. Address: University at Buffalo Foundation, Office of University Development, c/o Cindy Johannes, P.O. Box 730, Buffalo, NY, 14226-0730



The winning team of Orchard Park High School students (l to r): Rhiannon Slowik, Ashley Tylenda, Courtney Woods, Clarissa Cardarelli, and Alexa Ditonto

BEAM Trek 2011: The Grand Challenge

Buffalo-area Engineering Awareness for Minorities (BEAM), dedicated to fostering youth interest in engineering and the sciences, held its annual BEAM Trek event, this year named "The Grand Challenge."

Twelve local high school teams competed in six "Amazing Race"-style competitions, with the event's final contest requiring teams to build a scale model of a five-story structure, which was judged for appearance and cost, and then subjected to earthquake conditions on a shake table in the Structural Engineering and Earthquake Simulation Laboratory. A team from Orchard Park High School won the grand prize.

BEAM Trek was conceived by Fisher-Price Senior Director of Engineering Robert Tom, who chaired this year's committee, also comprised of Moog U.S. Recruiting Manager Don Davis; Blue Sky Design Supply Owner Tyra Johnson; R & P Oak Hill Project Manager Mercedes Calway; BEAM Finance VP **Carmen Vella**, retired from GM Powertrain; BEAM Executive Director **Marilyn Helenbrook**; and EE Assistant Professor **Jennifer Zirnheld** (BS '93 MS '97 PhD '04 EE). The event was sponsored in part by BEAM, National Grid, and the School of Engineering and Applied Sciences. A video about the event can be seen at: youtube.com/watch?v=i49E2Z5QNH4.

Students purify water (right) and (below) build a scale model of a five-story structure, which was judged by Structural Engineering and Earthquake Simulation Laboratory faculty for appearance and cost, and then subjected to earthquake conditions on a shake table.





Dan Muffoletto (rear, far left), with WORTHY students from area high schools

WORTHY Program at Northrup Grumman's Amherst Site

The UB EE's Energy Systems Institute hosted Northrup Grumman's Amherst Site's summer WORTHY (Worthwhile to Help High School Youth) engineering and technology program this summer.

Energy Systems Institute Research Assistant and EE Teaching Assistant, MS/PhD student **Dan Muffoletto** (BS '09 MS '11 EE) led the enrichment activity that engaged area high-school students in building an autonomous radio-controlled car and helicopter. The vehicles were equipped with microprocessors and other electronics to take in sensory data, act upon the information, and send it over a wireless connection to a web server, displaying it in real time on the web. Without human interaction, the car could drive itself, avoid obstacles, and park itself beside two other cars, while the helicopter was able to maintain a fixed altitude. The program also underscored teamwork and project management skills. Video is available at: www.youtube.com/user/worthyamherst2011?feature=mhee.

Assisting were EE Adjunct Instructor **Kevin Burke** (BS '97 MS '04 PhD EE '10), and EE students **Brett Bowman** and **Mark Muffoletto**.

American Water Enterprises Grant Supports BEAM

Buffalo-area Engineering Awareness for Minorities (BEAM) received a generous grant from American Water Enterprises, Inc., which will help fund field trips and cover the cost of educational kits that teach students about the technology of hydropower, solar cars, and rockets.

BEAM's educational programs offer engaging and fun ways to prepare under-represented students for science, engineering, and technology careers, through unique programs taught and run by accomplished scientists and engineers. The program was created by the School of Engineering, Linde-Union Carbide (now Praxair, Inc.), Omega Phi Psi Fraternity, and the Buffalo Public Schools. CSEE's SUNY Distinguished and Samuel P. Capen Professor **George C. Lee** was a principal founding member.

To learn more about supporting BEAM's award-winning programs, please contact BEAM Executive Director Marilyn Helenbrook at helenbrk@buffalo.edu.



