

BUFFALOENGINEER

FALL 2012

INSIDE THIS ISSUE:

Research, p. 3 and pp. 18–23

- BME, p. 18
- EE, pp. 21, 22
- CBE, pp. 3, 22
- ISE, p. 23
- CSE, pp. 19, 22 MAE, p. 3, 22
- CSEE, p. 20

Faculty, p. 3 and pp. 15-17

- Eli Ruckenstein (CBE): American Academy of Arts and Sciences
- John Crassidis (MAE): AIAA Flight Award
- Kofke & Schultz (CBE): AIChE Himmelblau Award

Students, pp. 7–12 and p. 27

- Karl Barber (ChemE & French): Fulbright Scholar
- Esther Buckwalter (EnvE): Udall Scholar
- Daniel Salem (ChemE): Goldwater Scholar
- Gina Maria Galindo Pacheco and Ruben Dario Yie Pinedo (ISE): MOPTA Win
- David J. Myers (ISE): Premier DoD Award

Development, pp. 24, 25

- Kenneth Young: Dean's Office Gift
- Praxair: Professor in Operations Research

Alumni, p. 3 and pp. 4–6

- James McLernon: Distinguished Alumni Profile Feature
- Lester Gerhardt: ASEE Lamme Award
- UB Alumni Awards: Jack Davis, Dexter Johnson, Robin Li, C.L. Max Nikias, UB Engineering Alumni Association (UBEAA)

Education, p. 3 and pp. 13, 14

New Materials Science Program

Pre-College, p. 26 and p. 28

Inaugural National Grid Residency Program

Class Notes, p. 27

Faculty Honors



Student Scholars







Schultz





PRAXAIR



Donor Support

Distinguished

Alumni



McLernon

Galindo









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

I am pleased to report that we have made major progress toward one of our School's sentinel goals – faculty growth in key areas.

From Fall 2011 through Spring 2013, across our seven departments, we have hired 24 ladder faculty (i.e., tenured or tenure-track) and five instructional faculty (i.e., non-ladder faculty). As the ranks of our faculty grow, they will contribute to achieving our other noted goals, both of favorably improving our *US News & World Report* ranking and our focus on doctoral research. For more details on these faculty hires, please see the Faculty section.

Our School is also adapting to meet societal needs in our changing fields, as technologies develop and demands in engineering move with them. Thus we are pleased to announce a new program in Materials Science & Engineering (MSE@UB), a collaborative effort with the College of Arts and Sciences, led by the team of CBE's UB Distinguished Professor **Paschalis Alexandridis** and Chemistry's SUNY Distinguished Professor Frank V. Bright. In a related development, New York State has named UB a Center of Excellence in Materials and Bioinformatics. To learn more, please visit our Top Stories and Research sections.

Also, the recently formed BME department graduated its first cohort of BME undergraduates this year. We now welcome our inaugural BME graduate students, enrolled for Fall 2012. Please see the Education section for more information and a photo of our first BME graduates.

We launched our first residency program for precollege students this summer, with a generous grant from National Grid. To learn more about this exciting program, please see the back cover.

"New York State has named UB a Center of Excellence in Materials and Bioinformatics."

Additionally, the School is fortunate to continue to

receive financial support from many institutions, including a renewal of Praxair's Professorship in Operations Research. Other gifts have come from several individuals, including that of **Kenneth Young** (BS ME '54) to name the dean's executive office in Davis Hall. We appreciate the gifts for all that they help us to do and interpret them as an expression of faith in us.

It was with great pleasure that I participated in the official ribbon-cutting for Barbara and Jack Davis Hall on May 10th. The building is operational and we are most grateful to all who made it possible. Please see the back cover for more.

Our Top Stories include a profile of our distinguished alumnus **James McLernon**, and a prestigious award garnered by alumnus **Lester A. Gerhardt**. Also, our notable alums who received UB Alumni Awards include

Abbreviations Used in the Buffalo Engineer

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

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

Cover photos are courtesy of UB and the individuals themselves.

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

Debra Steckler, Editor

*****denotes

Alumni

dues-paying

Association

members



*Jack Davis; Dexter Johnson, Robin Li, C.L. Max Nikias, and the UB Engineering Alumni Association.

We are proud of our faculty, students, and staff whose continued recognitions include honors from prestigious organizations. To learn more please see the front cover and related sections, and the Top Stories section for prominent faculty awards: the American Academy of Arts and Sciences induction of CBE's SUNY Distinguished Professor, National Academy of Engineering member Eli Ruckenstein; an American Institute of Aeronautics and Astronautics Mechanics and Control of Flight Award for MAE Professor John Crassidis; and an AIChE Himmelblau Award for the CBE team of UB Distinguished Professor David Kofke and Research Assistant Professor Andrew Schultz. Our student scholars include: Karl Barber (Fulbright), Esther Buckwalter (Udall), David J. Myers (Department of Defense SMART Scholar), Gina Maria Galindo Pacheco and Ruben Dario Yie Pinedo (MOPTA); and Daniel Salem (Goldwater). Congratulations to our SUNY Chancellor awardees. EE Professor Jonathan Bird and staff member Nancy Recupero, and to CSE Chair Aidong Zhang on her promotion to UB Distinguished Professor.

Thank you for reading and enjoy the news in this issue.

Sincerely,

Interim Dean Rajan Batta

Distinguished Alumnus Profile: James W. McLernon

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



Distinguished alumnus McLernon

Committed UB Engineering alumnus and supporter James W. McLernon (BS IE '50), winner of this School's inaugural Dean's Award for Achievement (1978), led an innovating and successful career that saw many changes in the automotive industry. Locally born and raised in Kenmore, NY, McLernon attended our newly formed School after WWII military service. His leadership skills were already evident at UB, where he was on the swim team and helped organize both the undergraduate engineering society and Sitzmarkers, a ski club.

While still a student in 1949, his 48-year career in the automotive industry began as an hourly assembly line worker at the Chevrolet Tonawanda Engine plant, part of the General Motors Corporation (GMC). His move to manufacturing management began as foreman (1950); then he became general superintendent of production (1959). He was transferred to Detroit as manufacturing R &D assistant manager in 1961. From 1964 through 1967, he was manager of the Tonawanda forge and metal casting and Buffalo axle plants. In 1968, McLernon was named GMC director of manufacturing, research, and development, and in 1969 was made head of the entire Chevrolet Manufacturing Division, as general manufacturing manager. The 32 plants for which he was responsible assembled Chevrolet cars and trucks, and produced components for Chevrolet and General Motors Truck Division.

His success and experience in applying engineering and manufacturing knowledge to practical and managerial roles *Continued on page 4*

TOP HONORS



Ruckenstein: AAAS Induction

CBE's SUNY Distinguished Professor Emeritus and National Academy of Engineering (NAE) member Eli Ruckenstein was elected to the prestigious American Academy of Arts and Sciences (AAAS), joining its extraordinary ranks, from George Washington and Benjamin Franklin, to Winston Churchill and Albert Einstein.

Ruckenstein's career was recently celebrated at President **Tripathi**'s home, who cited Ruckenstein's

Faculty: Eli Ruckenstein

Continued Rucke

Continued on page 17



Crassidis: AIAA Flight Award

MAE Professor John L. Crassidis earned the American Institute of Aeronautics and Astronautics' (AIAA) 2012 Mechanics and Control of Flight Award, which honors an outstanding contribution in the mechanics, guidance, or control of space or atmosphere flight. The award recognizes Crassidis' "fundamental theoretical, computational, and mission support in spacecraft attitude estimation."

Crassidis, a leading authority in spacecraft attitude

Continued on page 15

Faculty: David Kofke and Andrew Schultz

Kofke & Schultz: AIChE Himmelblau Award

CBE's UB Distinguished Professor **David Kofke** and Research Assistant Professor Andrew Schultz earned the 2012 David Himmelblau Award for Innovations in Computer-Based Chemical Engineering Education from the AIChE Computing and Systems Technology Division, for

Continued on page 14



Dean's Advisory Council member, Rensselaer Polytechnic Professor Lester Gerhardt (MS '64 PhD '69 EE) was recognized with the Benjamin Garver Lamme Award and Medal, the American Society of Engineering Education's (ASEE) highest honor. The award recognizes engineering educators with combined contributions to the art of teaching, to research and technical literature, and achievements that advance the engineering college administration profession.



Continued on page 4



New Materials Science and Engineering Program

Alexandridis co-directs MSE@UB

Associate Dean for Research and Graduate Education, UB Distinguished Professor of CBE **Paschalis Alexandridis** and Chemistry's Henry M. Woodburn Professor and SUNY Distinguished Professor Frank V. Bright will co-direct a new university program in Materials

Paschalis Alexandridis

Science and Engineering (MSE@UB). The collaboration between the School of Engineering and Applied Sciences and the College of Arts and Sciences will integrate existing faculty and attract new faculty to UB, and will offer new MSE MS and PhD degrees.

The multidisciplinary field of MSE addresses growing needs in biomedical, commercial, and manufacturing applications for cutting-edge research in nanotechnology and novel materials. The program will include existing researchers in materials synthesis, materials characterization, and materials integration. Strategic hires will include researchers in materials theory and computation (from quantum to multiscale), ultrafast spectroscopy and a

Continued on page 13

Distinguished Alumnus Profile: James W. McLernon Continued from page 3

led Volkswagen to hire McLernon in 1978, to develop its first American-built cars. VW was the first foreign car maker to set up manufacturing in the US. As VW of America's chief executive officer, McLernon was responsible for sales, marketing, and manufacturing of the Audi, Porsche, and VW divisions in Canada and the US.

With his great insight into the auto industry's dramatic changes, McLernon went on in the mid-1980s to become executive vice president for Creative Industries Group, Inc. There he increased sales to automotive and aerospace customers from \$55 million to over \$100 million before the company was acquired by Masco Industries in 1987. From 1987–1993 he was chairman of South Charleston Stamping and Manufacturing, and from 1993–1997 he was a founder and first chairman of American Axle and Manufacturing, which had major plants in Buffalo, Cheektowaga, and the Town of Tonawanda. American Axle created a visionary solution for turning around the industrial American "rust belt" region, helping to rejuvenate the area's factories from near-relic status to economy viability.

Dedicated and Involved

While studying at UB, McLernon met his late wife, Nancy Stilwell, then a student in the School of Nursing. Together they had five children – Elizabeth, Judith, Nancy, Jacqueline, and James. He is now married to his present wife, Brigitta.

McLernon's dedicated activities and gifts to the School and to UB include the J.W. McLernon Fund for Student Recruitment; the James W. and Nancy A. McLernon Superior Scholars Award; the Nancy Stilwell McLernon Memorial Scholarship Fund; and the Samuel R. McLernon and Nancy McLernon Memorial Scholarship. The gifts have enriched our School's academic stature and have provided opportunities for excellence in future generations of engineers.

An inaugural member of the School's Dean's Advisory Council, his active involvement with the university further included memberships on the UB Foundation Board of Directors and its Development Committee. He served on the university's Generation to Generation Executive Campaign Steering Committee and chaired its School of Engineering Campaign Committee, which set a record in gifts received.

In addition to his Dean's Award, McLernon's honors include the 2002 Samuel P. Capen Award, the highest award UB of the Alumni Association (UBAA), for notable and meritorious contributions; a 1998 SUNY Honorary Doctorate of Humane Letters, for visionary and innovative leadership in the automotive industry and service to UB; a 1993 Engineer of the Year Award, the highest honor of the UB Engineering Alumni Association; a 1981 Automotive Hall of Fame Distinguished Service Citation, for individuals who have significantly improved the industry or their respective organizations; and a 1979 UBAA Distinguished Alumnus Award, given for exceptional career accomplishments, community or university service, or research and scholarly activity.

McLernon's commitment to UB and his outstanding reputation as a leader in the automotive industry evidence are an inspiration to anyone facing the ever-present challenges of new and developing technologies and markets.

Tyabji: Best Buy Chairman



Hatim A. Tyabji

Distinguished alumnus Hatim A. Tyabji (MS EE '69) is the new Best Buy chairman of the board (Minneapolis, Minn.), replacing the founder of the electronic giant, Richard Schulze. Tyabji had recently served Best Buy as chairman of its audit committee.

UB Career Services: Discover. Develop. Achieve.

- 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.
- Job hunting? Get job search assistance and access to online postings and interviewing opportunities.

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



Insights

From James W. McLernon

Buffalo Engineer: What factors do you identify as contributing to your success?

James W. McLernon: The quality of education I received in the Kenmore school system and at the University at Buffalo, and the dedication of UB Engineering faculty.

Buffalo Engineer: Can you share advice for students entering the work force?

James W. McLernon: Yes, start at the bottom and be willing to learn. And work hard.



McLernon scholars with James W. McLernon

Alum Gerhardt: ASEE Lamme Award Continued from page 3

Lester Gerhardt has been a faithful and generous supporter of our School. His many distinctions include serving as a delegate to NATO's Scientific Affairs Division. He earned the ASEE's inaugural Research Administration Award for efforts toward globalizing engineering education; the Bell Outstanding Management Award from Bell Aerospace Corporation (Niagara County, NY); an honorary doctorate from the Technical University of Denmark; and a 2009 UB Alumni Association Distinguished Alumni Award for his exceptional accomplishments. He holds several patents and is a fellow of both ASEE and the Institute of Electrical and Electronics Engineers.

Engineering Alums Earn UB Alumni Association Awards

John R. "Jack" Davis: Samuel P. Capen Award



The UBAA's top award for an alum; recognizes notable contributions from alumni to the university and its family

Solution R. "Jack" Davis (BS IE '55) is a founder and principal of I Squared R Element Company, Inc. (Akron, NY), a top manufacturer of heating elements. Under his leadership, the business, founded in 1964, has grown to become the largest maker of silicon carbide heating elements in the US, and the only US producer of high-quality molybdenum disilicide heating elements. The company's products are made entirely in the US. Its 86,000-square-foot manufacturing facility in Akron, NY employs approximately 80 people. With Davis, the company has transformed operations and worked at the leading edge of industry and technology. An impassioned and strong believer in the value of education, Davis and his wife,

Barbara, gave a generous gift to the School of Engineering – the largest single contribution from individuals in the School's history to date, which has named the new engineering building in their honor. For more on the ribbon-cutting for Davis Hall please see the back cover.

Robin Li: International Distinguished Alumni Award



Recognizes the exceptional career accomplishments, community or university service, or research and scholarly activity, of an international alum

Robin (Yanhong) Li (MS CS '94) is founder and CEO of the Chinese search engine giant Baidu.com. In addition to commanding well over half of the Chinese market, Baidu has also launched a Japanese search engine. After studying information management at Peking University, Li studied vector space models used to interpret word recognition results at UB's Center of Excellence for Document Analysis and Recognition – CEDAR, and he attributes much of his success to his studies at CEDAR. After earning his master's degree, he worked as an engineer at a California-based search engine company called InfoSeek until 1999. He returned

to China and launched Baidu in 2001, where he developed revolutionary online search technologies that are now considered industry gold standards. Li's recognitions include the 2006 UB George W. Thorn Award, for UB graduates under the age of 40 who have made notable contributions to their field. *Continued on page 6*

Erie-Niagara PEs Award Alums

The Erie-Niagara Chapter of the New York State Society of Professional Engineers (NYSSPE) recognized several UB Engineering alums with 2012 Awards.



NYSPPE Engineering Educator of the Year: Praxair Project Controls Engineer Tamara E. Brown (MEng ChemE '03)



NYSPPE Young Engineer of the Year: Marek Kobialka, PE (BS CivE '04), a New York Power Authority civil engineer



NYSPPE's Basinski-Wohler Distinguished Service Award: Edward M. Murphy, PE (BS '99 ChemE ME '03 CivE), Golder Associates senior engineer



NYSPPE Engineer of the Year: Nussbaumer & Clarke Vice President & Marie A. Nowak, PE (BS '78 MS '80 CivE).

Also, the NYSPPE Engineering Manager of the Year award went to the Buffalo City Engineer Peter J. Merlo, PE (BS '93 MS '98 CivE) (picture not available).

Batta and Tripathi Visit Prominent Alum Chang



(L to R): Interim Dean Rajan Batta, Richard Chang (MS EngSci '74), and President Satish K. Tripathi outside Richard Chang's Semiconductor Manufacturing International Corp. factory, in Shanghai, China.

In Memoriam

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

Brian R. Berger, BS EngSci '78 Ernest Gardow, PE, PhD ME '67 Timothy D. Hassett, BS CivE '72 Howard T. Larson, BS IE '51 Theodore Lerner, PhD EngSci '68 Donald A. Lofgren, BS ME '49 Frank J. Mathews Sr., BS ME '49 Frank J. Mathews Sr., BS ME '50 William P. Newton, BS EE '77 Joseph B. Radzwill, Jr., BS EE '66 Leonard Segel, MS ME '53 Leonard E. Sheppard, BS EE '56 John S. Wyler, BS ME '68 David C. Zimmerman, BS '82 PhD '87 ME

Scholarships

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

Checks should be addressed to the **UB Foundation** with "School of Engineering & Applied Sciences" noted in the memo, and sent to: External Affairs, UB Engineering Office, 412 Bonner Hall, University at Buffalo, Buffalo, NY 14260-1900

Engineering Alums Earn UB Alumni Association Awards

Chrysostomos L. Max Nikias: Distinguished Alumni Award



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

Chrysostomos L. Max Nikias (MS '80, PhD '82 EE) holds many distinctions, including National Academy of Engineering membership for his "contributions to the development and diverse applications of adaptive signal processing, and for leadership in engineering education." Nikias earned the UB Clifford C. Furnas Award in 2008. He joined the University of Southern California (USC) faculty in 1991, where he has been president since August of 2010. Nikias joined USC in 1991, serving as a professor, director of national research centers, dean of its Viterbi School of Engineering, and provost. Nikias, internationally recognized for research on integrated media systems, digital communications and signal

processing, and biomedicine, is also a passionate advocate of the arts and humanities. He is a fellow of both the Institute of Electrical and Electronics Engineers and of the California Council on Science and Technology. The California Governor honored him with a formal commendation for cutting-edge research.

Dexter Johnson: Clifford C. Furnas Memorial Award



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

Dean's Advisory Council member **Dexter Johnson** (BS AE '87 MS '88 PhD '95 ME) has been chief of the NASA's Structural Systems Dynamics Branch at its Glenn Research Center (Cleveland, Ohio) for many years. His work focusses on launch vehicle and spacecraft dynamic environments. Johnson participated in the Buffalo-area Engineering Awareness for Minorities (BEAM) program as a high-school student, which he credits with the inspiration for pursuing an engineering career. (For more about BEAM please see the Pre-college section.) A proud UB alumnus, he was the first BEAM student to graduate with a UB Engineering PhD. He also cites the influence of his mentor, MAE Professor Emeritus **William J. Rae**.

Johnson's numerous distinctions include the 2010 National Society of Black Engineers' (NSBE) Celestial Torch Award – Aerospace Pioneer of the Year; Johnson was a founding member of the UB NSBE chapter. A 1988 participant in NASA's prestigious Administrator Fellowship Program, he later earned NASA's Exceptional Service Medal and its Group Achievement Award. In 2006, he was recognized as a *Science Spectrum* Trailblazer, and as a Distinguished Alumni of UB Engineering's 60 Years of Excellence.

UB Engineering Alumni Association (UBEAA): Dr. Philip B. Wels Service Award



James Boyle accepted the award on behalf of the UBEAA

For individuals and groups that volunteer service or advance UB for a significant period, and whose achievements greatly enhanced the UB community's quality of life

Founded in 1960 by MAE Professor and Associate Dean Emeritus **Howard E. Strauss** (MS '54), the UB Engineering Alumni Association has worked to establish, promote, and maintain service to our School through its many programs. The group promotes networking, professionalism, and university participation amongst its membership of nearly 1,000; it sponsors or cosponsors events, scholarships, and the prestigious annual Engineer of the Year award, for an outstanding alum who serves as a role model for students. The UBEAA co-presents scholarships during the annual school-wide Scholarship Reception, awarding its own to "Leaders in Excellence," students who demonstrate spirit and a sense of loyalty to the school. Because it recognizes the importance of fostering engineering students' enthusiasm, UBEAA provides funding opportunities for student club activities, including participation

in competitions such as the American Society of Civil Engineers' Concrete Canoe Competition and the Society of Automotive Engineers' Clean Snowmobile Challenge. Its several annual student-alumni networking opportunities include the UB Bulls football tailgate party, its basketball game reception, a kickoff celebration for Engineers Week, and the Order of the Engineer ceremony.

UB Engineering Alumni Association Board of Directors

Officers:

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

Members:

- *Michelle C. Barker (BS ChemE '99, MS CivE '07)
- *Peter Buechi, PE (BS '68 MS '70 CivE)
- *Jeffrey Dudek (BS CivE '00)
- *John T. Kociela, PE (BS CivE '68)
- *Johnathan Kolber, (BS '72, MS '74 CivE)
- *Anthony S. Markut (BS IE '80)
- *Colleen M. O'Connell (BS CivE '03)
- *Brian J. Peer (BS ChemE' 05)
- *Richard A. Rink, PE (BS CivE '80)
- Howard Strauss, PE, Emeritus and Founding Faculty Advisor (MS ME '54) Bill Swensen, Emeritus Alumni Coordinator
- Robert E. Barnes, Alumni Coordinator (MS '76, PhD '84 IE)

Alumni Membership – One Amount Pays All

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

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

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

THANK YOU MEMBERS

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

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

Undergrad Students Barber, Buckwalter, and Salem Earn Top National Awards

Three UB Engineering undergraduate students, all UB Honors College Presidential Scholars, have earned prestigious national awards.



Karl Barber



Esther Buckwalter



Daniel Salem

Karl Barber (BS ChemE and French '12), received a prestigious Fulbright Fellowship, one of the nation's most competitive scholarship awards. The Fulbright will support his graduate study (at McGill University, Montreal, Canada), of the molecular basis of the death of mutant photoreceptors in neurons, which will represent an important contribution to the study of inherited diseases related to retinal degeneration. Barber also plans to volunteer at a mental hospital to emphasize the human aspect of neuroscience. He will study for his doctorate in molecular biology at Yale University after his Fulbright award in the fall of 2013.

Barber was chairman of the Society for Biological Engineers for UB's American Institute of Chemical Engineers chapter. His research in protein engineering focusses on the development of temperature sensitivity in a split mini intein. Last summer, during an internship in neurobiology at University Laval (Quebec City, Canada), Barber used a lightsensitive protein to study interneurons in the hippocampus of mice.

In 2011, he received the AIChE Outstanding Junior Award for the Western New York chapter. He enjoys studying French-Canadian linguistics and culture.

Esther Buckwalter, an undergraduate EnvE major minoring in Spanish, won a Morris K. Udall Scholarship, for outstanding students committed to environmental, health care, or tribal public policy careers. After graduation, she plans to work as a Peace Corps engineer in Latin America and to devote herself to improving global access to safe drinking water.

Her research focuses on water treatment and access to clean water. Her academic studies have taken her to Mexico and Indonesia for research. Locally, she is exploring the reuse of water extracted from a composting process at UB. She has also worked for several years on environmental and sustainability issues locally, planting trees and weatherizing homes.

In addition to being a UB Honors College Presidential Scholar, Buckwalter's honors include Alfred-Almond High School (NY) valedictorian. She works with UB's Gifted Math Program, and is secretary and event coordinator of UB's Engineers for a Sustainable World.

Daniel Salem, an undergraduate ChemE major, earned a Barry M. Goldwater Scholarship, which recognizes top college students planning to pursue careers in engineering, mathematics, and science. Salem intends to pursue a PhD in ChemE and a career in academia.

Salem's research is in developing battery technologies to improve energy storage and conservation. He is part of a UB Engineering research group studying lithium-air battery systems.

Salem's honors include the CRC Freshman Chemistry Award, the Merck Index Sophomore Chemistry Award, and the AIChE Sophomore Excellence Award. He is a member of Tau Beta Pi and the Ronald E. McNair Postbaccalaureate Achievement Program.

Engineering Students Awarded WNY Prosperity Scholarships

This year, eleven of the twenty-seven Western New York (WNY) Prosperity Scholarships awarded went to engineering students, to fund their unmet costs in 2012–13. Funded by the Prentice Family Foundation, the program is designed to keep entrepreneurial, civic-minded graduating students in the region by acquainting them with opportunities at local industries.