BEAM students, with BEAM Executive Director Marilyn Helenbrook (second from left, front row), CS PhD student, BEAM instructor Lavone Rodolph (behind Helenbrook), Christine Wingo (BS '01 MS '09 IE) (far left), and Engineering Senior Academic Advisor Drexel Gidney (second from right)

NYSEDII's Cyber Engineering Workshop



The New York State Center for Engineering Design and Industrial Innovation (NYSCEDI) offered its Cyber Engineering Workshop for Young Women again this year. The program introduces area female high school students to the engineering-design process, and insight into job opportunities in engineering.

NYSCEDI Deputy Director **Ken English** (BS AE '95 MS '98 PhD '01 ME) oversaw the workshop, which focused on transportation simulation. NYSCEDI Senior Research Associate **Kevin Hulme** (BS '94 MS '96 PhD ME '00) worked with attendees to develop an understanding of the driving simulator, and NYSCEDI Research Associate **Andrew Olewnik** (BS '00 MS '02 PhD '05 ME) helped teach attendees about the engineering design process and the ways in which engineering can be applied to improve the world. Funding came in part from grants by the University Transportation Research Center - Region 2, Fisher-Price, Moog, and Praxair. Students worked with simulations of the traffic on UB's North Campus, and used NYSCEDI's driving simulator to run vehicle dynamics experiments.

A workshop participant in the driving simulator (inset) and this year's workshop group.



Luciano Castillo



Bill Chatterjee



Andy Chau



Jue-Hsien Chern



Chan Pin Chong



Rich Dase



Scott Ferguson



Jeremy Gworek



Douglas Hillman



Monica Johns



Jodie Johnson



Joseph Lawless



Thomas Lynch



George Mavroeidis



Daniel Oliverio



Dennis Schrader



Jordan Wallbesser



Patrick Walsh

1970s

Vasilios Dimitriadis, PhD EE '76, is the chief operations officer of Lan-Net Communications, S.A.

John Fargo, BS IE '72, was a panel member on "Patents: Protecting Intellectual Property in Government Contracts," for the US Court of Federal Claims Western Conference of the Bench and Bar. He is the Director of the Intellectual Property Staff in the Commercial Litigation Branch of the US Department of Justice.

Thomas Lynch, BS CE '76, is now president and CEO of Goodwill Industries of WNY. Lynch is a UB Engineering Dean's Advisory Council member.

Mark A. Noblett, PE, BS CIE '71, is now retired from the US Air Force, Andrews Air Force Base, where he served as the Civil Engineering Squadron's chief of engineering. He is auditor and treasurer of the National Society of Active and Retired Federal Employees, Maryland Federation.

Daniel C. Oliverio, BS IE '78, was named chairman of Hodgson Russ LLP, where he is a long-time partner. Oliverio, who holds UB JD and MBA degrees, is a former federal prosecutor who also served as an assistant US attorney in Buffalo. Oliverio also serves Engineering on ISE's Advisory Board (see Development section).

Dennis R. Schrader, MS IE '79, was appointed to the Howard Community College Board of Trustees. He currently is president of DRS International, LLC and had served as Deputy Administrator of the National Preparedness Directorate of the Federal Emergency Management Agency (FEMA). Schrader was also Maryland's first Director of Homeland Security.

1980s

***Bill Chatterjee**, BS EE '85, is InView Technology Corporation's vice president of operations.

Jue-Hsien Chern, PhD CIE '83, is now CEO of ATopTech, after serving briefly there as vice president.

Chan Pin Chong, BA CS '89, BS EE '89, is president of Everett Charles Technologies.

Anup K. Ghosh, PhD CE '86, is the Industrial Research & Development associate dean and Reliance Chair Professor at Indian Institute of Technology, Delhi (India), where he recently gave a seminar on blown film processability.

***Douglas Hillman**, BS EE '82, a Dean's Advisory Council member who also earned a UB MBA, was recently interviewed for a *Wall Street Transcript Special Report: Aerospace and Defense*. He is president and CEO of Aeronomic Corporation.