Our School's scholarship winners are: Richard Bottom II, ME grad Nikita Butakov, EE & EngPhysics undergrad Luke Darling, EE undergrad David Farnham, CivE & Mathematics undergrad Robert Finton, EE grad Daniel Muffoletto, EE grad Emily Nuding, CivE grad Abigail Prior, EnvE undergrad Kari Puma, BME undergrad John Robinson, MAE grad Cecilia Simon, combined EE undergrad/MBA

Myers Earns Premier DoD Award

David J. Myers, an IE PhD student in Operations Research, has been selected as UB's first recipient of the Department of Defense Science, Mathematics and Research for Transformation (SMART) Scholarship for Service. The DoD program supports students pursuing degrees in



supports students pursuing degrees in science, technology, engineering and mathematics (STEM) disciplines, and aims to increase the number of civilian scientists and engineers working at DoD laboratories. Myers's PhD research is on multi-criteria decision making and optimization for complex simulations. His advisor is ISE's Praxair Professor of Operations Research **Mark Karwan**. Myers was chosen for sponsorship by the Naval Air Warfare Center Aircraft Division, Patuxent River, MD.

Galindo-Yie Team Earn MOPTA Conference Win

The IE student team of Gina Maria Galindo Pacheco and Ruben Dario Yie Pinedo, both in the Fulbright-Colombia International Exchange Program, were winners of the 2012 Advanced Integrated Multidimensional Modeling Software-Modeling and Optimization: Theory and Applications (AIMMS MOPTA) modeling competition entitled "Scheduling in SmartGrids," at the 12th MOPTA conference (Lehigh University, Bethlehem, Penn.). The problem posed was to develop a tool to handle the scheduling of appliances, in a home or neighborhood, which aims to reduce consumer costs and maintain level usage loads for the utility company. Interim Dean Rajan Batta was advisor to Galindo and Yie, who used a rolling horizon approach to handle the scheduling problem, which dealt with uncertainty. Their AIMMS model took into account the randomness of the duration of the activities and was accented by a userfriendly interface.



McGreevy Earns NASA Award



AE graduate student **John McGreevy** (BS AE '12) earned a highly competitive Dr. John Mather Scholar Award as a summer intern in the Microwave Instrument Technology Branch of NASA's Goddard Space Flight Center (GSFC), while working with Manohar Deshpande. Named for GSFC

researcher John Mather, a Nobel laureate recognized for research conducted using a spacecraft conceived, built, and operated at GSFC, the award is available to current NASA Goddard interns and offers a travel allowance towards the cost of presenting research papers at professional conferences. McGreevy, one of just eleven Goddard interns to receive the honor, was selected for his quantitative analysis of space based "mm-wave radar" to track space junk/debris and to establish improvements in space debris tracking using space radar. He will be using the award to present his research at the American Institute of Aeronautics and Astronautics Conference.

IE Students Help Companies

For his capstone project, IE student

Benjamin Wilson (BS IE '11) helped

Saint-Gobain Ceramic Materials

improve its operations, increasing

one product line's consistency and

operational efficiency. His efforts

secured him a full-time process-

Wheatfield, New York facility,

which manufactures abrasive

grains used in sandpaper and

Certification Program, offered

developed and administered

by UB TCIE. Sonya Pegler, Saint-

Gobain manufacturing engineer

served as internal support for

grinding wheels. Wilson was part of

UB's Six Sigma Black Belt Student

through the ISE department and

engineer position at the company's



Wilson



Kaushal

Another IE and Six Sigma student, **Priyanka Kaushal** (MS IE '11) assisted the Greenwood Group, a consumer packaged-goods business development organization, helping Greenwood to reduce time spent on two specific reports. By eliminating activities that had no value and by creating a central hub through Microsoft Share Point, administrative time decreased by 95 percent. Reports that once took three to four hours per month now are down to no more than 10 minutes. To learn more about TCIE, see the Research section article.

Wilson's project.

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.

During the Celebration, MAE graduate student **Richard Linares** was a winner of the 2012 UB Sigma Xi Graduate Student Research Competition for his project entitled, "Space Situational Awareness." ISE student **Shanney Lacey** won an Undergraduate Research award for her project, listed below.

The following student–mentor teams participated on these projects; headers refer to student majors:

AE:

 Oluwatobi Busari (double majoring in Physics), with MAE Professor Deborah D. L. Chung: "Characterizing the Ability of New Carbon-Carbon Composites to Withstand High Temperatures"

ChemE

- Belle Cunningham, with Chemistry Research Assistant Professor Folarin Erogbogbo (PhD ChemE '09): "Silicon Nanocrystals as an Energetic Material for the Hydrogen Economy and as a Fuel Additive"
- Rachel DeMayo (Chemistry) and Daniel Salem, with Drs. Kenneth J. Takeuchi and Amy C. Marschilok: "Interrogation of Substrates Using Scanning Electrochemical Microscopy"
- Matthew Huie and Cassandra Whitford, with Drs. K. J. Takeuchi and A. C. Marschilok: "The Kinetics of the Oxygen Reduction Reaction"
- Lauren Stutzman, with Dr. Wolfram Jaegermann (Darmstadt University of Technology, Germany): "Analysis of Copper (I) Oxide Thin Films Deposited on FTO and ZnO/AZO Substrates"
- Phillip Tucciarone with CBE Professor Mark T.
 Swihart and Chemistry's Erogbogbo: "Silicon Nanoparticles for the Water Splitting and Novel Hydrogen production"
- Shihe Zeng, with CBE Associate Professor E.
 Manolis Tzanakakis: "Stochastic Model of Stem Cell Differentiation"

CompE

Regina May, with Teaching Associate Professor/ Research Assistant Professor Bina Ramamurthy: "Using the Cloud for Disaster Recovery"

CS

- Sean Zawicki with CSE Assistant Professor Geoffrey Challen: "Phonelab: A Participatory Smartphone Testbed" CivE
- Yachen Liao, with CSEE Associate Professor Stuart Chen: "Computer Modeling to Accelerate Construction of Bridges"
 EE
- Derek Brim, Meredith Canty, and Joshua Ulrich, with EE Assistant Professor Jennifer Zirnheld (BS '93 MS '97 PhD '04 EE): "Repetitive Pulse Testing and Modeling of a High-Power Ceramic Resistor"

EnvE

- Peter Byrley, with CSEE Assistant Research Professor David Blersch: "Assessment of a Floating Algae Cultivator for Water Pollution Control and Biomass Production"
- **Elizabeth Hennessey**, with CSEE's Blersch: "Determining Biofuel's Potential for Cultivated Filamentous Algae for Water Quality Management"
- **Benjamin McPherson** with Geology Assistant Professor Christopher Lowry: "Laboratory and Numerical

Simulation of Vertical Ground Water Flow and Heat Transport Using Distributed Temperature Systems"

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

ME

- **Jodie-Ann Duquesnay**, with ISE's Zhuang: "Social Media and Disaster Preparedness"
- Sourobh Ghosh (Economics double major), with MAE Professor for Competitive Product & Process Design Kemper E. Lewis: "Advocating a Social Media Based Comprehensive Method to Universal Design"
- Justin Storms, with MAE Professor Tarunraj Singh: "Design, Fabrication and Testing of Two Spring-Mass-Damper Absorbers"

Collegiate Science and Technology Achievement Program (C-STEP) Program

CSEE

- Hector Coco, with CSEE Professor James Jensen: "Solar Power Installation on Riverbend Commerce Park"
- Gael Lamothe, with CSEE Professor Andre Filiatrault: "Comparison of Concrete Masonry Unit (CMU) from Haiti vs. United States"

ISE

 Shanney Lacey, with ISE Professor Ann Bisantz (BS '89 MS'91 IE): "Studying the Impact of Interoperable Health IT on Workflows in Ambulatory Care"; Undergraduate Research Awardee.

Research Exploration Academy (REA)

For these REA projects, students applied their research skills to BME topics. Projects were executed under the mentoring and direction of Academic Director, CSEE Professor James N. Jensen.

- Samantha T. Bennett, Scott Buck, Valeria Crnjanski, Jason Anthony D'Souza, Jacob Kimball, Connor Leek, Elizabeth Moon, Antonio Palinkas: "Human Life on Mars?"
- Daniel Calzadilla, Ana Marmolejos, Sanjot Singh Nijjar, Sharon Yoo: "UB Late to Class?: An Examination of GPS to Reduce Bus Wait Times"
- Lauren Carnevale, Madeline Grossman, Komall Omrao, Grace Tan, Irianna Torres: "Effects of Phthalates on the Endocrine System"

Ronald E. McNair Scholars Program

Edward Poon (CompE and EE) with CSE Professor Shambhu Upadhyaya: "Whack-a-Mote: Simulating attacks on Sensor Network Nodes and Effects of Compromised Nodes"

Graduate Poster Competition

The School of Engineering's Annual Graduate Research and Information Event offered prospective students a chance to learn more about UB Engineering's graduate programs, and was a networking opportunity for current Engineering students and faculty through the annual poster competition, held in Davis Hall's Bansal Atrium. This year, a later viewing opportunity was also held at the Delta Society Reception, at which event awards were distributed. Poster contestants are listed here with their advisors and projects. Each contestant earned a monetary award.



First-place Poster Competition winner Apra Pandey with her research poster

CBE:

- Kaustubh Rane, with advisor Jeffrey Errington: Using Monte Carlo Simulations to Study Wetting Behavior of Ionic Liquids
- Sri Madabhushi, with advisor Sriram Neelamegham: Von Willebrand Factor Propeptide Attenuates Platelet Activation and Adhesion CSEE:
- Alireza Farhidzadeh, with advisor Salvatore Salamone: The Next Generation of Structural Engineering: Non-Destructive Evaluation, Structural Health Monitoring, Smart Structures
- Konstantinos Oikonomou, with advisors Michael Constantinou and Andrei Reinhorn: Seismic Isolation of Electrical Transformers

CSE:

 Mohammad I. Husain and Lokesh Mandvekar, with advisors Ramalingam Sridhar and Chunming Qiao: Hack-a-nium: Hacking Google Chromium OS Ashirwad Chowriappa, with advisors Peter Scott and Thenkurussi Kesavadas: Vascular Decomposition Using Weighted Approximate Convex Composition

EE: - Anna Pandey with

- Apra Pandey, with advisor Natalia
 Litchinitser: Variable Focus Nonlinear Lens
 via Transformation Optics (first place)
- Rui Chen, with advisor Jonathan Bird: Memristor Functionality of Strongly-Depleted Semiconductor Nanoconstrictions ISE:
- Gregory Tauer, with advisors Rakesh Nagi and Moises Sudit: Association of Graph Structured Data
- Michael Jenkins and Geoff Gross, with advisors Ann Bisantz and Rakesh Nagi: Towards Context-Aware Data Fusion: Evaluating the Benefits of Integrating Situationally Qualified Human Observations into Fusion Processes (second place)

MAE:

- Matthew McGurn, with advisor Paul DesJardin: Modeling of Charring and Burning Carbon-Epoxy Composites in Fire Environments (third place)
- Deepika Verma, with advisor Zonglu (Susan) Hua: Chronic Shear Stress Induces Cytoskeletal Stress Dynamics & Reorganization

UB SEDS: SA Club of the Year

UB Students for the Exploration and Development of Space (SEDs) earned the Undergraduate Student Association's (SA) Club of the Year award. UB SEDs's project groups, several of which are leading in prestigious national competitions, include: Rocketry, Astronomy, Educational Outreach, High Altitude Weather Balloon, Nanosat, Rocket Plane, and NASA Rover. The club has garnered notable research grants to fund projects, notably, a generous US Air Force award. UB SEDs 2011– 2012 president was **Andrew Dianetti**; in 2012–2013, it is **Mary Magilligan**.



A SEDs team after launching a high-altitude weather balloon into Earth's upper atmosphere. The balloon reached a maximum altitude of 95,000 feet, and was recovered 91 miles downrange from its launch location of Holland, NY. Pictured (I to r): Salman Iqbal, Albert Wong, David Berquist, Andrew Dianetti, Sean Lyons, Adam Gannon, Nicholas Sunderlin, Adam Dumas, Carl Eckhardt, Chris Ogden.

UB AIAA at Design-Build-Fly Competition

A UB undergraduate team competed in the American Institute of Aeronautics and Astronautics' (AIAA) Design-Build-Fly competition, hosted at the Cessna Aircraft facility in Wichita, KS. International undergraduate contestants were challenged to design, construct, and fly a remote-controlled aircraft tasked with designing a plane that could carry two liters of water 100 meters and release it most quickly. UB placed in the top half of the competition's design report portion, and 38th out of 68 teams overall, recording a completed flight.



At the competition, the team with their plane (shown superimposed in flight): back row: Brian LeFloch, Nathan Guterry, Matt Lang, Stefan Rafaniello, Josh O'Connor (pilot), Brian Fenton. Front row: Zac Fisher, Christine Menton, Josh Weisberger (co-captain), John McGreevy (co-captain), Andrew Ring. Not pictured: Faculty Advisor, MAE Professor Joseph Mollendorf.

SAE Baja Team in Top Ten at 2012 Nationals

The UB student chapter of Society for Automotive Engineers's (SAE) Baja team excelled at the North American competition, placing seventh overall out of 115 schools. The event, hosted by the University of Wisconsin-Madison (Burlington, Wis.) challenges engineering students to design and build an off-road vehicle that can survive punishing conditions like rough terrain and water. The UB SAE President in 2011-2012 was **Nathan King**; in 2012-2013, **Robert Neuman** is SAE president. The team's faculty advisor is MAE Adjunct Assistant Professor **Edward M. Kasprzak**.

(Pictured below) After the Wisconsin competition, Baja team members with their vehicle, lower row, left to right: Spencer Heyden, Co-Captain Tom Scheeler, Co-Captain Joe Keating, Nate Mayers (in car), Mike Wrona, Dylan LaLone, Kyle Lynch; left to right across top are: Joshua Sumosky, Jeremy Krol, Tommy Heyden. Members not pictured are: Kishen Das, Josh Friedman, Ikhsan Muhammad, Mike Pelino, and Sam Pierangelo.



27th Engineering Annual Scholarship Reception

The 2012 Engineering Scholarship Reception recognized exceptional students. Awards were presented by Interim Dean **Rajan Batta** and assisted by CSEE Professor, Associate Dean for Undergraduate Education **John Van Benschoten**, and UB Distinguished Professor of CBE, Associate Dean for Research and Graduate Education **Paschalis Alexandridis**.

Congratulations to the students honored and their families. We thank our donors and the event's sponsors – LP Ciminelli and the UB Engineering Alumni Association. Thank you to Tom Albrechcinski for providing photography.



BME awardees



Award List

- American Institute of Chemical Engineers (AIChE) Awards: (Both ChemE) Outstanding Junior: **Daniel Salem**; Outstanding Senior: **Robert Morrow** American Society of Civil Engineers (ASCE) Awards: (AII CivE) ASCE Student of the Year: **Francis Mahaney**; Julian Snyder Endowment Fund Scholarship: **Aaron Thompson**; Robert P. Apmann Award: **David Farnham, Allyson Zurawski** Association of Old Crows (AOC) Scholarships:
- Association of Old Crows (AOC) scholarships: Laura Chamberlain, EE; Christopher Fritz, CompE
- Joseph and Adele Augustyn Memorial Book Award: Alyssa Buzzard, CS; Amanda Ratchford, CivE
- Michael Bauda Memorial Scholarship: Ashley Briskin, EE
- David M. Benenson Memorial Scholarship: Lindsey Bartolomei, CivE; Marie Catalano, IE; Alvin Chieng, ME; Walter Kaniecki, CivE; Douglas Long, ME; Thomas Lutz, ME; Elise Martin, BME; Sean Monckton, EE; Michael Rossi, AE
- Adarsh Bhagat Memorial Scholarship: Justin Storms, MAE
- Bird Technologies Fellowship Program: (Both EE) **Bilel Neji, Jing Xu**

Chemical and Biological Engineering Academic Excellence Awards: (All ChemE) Karl Barber, James Dodd, Luke Fusco, Shaun Setlock, Shihe Zeng

Civil, Structural and Environmental Engineering Chair's Graduate and Undergraduate Recognition Awards: (Both CivE): Graduate: Apostolos Sarlis; Undergraduate: Alvaro Giron Clark Patterson Lee Engineering Scholarship: Michael Perkins, CivE

Cobham Mission Systems Engineering Scholarship: James Koloski, AE Dean's Scholars: Laura Chamberlain, EE; Jonathan Cole, ChemE; Belle Cunningham, ChemE; Mark Falinski, ChemE; Francis Fonseca, ME; Kayla Kisenwether, MAE; Peter Kuchera, BME; John McGreevy, MAE; Julia Morrissey, ChemE; Paul Nixon, CompE; Andrew Ortiz, MAE; Kerry Poppenberg, BME; Aaron Selkridge, MAE; Alexander Valencia, EngPhysics; Randolf Zingo, MAE Engineering Alumni Association Scholarships: Zachary Bauer, MAE; Emily Nuding, CivE; Michelle Reele, ChemE

Engineering Cooperative Society (ECS) Award: (All EE) Michael Sparks, Joshua Ulrich, Lisa-Rae Zoldo

- D. Richard Ferguson (BS EE '84) Memorial
- Scholarship: Antonio Upia, EE
- Richard E. Garman Undergraduate Scholarship:

(All CivE) Eric Culver, Duygu Doyrangol, David Farnham, Laura Grassi, Yachen Liao, Michelle Mekker, Emily Nuding, Ryan O'Mara, Nicholas Stalnecker, Aaron Thompson, Can Koray Yildirim Lester (MS '64, PhD. '69 EE) and Karen Gerhardt Dean's Scholarship: (Both EE) Jonathan Grimaldi, Dustin Muscato Robert H. (BS ME '51) and Catherine H.

Goldsmith Fellowship: (for the BS/MEng fifth-year): Ebunoluwa A. Ayandele, ChemE; David Clarke, CivE; Robert Finton, EE; Eric Gande, MAE

Graduate Dean's Scholars: Vikram R. Ardham, ChemE; Michael Couche, IE; Mark DeMarie, EE; Robert Finton, EE; Mohammad Ghasemi, ChemE; William Hughes, IE; Manish Kumar, CivE; Meng Liu, CS; Yangwei Liu, CSE; Michael Mercurio, MAE; Daniel P. Snitzer, MAE

Graduate School Ambassador Award: Chandrakanth Bolisetti, CivE; Martin Diz, MAE; Ankit Fajalia, ChemE; Prerna Gera, MAE; Peiqiu Guan, IE; Ziyun Huang, CS; Xin Liu, ChemE; Armin Masroor, CivE; Nandini Mondal, ChemE; Rajagopal Panchapakesan, EE; E. Ramona Stefanescu, MAE; Masoumeh Taslimi, IE; Yuan Tian, CivE; Gayatri Venugopal, EE; Raghavendran Vijendran, CS Matthew R. Grappone (BS AE '92, BS ME '97) Book Awards: Cihan Cemaloglu, CivE; Derrek Drass, CivE; Christopher Fritz, CompE; Courtney Kodweis, BME; Elizabeth Newell, IE; Damian Ogbonna, CompE; Daniel Patrick Rider, EE: Devin Toth, CompE; Brett Warthling, CivE Matthew R. Grappone Memorial Scholarship: Jennifer L. Chen, IE; Isaac Elbaz, CS; Joseph M. Keating, MAE; Eric Niedermeier, MAE; Hung Phan, IE Professor William R. Greiner Engineering Scholarship: Raheeb Kased, CivE The IEEE Power and Energy Society: (All EE): Michael D'Angelo (and CompE), Luke Darling, William Dell'Anno, Ian Farneth International Society of Automation Award: Daniel Reilly, MAE Karwan/Thomas Industrial Engineering Undergraduate Scholarship: (All IE) May Gin Cheung, Jonathan Patrick MacAdam, Elizabeth Ann Newell Robert B. Kleinschmidt Memorial Scholarship: (Both BME) Laura Marron, Kerry Poppenberg Paul J. Koessler Memorial Scholarship: Shawn J. Evilsizor, CivE Yong H. Lee (BS AE '81) Scholarship: John W. Vinti, MAE

James W. (BS IE '50) and Nancy A. McLernon



CS and CompE awardees with faculty



EE awardees with faculty

Engineering Scholarship: Steven Brown, ChemE; Marie Catalano, IE; May Cheung, IE; Michael D'angelo, CompE/EE; Sean Frier, IE; Thomas Heyden, MAE; Nikhil Jain, CompE; Wembley Leach, CS; Phil Odonkor, MAE; Umit Oksuz, CivE; Peter Oldani, BME; Sheldon Ooi, CS; Viral Patel, EE; Michelle Reele, ChemE; Lauren Stutzman, ChemE; Shihe Zeng, ChemE

Mechanical and Aerospace Engineering Award: Aziz Michel Naim, MAE

Lawrence and Amanda Megan Scholarship: Bich Vu, CompE

Dean Paul E. Mohn Memorial Book Award, established by William G. Weppner (BS EE '59): Joshua Feiler, EE

Moog Graduate Fellowship: Yen-Jen Chen, EE; John McGreevy, MAE

Beth Cheshire Moran Award: Bich Vu, CompE Niacet Corporation Niagara Scholar Book Award: Michael Christopher Karpi, ChemE Niagara Specialty Metals: Laura Ziegler, MAE S.P. Prawel Award: Timothy Lauber, CivE Presidential Fellowships: Michael Couche, IE; Mark DeMarie, EE; Jesse Hartloff, CS; Ms

Zhiqi He, ChemE

R. R. Rumer Award: Walter Kaniecki, CivE Stephen B. Sample Honors Scholarship: Phillip Tucciarone, ChemE

George G. Schenk Scholarship: Eric Mikida, CS Schomburg Fellowship: Yen Jen Chen, EE; Ashley Guerrette, ChemE; Charles Jones, ChemE; David LaVergne, IE; Shuen-Shiuan Wang, ChemE

Senior Scholar Awards:

- Applied Sciences Group: (Both CSE) James Dobler, Sanjiban Kundu
- John W. Danforth Company: Joseph Diehl, CivE; Zhihao Liu, IE, John McGreevy, MAE; Joshua Weisberger, MAE

UB Engineering: Qinglin Chen, CompE; Mary Gin Cheung, IE; Shawn J. Evilsizor, CivE; Joseph Flannery, EE; David Goldstein, CivE; Jorge Mok, ChemE; Thao Nguyen, ChemE; Michelle Reele, ChemE; Jingqi Sui, CivE Irving H. Shames Outstanding Teaching Assistant Award: **Manish Kumar**, CivE SUNY Distinguished Teaching Professor Irving H. Shames Memorial Scholarship: **Jimmy**

Lam, MAE Naida Irizarry Shaw and Max Kay Scholarship: (All CSE) Stacey Askey, Maxwell Boamah,

Elvis Castelino, George Pineda

R. P. Shaw Award: Benjamin Nichols, CivE Silent Hoist and Crane Materials Handling Prize: (All IE): Maria Bejarano-Rodriguez, May Cheung, Zhihao Liu

Felix Smist Scholarship, established by Mary and James Smist (BS '80 ChemE) Smist: Donald Besecker, EE; Christina Bieber, ChemE; William Bieler, ChemE; Stephen Briggs, MAE; Kenneth Dawley, MAE; Leana DeSouza, AE; Anthony Grisafi, CS; Daniel Kromphardt, MAE; Christina Pinzone, MAE; Rachel Styn, EE; Charles Tabone, MAE

Society of American Military Engineers (SAME) Joseph Markle Dinner #4 Committee Award: Dustin Muscato, EE

Frederick Thomas Award: (All IE): Marie J.

Catalano; Hao Ting Chen; Jennifer Lai-Ting Chen, Jenna Mae Swarthout

United Illuminating (UI) Company Scholarship: William Schubert, EE

Watts Engineering and Architecture Minority Scholarship: Mariano Hernandez, ME Thomas G. Wilde (BS IE '80) Family Scholarship: (All IE): Matthew Christian Brondum, Emily Rachel Landesberg, Zhihao Liu, Christine Marie Lundahl, Hung Duc Phan

Xerox/SHPE Scholarship Award: Maria Jose Barrera, CivE; Laura Brown, BME; Alvaro Giron, CivE; William Janiak, ME; Daniel Perez, ME; Edward Poon, CompE; Abhiram Rao, BME/ME; Julio Valenzuela Roca, ChemE; Benjamin Shaw, ME; Darwin Yip, CompE Gustav and Greta Zimmer Research Scholar Awards: (All MAE): Eric Gande, Sourobh Ghosh, Richard Kennedy, Adonis Pimienta-Penalver, Justin Storms, Kuocheng Wang, Chi Xu



AE and ME awardees with faculty



ChemE awardees with faculty



IE awardees with faculty



CivE and EnvE awardees with faculty



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 awardees.