Monica D. Johns, BS IE '83, is president and CEO of Clarity Management Consulting, which earned the New York State certification as a Women-Owned Business Enterprise.

Jodie Johnson, BS EE '89, is trainer and founder of Johnson Sports Fitness, through which he trains top professional athletes in every sport, including NY Jets receiver Logan Payne, who gained from Johnson's workouts during lockout. Johnson was recently profiled in *The Tampa Tribune*.

Jim Lines, BS AE '83, was recently interviewed for a *Wall Street Transcript Special Report: Manufacturing*. He is president and CEO of Graham Corporation.

1990s

David M. Bapst, BS '86 MS '92 ME, earned a patent for: "Rotatable entertainment device" (no.: 7,918,710), with inventors Maarten Van Huystee, John F. Rhein, Robert J. Sonner (South Wales); and assignee, Mattel Inc.

Luciano Castillo, BS '90 PhD '97 ME, has been an Associate Professor at Rensselaer Polytechnic Institute's Mechanical, Aeronautical & Nuclear Engineering department, where he has earned two Trustee Faculty Awards.

Emmanuel Chang, MS '86 PhD '90 EE, is a professor at Texas Advanced Research Center in the Nanotechnology area. His research centers around biological applications of mass spectrometry.

Andy Chau, BS CS '93, is president and CEO of US Operations of PAX, a provider of electronic payment terminal products.

Rich Dase, BS CS '97, is founder and president of Ideosity, Inc.

Jennifer Toepfner, BS IE '93, is on the Georgia Tech Business Network's 2011 executive committee. She is Southwire Company's western regional sales manager and a minority owner and advisor of Impact Media.

2000s

Prasann Agrawal, MS CSE '08, is a Moody's Analytics assistant director.

Scott Ferguson, BS AE & ME '02, MS ME '04, PhD AE '08, an MAE assistant professor at North Carolina State University's College of Engineering, received a National Science Foundation CAREER Award for research on, "Giving You 'Almost' What You Want – Customizing Products Through the Integration of Market Modeling and Engineering Design."

Jeremy Gworek, BS '07 MS '09 CIE, is a structural engineer for St. Germain and Aupperle Consulting Engineers LLP.

Joseph Lawless, BS CE '10, is doing project management for Cameron.

George P. Mavroeidis, PhD CIE '04, is a Civil Engineering assistant professor at the Catholic University of America.

Jason McKnight, BS CE '02, earned the US Army Reserve Outstanding Engineer Platoon Leader (Grizzly) Award. He is a computer systems analyst at the University of Rochester Medical Center.

Donna M. Vaccaro, BS CS '05, is now an Ingerex Incorporated software developer.

Jordan Wallbesser, BS CompE '07, recently registered to practice in front of the US Patent and Trademark Office, holds a UB JD. He is a Hodgson Russ attorney in the area of intellectual property law.

Patrick Walsh, BS EnvE '10, is a GT Environmental, Inc. environmental engineer with Engineer-in-Training certification in New York.

Edward Young, BS CS '00, is an Ingerex Incorporated competency center consultant and a senior-level Microsoft consultant.

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| Development |

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Please visit: <http://www.eng.buffalo.edu/donors/1011> and the sidebar links to learn more about gifts and giving.

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

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

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

- **Tim Siderakis**, Assistant Dean & Assistant Vice President: tsiderak@buffalo.edu, 716.645.0970
- **Michael Madonia**, Senior Director: mmadonia@buffalo.edu, 716.645.0969
- **Patrizia Latvala**, Director: latvala@buffalo.edu, 716.645.5020
- **Bethany Mazur**, Assistant Officer: bl12@buffalo.edu, 716.645.2133
- **Donna Linenfelser**, Associate: dfelser@buffalo.edu, 716.645.0997

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



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