3) Officers

UB INFORMS Competition

The UB chapter of the Institute for Operations Research and the Management Sciences (INFORMS) held its first Operations Research competition. The successful sixhour event had 25 participants competing on eight different teams to complete a challenge based on a problem adapted from the MOPTA (Modeling and Optimization: Theory and Applications) 2012 Competition. (See Galindo-Yie story in this section for more details). The first-place team was David Myers, Gregory Tauer, and Michael Moskal. The faculty judges were ISE's Praxair Professor of Operations Research, SUNY Distinguished Teaching Professor Mark Karwan and ISE Assistant Professor Murat Kurt. The UB INFORMS adviser is ISE Assistant Professor Jun Zhuang.





UB ASCE Teams Compete

The UB Chapter of the American Society of Civil Engineers (ASCE) competed in competitions, and did well. The Concrete Canoe team placed second in the Upstate New York Regional Conference, and placed second at the Buffalo Riverfest in the Rigidized Riverfest Regatta. The Steel Bridge team placed fifth at the regionals. The Seismic Design team competed in the nationals, where the team placed 12th out of 27 (there is no regional competition).





Education

- 1. Pictured here are new inductees. Listed alphabetically, they are: • Undergraduate inductees:
- Maria Jose Barrera Gutierrez De Pineres; Ashley Briskin; Steven Brown: Nikita Butakov: Fang Fang; Eli Grant; Kalli Havercamp; Matthew Huie; John Inzina; Niall Murphy; Darcy Regan; Mitchell Steiner; Amanda Wach; Cassandra Whitford; Shihe Zeng.
- Graduate student inductees: Beril Darcan; Ehsan Dehghan Niri; Alireza Farhidzadeh; Yangping Feng; Lei Sun; Xinhui Zhu.
- 2. (L to R): 2012 TA of the Year, EE's Muazzam Azam with 2012 Professor of the Year, MAE Professor John L. Crassidis
- 3. (L to R): Officers: outgoing Secretary Muazzam Azzam; outaoina President Steven Hsieh; outgoing Internal Vice President Michael D'Angelo; with John McGreevy (BŠ AE '12); outgoing Webmaster Andrew Ring; and incoming President Lauren Stutzman. Not pictured: outgoing External Vice President Greg Maloney, incoming External Vice President Michael Rossi; outgoing Internal Vice President Sourobh Ghosh; incoming Secretary Michelle Mekker; and incoming Webmaster John Bossung.
- 4. Concrete Canoe Team at regional competition (I to r): bottom row: Daniel Joseph, Craig Hebbard, Michelle Taegtmeier, Karlee Oehlbeck, Kasey McCarthy, Francis Mahaney, John Ellis; top row: Professional Advisor Jason Havens, Maxwell Todd, Grzegorz Zak, Ashley Tarasco, Isabel Gonzalez, Michael Danek, Emily Nuding, Justin Kellogg, Robert Kline, Shawn Danek, Alexis Sigeti, Allen Mosher, Derek Drass, Katie Kochmanski. Sedef Cinar. Kevin Stevens. Walter Kaniecki
- 5. Seismic Design Team at national competition, left to right: Kaitlin Gorski, Sean McTique, Timothy Arnold, Matthew Keilson, Justin Woodruff (unidentified person in front)
- 6. Steel Bridge Team at regional competition (I to r): bottom row: Sedif Cinar, Ben Flamio, Winifred Lao, Isabel Gonzalez; second row: Faculty Advisor Todd Snyder, Alvaro Giron, Aaron Thompson, Joseph Oliverio, Timothy van Oss, Brian LoVerdi, Matthew Thogersen, Francis Mahaney, Professional Advisor John Gast, Nicholas Vesely, Top row: Curtis Scott, Christopher Agro, Alex Gioseffi, Michael Rhode, Anthony Desantis

New Materials Science Program

Continued from page 3

advanced imaging, novel characterization of mechanical properties, soft synthetic materials and biomaterials (bio/nano interface), and nanoelectronics (from materials to devices).

MSE@UB will facilitate interdisciplinary research activities and center-type research funding, enhance and improve UB's visibility in MSE and participating departments, attract and serve students with a structured MSE curriculum and widened research opportunities, enable efficiencies through common courses and shared instrumentation, support outreach, and promote innovation and economic development.



A new material



First Cadre of BME Graduates

This year, the School of Engineering and Applied Sciences graduated its first class of undergraduates earning BS degrees in Biomedical Engineering. Twelve students received their degrees from the new department, which, in addition to the BS degree, has also recently received official approval for its MS and PhD programs by the NYS Department of Education. Enrollment has climbed from fifty-six students in 2010, to 190 students this Fall, as follows:

> • Freshmen: 60 • Sophomores: 31 • Juniors: 32 • Seniors : 57 • First class of graduate students: 10

NIH Award Supports BME Students

Thanks to a highly competitive National Institutes of Health grant awarded to UB, certain BME graduate students from underrepresented groups will be supported in their studies. The grant, part of the Initiative for Maximizing Student Development (IMSD) program, seeks to ensure success during the crucial first few years of graduate education by offering each participating student an individually tailored curriculum; one-on-one faculty and peer tutoring and mentoring; and workshops on scientific, academic, and career development.

UB is the only institution in New York State to be awarded an IMSD grant for the biomedical and behavioral sciences.

Millar: ABET Presentation

Due to the popularity of his book, "Ready for Takeoff! A Winning Process for Launching Your Engineering Career (Prentice Hall),' Director Dean C. Millar has been popular on the seminar circuit, giving presentations at an ABET

Symposium in St. Louis, Missouri; Cornell University; SUNY Oswego; UB's Cora Maloney College; and at Praxair. The presentations raised the appreciation and profile of our School, focusing on the value that students derive from the School's Engineering Career Institute (ECI) and Co-op work experience programs.



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

Alumni and industrial partners-you are very important for engineering students' education. By hiring qualified UB Engineering intern or co-op students you can assign necessary technical work while evaluating the students as prospective employees.

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

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

For more information, contact:

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

American Society for Engineering Education (ASEE) Rankings

Where does UB Engineering rank on some common measures? The table below illustrates UB Engineering rankings on several measures, based on ASEE's Fall 2011 data in *Profiles of Engineering and Engineering Technology Colleges*.

UB Engineering's National Rank	Metric	Number
	Faculty	
44	Tenured/tenure-track faculty	143
	Undergraduate Students	
50	Bachelor's degrees awarded to women	89
44	ChemE degrees awarded	50
20	CivE degrees awarded	118
27	ME degrees awarded	144
25	EE degrees awarded	82
	Graduate students	
22	Engineering master's degrees awarded	460
44	Graduate enrollment	1,238
44	Engineering doctoral degrees awarded	66
26	Doctoral degrees awarded to foreign nationals	54
3	Percentage of doctoral degrees awarded to foreign nationals	81.8%
	Research	
46	Research expenditures	\$55.7M

EngiNet™ Offerings

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

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

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

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

CBE's Kofke and Schultz: AIChE Award for Innovative Teaching Tool Continued from page 3

new and novel contributions to computer aids for chemical engineering education. The award recognizes the development of the Etomica Modules, a community-developed suite of interactive simulations to help students understand the molecular origins of macroscopic behaviors.

The molecular simulation learning tool developed by Kofke and Schultz included twelve instructional modules using simulations to explain the molecular origins of abstract concepts in thermodynamics, transport, kinetics, and materials engineering. Each module consists of an interactive, graphically oriented molecular simulation programmed in Java, with



Screenshot on osmosis

Davis Hall Named Best Educational Project

Barbara & Jack Davis Hall won the Best Educational Project category of *Buffalo First*'s annual Brick by Brick Awards, which recognize new top construction or development projects. Davis Hall was also one of three finalists in the Best Green Construction category, which was won by UB's William R. Greiner Residence Hall.

EE Lecturer Kevin Burke with students in Davis Hall

Photo: Douglas Levere



Screenshot on catalysis

supporting written materials introducing the concepts demonstrated by the applet. There are also examples describing the use of the simulation, and exercises suitable as homework assignments.

Modules were solicited from the science and engineering community, and the best proposals were selected for development. Those proposing the modules were also tasked with assisting production of the documentation, leading to a broad variety of module ideas, with the added benefit of ensuring interest in the module at other educational institutions.

The modules were assessed by Purdue University Professor George Bodner, with results indicating that they are also effective and popular with students. Visit: modules.etomica.org to try them. The project received funding from the National Science Foundation/CACHE (Computer Aids for Chemical Engineering).





Charles Zukoski

NAE Member Zukoski Joins University at Buffalo as Provost

National Academy of Engineering member Charles Zukoski, a renowned chemical engineer, was appointed UB Provost and Executive Vice President for Academic Affairs, after an extensive international search.

Zukoski comes to UB from the University of Illinois at Urbana-Champaign, where he held several administrative positions, the most recent of which was the Elio Eliakim Tarika Chair of Chemical and Biomolecular Engineering. Zukoski's honors include recognition as one of the Hundred Chemical Engineers of the Modern Era by the American Institute of Chemical Engineers. His research interests are in suspension mechanics, protein crystallization and nanoparticle self-assembly. He holds a PhD in chemical engineering from Princeton University.

Crassidis: AIAA Flight Award Continued from page 3

(orientation) estimation and space situation awareness, has made outstanding contributions to the understanding of attitude estimation and improved resident space object (RSO) knowledge. His work using non-resolved imagery combined with coupling an object's dynamics with solar radiation pressure has been instrumental in predicting the shape of RSOs in high-Earth orbits, improving researchers' ability to predict the shape and subsequent orbital pattern of RSOs. Crassidis' work has also shown that existing laser hardware, normally used for communication processes, can be used to determine the relative attitude of objects, thus significantly reducing the cost for specific attitude hardware sensors.

Faculty & Staff Honors

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

Recognizes faculty who consistently make extraordinary contributions to their fields

An expert in nanoelectronics, Bird's recent research focuses on developing technologies that integrate advances in nanotechnology to create systems with commercial opportunities – from medical diagnostics, homeland security and environmental monitoring, to telecommunications, optical computing and biotechnology. Since joining UB in 2004, Bird has secured seven new research grants, including prestigious National Science Foundation (NSF) NIRT and PIRE grants, of \$1 million-plus and almost \$4 million, respectively.

Nancy Recupero: SUNY Chancellor's Award for Excellence in Professional Service

For professional staff whose energetic, innovative, and knowledgeable service create extraordinary contributions that have enriched the university

Since joining UB Engineering as assistant for information management in 2002, Recupero's responsibilities have grown to her recent position as chief financial and information officer. She manages the School's budget, oversees its research activities, and coordinates data collection for School surveys and information requests. Her work includes several university-wide projects, including UB 2020, the HUB, SIRI (Strategic Information Reporting Initiative) and VoIP (Voice over Internet Protocol).

CSE Professor and Chair Aidong Zhang: UB Distinguished Professor

Honors full professors of five years or more who have achieved national or international recognition as experts in their fields

Zhang's research focuses on bioinformatics, databases, multimedia databases and information retrieval, pattern recognition, machine learning and data mining. Her awards include an NSF CAREER Award, a SUNY Chancellor's Research Recognition Award, and a UB Exceptional Scholar-Sustained Achievement Award. She is a senior member and fellow of IEEE, in recognition of contributions to multimedia data indexing. She chairs an Association for Computing Machinery Special Interest Group on Bioinformatics, Computational Biology and Biomedical Informatics, and is a SUNY Research Council member.



Faculty Growth

Our School has just met an aggressive faculty hiring target: including start dates from Fall 2011 through Spring 2013, across seven departments, 24 ladder-faculty hires (i.e., tenured or tenure-track faculty) and five instructional hires (i.e., non-ladder faculty) have joined our School. These are: 2 lecturers, 3 teaching assistant professors, 20 assistant professors, 3 associate professors, and 1 professor. Of these, one is a National Academy of Engineering member, four are National Science Foundation CAREER awardees; four are women; and one is African American.

Position Hires, by Department						
Title:	Professors	Assistant Professors	Associate Professors	Teaching Assistant Professors	Lecturers	
BME:		1	1 (an EE joint appointment)	1		
CBE:	1		1			
CSE:		5	1			
CSEE:		5 (one an ISE joint appointment)				
EE:		4	1 (a BME joint appointment)	1		
ISE:		3 (one a CSEE joint appointment)		1		
MAE:		3			2	

The hiring is consistent with the School's three-year plan (developed in November 2011), and stresses the four thrust areas of clean technologies, entrepreneurship and leadership, multi-media science, and computing and data management. The hiring is also consistent with the three-year department plans (also prepared in November 2011). We welcome our new faculty members to UB Engineering and anticipate the key role they play in the School's future.



Comings, Goings and Changes

Comings

EE



EE Assistant Professor **Cristinel Ababei** joins us from North Dakota State University, where he was an Assistant Professor of Electrical and Computer

Engineering. Ababei received his PhD in EE from the University of Minnesota, Minneapolis (2004), and his MSc from the Gheorghe Asachi Technical University (lasi, Romania) (1998). His research interests include design automation of VLSI and FPGA circuits, design methodologies for systems-on-chip, analysis and optimization of power systems, and reconfigurable and parallel computing.



EE Assistant Professor **Zhi Sun** earned his PhD in EE from Georgia Institute of Technology (2011), where he also served as a postdoctoral fellow. His

MS in EE is from Tsinghua University in Beijing, China (2004). His research focus is in wireless communications, networking, and cyber physical systems in challenged environments, including soil medium, intrahuman bodies, oil reservoir, underwater, and mines/tunnels.



EE Executive Officer **Kimberly Kriz** was an administrator at Harvard University for the past ten years. Her background is in human resources, academic

affairs, growth/communications strategy, student programs, and management. She holds a BA in History from Ithaca College (NY) and an EdM in Higher Education Administration from Harvard Graduate School of Education (Cambridge, Mass.).

MAE



MAE Assistant Professor **Rahul Rai** joins us after working as a staff research scientist at United Technologies Research Center (Berkeley, CA) and an

ME Assistant Professor at California State University (Fresno, CA). His PhD in ME is from the University of Texas, Austin (2006) and his MS in Manufacturing Engineering is from the University of Missouri-Rolla (2002). His research interests include design theory and methodology. At UB, he has founded and runs the Design Analytics Research and Technology (DART) Lab, dedicated to establishing new computational design methods, processes, and tools to provide innovative solutions to engineering design problems.

Best wishes to Elise Allen, Amy Marschilok, Bonnie Mckay, and Esther Takeuchi, who have moved on.

Appointments

Congratulations on the following appointments:



UB Distinguished Professor of CBE and Associate Dean for Research and Graduate Education **Paschalis Alexandridis** is codirector of the new MSE program.



CBE Professor **Stelios Andreadis**, CBE department chair



ISE Professor Ann Bisantz, ISE department



CSE's UB Distinguished Professor Aidong Zhang, CSE department chair (reappointment)



ISE Professor Li Lin, ISE Graduate Studies Director



ISE Associate Professor Victor Paquet, ISE Undergraduate Studies Director

UB Engineering welcomes its new members and congratulates its current staff for their newest appointments.

Obituaries

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

CSEE Professor Emeritus **Michael Gaus**, PE, earthquake engineering pioneer, conceived of a national center for earthquake engineering research, a driving force for what became the Multidisciplinary Center for Earthquake Engineering Research – MCEER, headquartered at UB. In his early career at Skidmore, Owings & Merrill, he assisted in designing the Air Force Academy dining hall, one of the



first projects to use a digital computer for structural design. After working for Boeing (Seattle, Wash.), he joined the National Science Foundation (NSF), as a program director in the Engineering Mechanics Program and the Earthquake Engineering & Natural Hazards Program. There he supported the establishment and operation of the Wind Engineering Research Council (WERC), which promoted technology transfer in the area of wind engineering. At NSF, Mike was also instrumental in establishing the Council on Tall Buildings and Urban Habitat, which strives to evaluate and coordinate research findings having a bearing on tall buildings. In 1989, Gaus joined UB Engineering as a CSEE Research Professor, where he was known as a dedicated mentor and researcher of construction management and the application of new technologies.

Edward Arthur Trabant served our School as dean (then called provost) from 1960–66. A gifted leader who created many educational opportunities, he went on to become vice president for academic affairs at Georgia Institute of Technology for two years before serving the first of two stints as president of the University of Delaware (UD), from 1968–1987 and 1988–1990. Current UD president Patrick



T. Harker remembers Trabant's energy and drive as contributing to changing UD greatly during his tenure. Among the many educational opportunities he created was his eponymous Award for Equity, given annually to support women's equity at UD. While he was our School's dean, Trabant oversaw the initiation of new engineering buildings on UB's North Campus in 1963–1964. Trabant served on the executive committee of the National Association of State Universities and Land-Grant Colleges and on the boards of the Winterthur Museum, the Wilmington Medical Center, the Delaware Art Museum, the Council on Administration of Justice and the Governor's Technical Advisory Committee. He was a member of the American Society for Engineering Education, ASME, the American Mathematical Society, the American Nuclear Society, Phi Beta Kappa, and Sigma Xi.

We mourn the passing of adjunct faculty member **Charles E. "Chuck" Treanor** (Physics PhD '56), a National Academy of Engineering member recognized internationally for outstanding contributions to fluid dynamics. The field now includes the terms "Treanor number," "Treanor distribution," and "Treanor equation," which refer to routine computational processes. His professional career was fulfilled at Cornell



Aeronautical Laboratory and its successor entities, Calspan and Arvin. During his tenure as Calspan vice president, he became the first president and director of the Calspan-UB Research Corporation (CUBRC), a pioneering collaboration between UB and private industry. Treanor was a co-chair of the 1988 Annual Meeting of the American Physical Society – Division of Fluid Dynamics, with conference co-chair, MAE professor **Bill George**. In 1989, Treanor was the third to be honored with the UB Alumni Association's Clifford C. Furnas Memorial Award, for UB Engineering, natural sciences, or mathematics graduates whose distinctions bring honor to UB. Treanor is survived by four sons: John, Timothy, Peter, and Michael; a daughter, Melissa Demjanenko; and a brother, Dr. John James Treanor. His wife of 53 years, Ruth, passed away in 2003.

Ruckenstein: AAAS Induction

Continued from page 3

"boundless intellectual energy, innovation, creativity, and astonishing breadth of scientific knowledge."

Ruckenstein's groundbreaking contributions include the areas of transport phenomena, the stability of nano-sized liquid and solid films, and thermodynamics of complex systems. He pioneered the theoretical and experimental treatment of the stability of supported metal catalysts, and developed the first kinetic theory of nucleation, theories for colloidal forces, and theories in molecular thermodynamics. He also invented new synthetic methods for preparing polymeric membranes and polymeric catalytic particles.

Ruckenstein has published widely and is nearing completion of the third volume of his collected works.

Faculty & Staff Accomplishments

ISE Adjunct Professor **Ching M. Chang** received the International Association for Management of Technology's Best Book Award at its annual conference in Hsinchu, Taiwan, for his book, *Service Systems Management and Engineering: Creating Strategic Differentiation and Operational Excellence* (John Wiley).

CSEE Professor James N. Jensen earned the Milton Plesur Excellence in Teaching Award from the Undergraduate Student Association, which recognizes commitment to students and teaching quality.

EE's SUNY Distinguished Professor **Vladimir Mitin** received the 2012 ASEE St. Lawrence Section Outstanding Teaching Award, for excellence in the instruction of engineering and engineering technology students.

MAE Professor **Tarunraj Singh** was named a fellow of the American Association for the Advancement of Science (AAAS), Section on Engineering, for pioneering contributions in the field of controller design for vibration attenuation of flexible structures, by synthesizing novel techniques to address the issue of uncertainties in the system model.

UB Excellence in Mentoring Award: Zhuang

ISE Assistant Professor **Jun Zhuang** received the UB Faculty Award for Excellence in Mentoring Undergraduate Research and Creative Activity, which recognizes faculty whose commitment to mentoring gives undergraduates opportunities to conduct research and scholarship that are not routinely available at many institutions. Zhuang's undergraduate student mentees have published peerreviewed journal articles and conference proceedings, and made conference presentations. Zhuang has also mentored high school students.

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Interim Dean Batta (left) with Zhuang holding award

UB TCIE Recognizes Partner

UB TCIE honored Matrix Imaging Solutions (a Matrix Systems & Solutions subsidiary), as a Partner in Engineering Excellence at the 2012 Small Business Matchmaker Awards Luncheon Exposition. By partnering with UB through extension services provided by TCIE, UB's engineering resources boosted Matrix's ability to compete with document processing and mailing industry leaders. The company achieved this using new mail inserter vision system software that guarantees secure, error-free assembly of the approximate 10 million pieces of mail it processes monthly.

The company was aided by UB's experts and a Strategic Partnership for Industrial Resurgence (SPIR) grant. The UB TCIE team that redesigned the vision system included SUNY Distinguished Professor of CSE ***Venugopal Govindaraju**, Principal Research **Scientist Srirangaraj Setlur**; and researchers from the Center for Unified Biometrics and Sensors – CUBS. The new vision system ensures that every document is tracked and validated in real time, and an error-detection system eliminates doubles and form mismatches. By marketing the existence of validation measures, Matrix has secured new contracts.

For more information about the SPIR grant or UB TCIE, visit www.tcie.buffalo.edu.

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UB TCIE Executive Director Timothy Leyh; Matrix President Alan Olivero; Matrix Vice President Dan Hare; Interim Dean Rajan Batta; and Principal Research Scientist Srirangaraj Setlur

O'Callahan Exhibition

The art of **Kevin B. O'Callahan** (1902–1977), a former UB ME professor and a founding member of the Buffalo Print Club in 1931, was shown at UB Anderson Gallery this past spring in its Print Review exhibition. O'Callahan, a nationally respected printmaker during the 1930s and 1940s, explored Buffalo's busy waterfront and Maine shipyards. The exhibition was curated by UB Emeritus Professor of English James H. Bunn.



BME's Ehrensberger and Team Research Single-Use Reaming Instruments

BME Assistant Professor **Mark Ehrensberger**, director of the Kenneth A. Krackow, M.D. Orthopaedic Research Laboratory (KAK-ORL), is the PI of a new grant sponsored by Greatbatch Medical in partnership with the UB Center for Advanced Biomedical and Bioengineering Technology (UB CAT).



Mark Ehrensberger

Rotational cutting tools, known as reamers, are used in a variety of orthopaedic surgeries ranging from intramedullary nailing of long bone fractures to total joint arthroplasty. Traditionally, these reamers are designed for repeated-use applications that cause the cutting edges to eventually dull and increase concerns about bone thermal necrosis as a result of the increased heating during reaming. These traditional reamers also require repeated sterilization between procedures. Single-use reamers have been introduced to address these areas of concern. However, the mechanical design criteria for single-use applications are currently unknown.

A custom-designed orthopaedic rotational cutting analysis system, developed at the KAK-ORL through previous grant support from Greatbatch and the UB CAT, will be utilized to characterize the loads and torques produced during orthopaedic reaming procedures. The information obtained through the mechanical characterization of these procedures will be used as design inputs for the development of a new generation of single-use orthopaedic reaming instruments.

MAE graduate student **John Genereux**, UB Orthopaedic Research Scientist Craig Howard, Greatbatch Medical Engineering Manager Gary Victor, UB Orthopedic Surgeon Dr. Thomas Duquin, UB Orthopedic Resident Dr. Mike Mildore, and BME undergraduates **Lindsay Rothberg** and **Kari Puma** have contributed to this research.



Schematic of the orthopaedic rotational cutting analysis system

BME's Kim: Safer Pediatric Imaging with Photoacoustics

Conventional pediatric cystography, which is based on diagnostic X-ray using a radio-opaque dye, suffers from the use of harmful ionizing radiation.

The risk of bladder cancer in children due to radiation exposure is more significant than many other cancers. Recently, BME Assistant Professor **Chulhong Kim** and BME postdoctoral research associate **Mansik Jeon** have demonstrated the feasibility of nonionizing and noninvasive photoacoustic (PA) imaging of urinary bladders *in vivo* using optically absorbing organic dyes or near-infrared absorbing gold nanostructures as optical-turbid tracers. Their works have been published in the journal *Optics Letters*.

Chulhong Kin

They have successfully imaged a rat bladder filled with optical absorbents using a home-made PA imaging system. After transurethral injection of methylene blue dye, the PA amplitude was significantly enhanced, and the accumulation was confirmed by spectroscopic PA imaging. Further, using a laser pulse energy of less than 1 mJ/cm2 (1/20 of the safety limit), a deeply (>1 cm) positioned bladder in biological tissues was clearly visible in the PA image. Both *in vivo* and *ex vivo* PA imaging results reveal that those optical absorbents were naturally excreted via urination, thus no accumulation of the agents in the bladder and kidney was observed. The PA cystography with transurethral injection provides two crucial safety features over the existing X-ray method: no ionizing-radiation exposure and no long-term agent accumulation, which will facilitate clinical translation.



Left: preclinical photoacoustic imaging system at UB; Right: photoacoustic image of a rat abdominal area before and after transurethral injection of methylene blue dye



The new UB's New York State Center of Excellence (CoE) in Materials Informatics received state approval this year. The CoE is led by UB Vice President for Research and Economic Development, EE and BME Professor **Alexander N. Cartwright**, assisted by CBE Professor **Mark Swihart**, director of the UB2020 Strategic Initiative in Integrated Nanostructured Systems, and Chemistry Associate Professor Sarbajit Banerjee. The CoE will discover and commercialize new materials, including synthetic replacements for natural

elements that are growing scarcer. The CoE will help rapidly translate research to usher in new technologies in areas from energy to sensors and will foster increased university-industry collaboration.



Alex Cartwright

CSE's Regan: Chess and Decision Analysis



CSE Associate Professor Kenneth Regan, ranked an international chess master by the World Chess Federation, has recently gained renown for his investigation of a controversy arising from a 2006 match between Russia's Vladimir Kramnik and Bulgaria's Veselin Topalov. Known as "Toiletgate," Topalov's manager accused the

winner, Kramnik, of consulting a computer program during bathroom visits.

Adapting a program called Rybka to study chess moves, Regan applied a scientific methodology to what had previously been a set of statistical coincidences and allegations. Regan concluded that Kramnik responded with proper, "human" maneuvers, and even made one mistake.

"Chess is simply the source of the numbers that give hindsight values to the various options," says Regan. "Rybka can model any situation where you're making a decision based on a large number of options."

Rybka examines positions 13 steps ahead of an initial move, considering 900 million possibilities in 10 minutes and processing 1.5 quadrillion positions annually through the combined efforts of two computers. Regan says that Rybka doesn't just look for the best option, but helps determine options for the future and evaluates how skillful people are at identifying value. "We don't know the future," he says, "but my model can determine how good someone is at 'sniffing it out.'"

"If we use it to evaluate an executive making financial decisions, we can put a value on what all these options were based on how things worked out." He compared this to "finding the best chess move when you don't know if your play is going to contribute to a win or make you vulnerable to defeat."

Regan and his research were covered in a *New York Times* article, which noted that the proof of cheating has potential to model how people make decisions in other situations outside of chess.





PhoneLab group members, I to r: CSE masters students Bhaavyaa Kapoor, Vinu Charanya, Manoj Chandrasekaran; CSE Assistant Professors Geoffrey Challen and Steve Ko; CSE masters student Taeyeon Ki; CSE PhD students Anudipa Maiti, Lokesh Mandvekar, and Anandatirtha Nandugudi.







CSE Associate Professor Murat Demirbas

CSE Associate Professor Tevfik Kosar

CSE Professor Qiao

Large Smartphone Testbed Opens at UB

CSE researchers are building PhoneLab, the world's first participatory smartphone testbed, providing researchers everywhere access to real phones used by real people.

Beginning this fall, the PhoneLab team will distribute instrumented smartphones to UB community members. In exchange for service discounts, participants will allow researchers to monitor and improve their devices. With funding from the National Science Foundation and through a partnership with Sprint, PhoneLab will grow to over 700 devices over three years. As CSE Professor **Chunming Qiao** exclaims, "The big deal about PhoneLab is, well, it's big!"

Compared to current experimental approaches, PhoneLab is designed to provide more power, scale, and realism. "These aren't just a bunch of phones stuck in a room," observes CSE PhD student Lokesh Mandvekar, "and the sheer number of devices makes PhoneLab an attractive platform not just for computer science research, but also for large-scale studies in areas like health or psychology." Anudipa Maiti, another CSE PhD student, appreciates how "PhoneLab allows researchers from different disciplines and institutions to run collaborative experiments," with CSE Assistant Professor Steve Ko expecting PhoneLab "to put UB in the center of smartphone research." CSE masters student Bhaavyaa Kapoor is excited about developing "shared infrastructure enabling research that was previously impossible."

The PhoneLab team consists of PhD students Mandvekar, Maiti, **Rishi Baldawa**, **Fatih Bulut** and **Anandatirtha Nandugudi**; masters students Kapoor, **Michael Benedict**, **Vinu Charanya**, **Manoj Chandrasekaran**, **Jay Inamdar**, and **Taeyeon Ki**; undergraduates **Mitch Nguyen** and **Sean Zawicki**; and faculty **Geoffrey Challen** (PI), and co-PIs **Murat Demirbas**, **Tevfik Kosar**, Ko, and Qiao.

MCEER/CSEE Team Develops Method to Characterize Rotational Components of Earthquake Ground Motion and Improve Seismic Design

CSEE post-doctoral scholar Dhiman Basu, CSEE Professors Michael C. Constantinou and Chair Andrew S. Whittaker recently completed a project to characterize the rotational components of ground motion for use in earthquake engineering design.



Dhiman Basu



Michael Constantinou



Andrew Whittaker



The groundbreaking study sheds new light on the impact of rotational components of ground motions on buildings, safety-related nuclear structures, bridges and other infrastructure. Modern seismic instrumentation does not have the capability to record this type of ground motion, so analytical methods are needed.

The project team used ground motions recorded from the Large-Scale Seismic Test array at Lotung, Taiwan to develop procedures to obtain the rotational components of ground motion from translational data recorded by either a single station or multiple stations. The new procedures were applied to a simple structure, and to a four-story base-isolated building and a fixed-base building subjected to horizontal, torsional and rocking ground motion. The study revealed that the rotational components of ground motion significantly affected the response of these

> structures, and should be taken into account in seismic design codes. In addition, the team proposed design criteria for dense seismic arrays, such as the optimal length, number of recording stations and their spatial distribution so that higher quality recordings would be available following future earthquakes.

Financial support for this project was provided by MCEER Thrust Area 3, which focuses on the design, development and application of innovative technologies to enhance structural resilience. The research has been published in *Journal of Engineering Mechanics* and as MCEER technical report MCEER-12-0005.

CSEE's Reinhorn and Constantinou: Adaptive Seismic Protection for Structures

Modern performance design provisions for buildings and bridges in seismic zones require limited strength for their components. However, the forces of earthquakes usually exceed these strengths. Any cracking and damage that does occur during these events helps to dissipate energy and limit the propagation of further damage, while maintaining the safety of the structures. While this is acceptable design practice, the post-earthquake repairs may be costly, but can be avoided.

CSEE's Clifford C. Furnas Professor of Structural Engineering Andrei Reinhorn and CSEE Professor Michael Constantinou are co-PIs on a four-year National Science Foundation (NSF)-funded Network for Earthquake Engineering Simulation–NEES investigation; the NSF funding is \$1.6M, with \$0.5M to UB and the rest distributed to four other universities. The project has also contributions of another \$0.1M from Taylor Devices for specimens prototyping. The research suggests an innovative adaptive protective solution that simulates a "weaker" structure that dissipates energy without any damage to the main structure. This is accomplished by using an innovative "negative stiffness device" (patent pending), combined with currently used "shock absorbers," also known as dampers, fabricated for the project by Taylor Devices, Inc. The research team demonstrated, through shake table experiments at the UB Structural Engineering and Earthquake Simulation Laboratory–SEESL, and through new analytical models, the validity and applicability of the concept to buildings and bridges. The experiments used state-of-the-art equipment for generation of artificial earthquakes and advanced instrumentation such as remote-position-tracking system, accurate within fractions of millimeters.



Andrei Reinhorn

Michael Constantinou

The project participants, now professors or current students, are either currently advised by or former advisees of the PIs and recognized worldwide. Rice University Professor **Satish Nagarajaiah** (PhD CivE '90), Rensselaer Polytechnic Institute (RPI) Associate Professor **Michael Symans** (BS '90 MS '93 PhD '95 CivE), Taylor Devices President **Couglas Taylor** (BS ME '71), and PhD candidates **Apostolos Sarlis**, **Tathagata Ray**, Dharma Pasala (Rice) and Navid Attary (RPI) joined Constantinou and Reinhorn on this UB collaborative innovative investigation, in a true spirit of collaboration as intended by the NEES project.

(L to R): View of shake table tests of (a) (b) and (c) buildings; and (d) bridge structures equipped with negative stiffness devices and dampers.



EE Team Pioneers Rainbow Polymer

A team of EE researchers has pioneered an efficient method to fabricate an extraordinary "rainbow" polymer which could form the basis of handheld multispectral imaging devices that identify the "true color" of objects examined.

The research was published in *Advanced Materials*, with authors **Alexander N. Cartwright**, UB vice president for research and economic development, (with appointments in EE and BME); EE Assistant Professor **Qiaoqiang Gan**; EE student **Ke Liu**; **Huina Xu** (PhD EE '12); and EE Research Scientist **Haifeng Hu**.



Cartwright and Gan noted that the portable technology could have wide applications, from paintmatching to biomedical imaging, e.g., analyzing colors in medical images to detect disease. The lowcost of the polymer could be used to conduct multispectral imaging via small devices that connect with cell phones, improving clinical imaging in developing countries.

Because the colors of the rainbow filter are produced as a result of the filter's structural properties and not by pigment, the colors won't fade over time.





Alex Cartwright

Qiaoqiang Gan

To create the rainbow material, the team employed a single-step fabrication method—shining a laser light through a curved lens—which is affordable and relatively simple.

The researchers' next step is to improve the quality of the rainbow filter and to explore incorporating the technology into handheld devices.

The research was covered widely in national and international science journals, and presented at the IEEE Photonic Annual Meeting in Arlington, Va. The UB Office of Science, Technology Transfer and Economic Outreach (STOR) has submitted a provisional patent application for the production process.

A rainbow-colored grating about 25 mm wide is shown under sunlight. Enlarged microscope images show the graded surface, with the black bars indicating a length of 10 μ m.

EE Research on Compressed-Sensing Video

Conventional signal acquisition schemes follow the general Nyquist/Shannon sampling theory: to be able to reconstruct a signal without error, the sampling rate must be at least twice as much as the highest frequency component of the signal.

Compressive sampling, also referred to as compressed sensing, is an emerging paradigm shift that suggests drastic undersampling of sparse signals of interest. A signal is called sparse if it admits some form of mathematical transformation that has lots of zeros. All natural imagery signals qualify as sparse. Rather than collecting an entire Nyquist ensemble of image samples, we can perfectly reconstruct images from a small number of linear measurements. A somewhat extreme example of a compressed sensing application that has generated much interest is the single-pixel camera architecture that, via repeated linear measurements, can match the performance of megapixel systems.

At the forefront of this breakthrough line of research, EE Professor **Dimitris Pados**, EE Associate Professor **Tommaso Melodia** and their EE PhD students **Ying Liu** and **Scott Pudlewski** developed video transmission systems where the transmitter performs nothing more than compressed sensing acquisition of imagery by "dumb" sensors, without the benefits of the familiar



a) Original frame; (b)reconstructed frame after pure compressed-sensed acquisition at rate 62.5%

sophisticated forms of video encoding that we enjoy on our smart phones, computers, and HDTVs. In such a case, the burden of quality video reconstruction falls solely on the receiver/decoder side. The developed video reconstruction technology becomes an enabler





Dimitris Pados

Tommaso Melodia

for systems that involve wireless multimedia networks of primitive low-complexity, low-cost video sensors.

The work of EE's Pados and Melodia on signal acquisition, communications, and networking is currently supported by grants of \$3.85M from the US Air Force Research Laboratory, the National Science Foundation, the Office of Naval Research, and the Air Force Research Laboratory.



Mark Swihart

CBE's Swihart on Pioneering Study of Quantum Dots in **Primates**

CBE Professor Mark Swihart is co-Pl on a pioneering study to gauge the toxicity of cadmium-selenide quantum dots in primates, one of the first to study the luminescent crystals in animals.

The findings, which appeared in Nature Nanotechnology, indicate that four rhesus monkeys injected with cadmium-selenide quantum dots remained healthy over 90 days. Blood and biochemical markers stayed in typical

Two of the monkeys were observed for an additional year, over which they still showed no signs of illness. More research is needed to determine quantum dots' long-term health effects, as elevated levels of cadmium were found in the primates' liver, spleen, and kidneys after the 90-day trial.

ranges, major organs developed no abnormalities, and weight remained constant.

Because of concern that quantum dots may be dangerous to humans, their optimal in-vivo applications may be those involving their use in a limited capacity, said Swihart. An example would be image-guided surgery employing a single dose of quantum dots to identify a tumor.

Cadmium-selenide quantum dots are among the most studied of quantum dots. Beyond their other possible medical uses – light-activated therapies, sensitive diagnostic tests – they could be used as components of solar cells, quantum computers, light-emitting diodes, or other devices.

Swihart collaborated with Nanyang Technological University Assistant Professor Ken-Tye Yong (PhD CBE '06), Ling Ye of Chinese PLA General Hospital, and SUNY Distinguished Professor Paras Prasad (with joint appointments in Chemistry, EE, Medicine, and Physics) who were the corresponding authors on the paper.

The new toxicity study was supported by the John R. Oishei Foundation, Air Force Office of Scientific Research, Singapore Ministry of Education, Nanyang Technological University, the Beijing Natural Science Foundation, and the National Natural Science Foundation of China.



A solution of cadmiumselenide quantum dots glows orange under ultraviolet light. This luminescence forms the basis for their use in bioimaging.







Paras Prasad

Aidong Zhang

Mark Swihart

Team Researches Shape-Shifting Nanomaterials

A research team led by UB's Institute for Lasers, Photonics and Biophotonics executive director, SUNY Distinguished Professor Paras Prasad (with joint appointments in Chemistry, EE, Medicine, and Physics) has received a \$2.9 million grant from the Air Force Office of Scientific Research to

design nanomaterials whose internal structure changes shape in response to stimuli. The research may have applications in color-changing sensors and plasmonic circuits that divert light in two directions.



Co-PIS on the project are UB **Distinguished Professor, CSE**

Chair Aidong Zhang; CBE Professor Mark T. Swihart, UB 2020 Integrated Nanostructured Systems Strategic Strength director; Tiffany R. Walsh (Deakin University, Australia); and Marc R. Knecht (University of Miami, Florida).

The novel materials will be made from inorganic nanoparticles with desired optical or electrical properties; peptides that bond to these nanoparticles; and special molecules called spacers, which sit between the peptides. The spacers bend when triggered with stimuli like heat or light, causing the arrangement of nanoparticles within the material to morph.

Using high-throughput experiments and data-mining techniques, the researchers will screen and analyze the many possible combinations of nanostructures, biomolecular linking elements (the peptides), and assembly conditions to identify optimal combinations of components. Prasad identified a goal of the research as contributing to the fundamental understanding of "how the spatial arrangement of nanoscale components in materials affects their optical, magnetic and plasmonic properties."



Toshiba Corp. Support Expands UB Toshiba Stroke Research Center

A \$15.8 million commitment for new equipment and support from Toshiba Corp. has allowed for the expansion of UB's Toshiba Stroke Research Center. Neurosurgery Professor L. Nelson Hopkins is the Center director; MAE Professor Hui Meng is one of the Center's co-directors.

ISE's Nagi: PI on DoD Award

ISE Professor Rakesh Nagi is PI on a \$2.5 million Department of Defense (DoD) project to develop tools that help the US military process massive amounts of data from many sources, including remote satellites, unmanned aerial vehicles, and soldiers' observations.

Under a 2009 Army Research Office grant, researchers at UB, Pennsylvania State University, Tennessee State University, and Iona College have been developing computer models and techniques to fuse the data. Part of the Army's Multidisciplinary University Research Initiative, or MURI, the initial award was for \$3.75 million over three years. The Army recently extended the grant by two years, for a total of \$6.25 million.

Nagi explained that "the diverse and massive amounts of data being collected can sometimes result in conflicting information. We are developing methods that will help intelligence analysts to accurately correlate that information." The researchers' techniques may have applications in business and in other government agencies.

The UB research portion is being conducted through the university's Center for Multi-Source Information Fusion Research (CMIF), which is operated jointly with CUBRC. Co-PIs with Nagi









Moises Sudit







Alex Nokolaev

are: ISE Research Professor and CMIF Executive Director James Llinas (PhD IE '77), ISE Research Professor and CMIF Managing Director Moises Sudit, ISE Professor and Chair Ann Bisantz (BS '89 MS '91 IE), CSE Professor Emeritus Stuart Shapiro, ISE Assistant Professor Alexander Nikolaev. CUBRC Research Scientist Kedar Sambhoos (MS '04 PhD '07 IE) and a large team of ISE graduate students are also contributing to the project.



Changhyun Kwon

Rajan Batta

ISE Team: Hazmat Transport Regulation

ISE Assistant Professor Changhyun Kwon and Interim Dean Rajan Batta, ISE Professor, have been awarded a three-year grant of \$318K from the National Science Foundation for research on the regulation of hazardous materials (hazmat) transportation using a novel concept of dual-toll pricing.

The objective of this research is to investigate the potential of multiobjective dual toll pricing as an operational tool to reduce risk from hazardous material (hazmat) transportation. Toll pricing has been used as an efficient and effective control method of vehicles on congested road networks, and, more recently, has emerged as a flexible control method for hazmat trucks.

In this research, a multi-objective dual toll pricing approach guides a network flow of selfish users towards a safer and more efficient traffic

flow that increases social welfare. The results of this research will advance our operational ability to control and regulate hazmat transportation under various scenarios; in consequence, road networks will become more efficient and safer. This research will reveal how robust and how effective the dual toll pricing framework is in safeguarding the human community from uncertainty and risk of hazmat



transportation. When combined with advanced information technology and geographic information systems, the proposed dual toll pricing system will provide a practically powerful tool to control vehicular traffic networks for public safety and efficiency.

The UB team, which includes IE graduate students Tolou Esfandeh and Masoumeh Taslimi, is collaborating with University of Arizona Professor of Systems and Industrial Engineering Young Jun Son.



Young Gift Names Davis Hall Dean's Office

A generous gift from **Kenneth O. Young** (BS ME '54) has named 208F Davis Hall as the Kenneth Young Dean's Executive Office. Young, an ongoing supporter of our School, still has fond memories of the impact his engineering professors had on him, especially Charlie Fogel and Roger K. Smith. It was Fogel who first welcomed Young into UB's Pillars Society, a group that recognizes alums of fifty years or more.

While at UB, Young was elected as the engineering representative for the University Board of Managers and was named Engineer of the Year in 1954.

Kenneth O. Young

Both Kenneth Young and his wife, Marilyn, are natives of Buffalo, NY. The couple, who currently reside in Potomac, MD have three

children. After graduating from UB, Ken's career took him from Bethlehem Steel in Buffalo, to serving on the House Appropriations Subcommittee on Computer Technology in Washington, DC for two years. He came back to Buffalo to work for Goldome, which installed bank machines in markets, and then returned to DC to work for the West Group, a database service provider to the legal profession. He also worked for Thomson West and as a private consultant. Young enjoys tennis and traveling.

Several years ago, Young also gave a life income gift to our School, which supports UB Engineering in many ways. He expressed a hope that the funds "will help students who can't afford an education" to pursue their dreams. His gifts are an expression of appreciation for the education he received.



At the 2012 Engineering Commencement, (I to r): the first Felix Smist Scholar, Rachel Marie Styn (BS EE '12); with Jim Smist, and Rachel's mother and her daughter.

2012 Dean's Award: James P. Smist

The School of Engineering is proud to honor James P. Smist (BS ChemE '80) with its 2012 Dean's Award for Achievement. Smist is president and co-founder of Dean and Company, a national and international corporate management consulting and investing firm.

The award recognizes those who have made a substantial contribution to the practice of engineering or the applied sciences and/or who have had an exceptional professional career.

After graduating from UB Engineering and working with Procter and Gamble, James Smist earned a Harvard Business School MBA, then joined Strategic Planning Associates (now part of Oliver Wyman), eventually becoming vice president. He then co-founded Dean and Company, which has produced several spin-off companies involved in trading and investment activities.

James and his wife Mary are generous donors to our School. Together, they established the Felix Smist Scholarship to honor James's late father, who persevered to complete his mechanical engineering BS in 1965 from UB, after 16 years of part-time study. James was five years old when he attended his father's graduation. The Smist Scholarship provides up to six years of tuition and fees to a UB Engineering student studying under similar circumstances as Felix — who worked full time and raised a family while attending UB thus making educational goals a reality for those in situations like those of Felix Smist. Established in 2005, the scholarship fund has assisted 17 students thus far.

First MAE and CSE Advisory Board Meetings

MAE Advisory Board

Newly formed advisory boards for the departments of MAE and CSE held their first meetings this year.



MAE Advisory Council Chair, MOOG Chief Information Officer & Group VP Jim van Oss (MS ME '83)



Virginia Tech ME Professor Donald J. Leo Plant Services Vice President, Robert G. Harrison, PE (BS ME '83) (MS '92 PhD '95 ME)



NASA Emeritus Engineer Landis Markley



Westminster Facilities Mitre Lead Simulation General Manager Modeling Engineer Cobham Mission Leslie A. Weitz Systems Division, Timothy John Sopko (BS ME '88)

Not pictured: AAR **Aircraft Components** Services NY Vice President Glenn Meyers (BS ME '84) and Mechanical Dynamics & Analysis CEO John Vanderhoef (BS ME '79)

CSE Advisory Board



CSE Advisory Council Chair, ICONICS Founde President, and CEO Russell Agrusa (BS EE '76)



Applied Sciences Independent Group President Consultant Roger E. Choplin (BS CS '72)

Paul Buckley



Engineer

Vinodh Gopal (MS CS '97)

Juniper Networks Director of ASIC Engineering Norman M. Hayes (BS EE '80)





Solutions, Inc. President

(BS ME '84)

Carl Mende



Advance 2000 Founder & CEO Brian M. Maouad (BS EE '89), also Logistics Dynamics Founder, Chairman and Head of the Board

(BS MF '02)



Yahoo!

Nimsoft, Inc. Product & Operations Strategy Vice President udip Nag

(MS CS '89.

Labs Senior Director D. Sivakumar (PhD CS '96)



Baidu Senior Scientist Tao Hong (MS '92 PhD '96 CS)

Dean's Advisory Council Meeting

The School of Engineering hosted its spring gathering of the Dean's Advisory Council, opening with a welcome to its new members, John Pustulka and Stephen Still, and a discussion of the State of the School by Interim Dean Rajan Batta. Newly founded departmental chair advisory board reports were given by BME advisory council chair Joseph V. Fritz (BS '81 MS '86 PhD '90 EE) and CBE Advisory Council co-chair Cynthia Hoover. Then-ISE Chair, Professor Rakesh Nagi, delivered the ISE report in absentia of the ISE Advisory Council chair Patrick Abrami (BS '72 MS '75 IE).

Associate Dean for Research and Graduate Education, CBE Professor **Paschalis Alexandridis** and UB Vice President for Research and Economic Development **Alexander Cartwright** reported on the new Materials Science and Engineering and Energy Diversification 3 E Initiatives. Outreach efforts of the K-12 group were presented, including information on the National Grid/UB Engineering Summer Camp, by BEAM Executive Director **Marilyn Helenbrook** (see Pre-College section for more); and Student Excellence Programs Director **William G. Wild Jr.** (BS '83, MS '87 IE) presented on a Westminster Charter School (Buffalo, NY) initiative to have engineering students work with middle-school students. Arlene Kaukas, Director of UB Career Planning and Placement presented on how her group supports our students' career development, and development and marketing plans for the School were presented by **Tim Siderakis**, Assistant VP for Development; **Robert Barnes** (MS '76 PhD '84 IE), Chief of Staff, SEAS; and Jeff Smith, UB Assistant VP for Marketing.

The School wishes to thank all of its DAC members for their service.



DAC members and Interim Dean Batta (front row, right) at a presentation

Delta Society Donor Recognition



Gifts

The School extends its gratitude to the following institutional and individual donors for their support: American Chemical Society; American Heart Association; Bird Technologies Group; Catholic Health Systems; Clark, Patterson, Lee; CMP-Catholic Medical Partners; Earthquake Protection Systems; eBay; EMD Chemical; Google; Intel; Jim and Mary Smist; Keller Technology; Perkins + Will Architects; Raymond Riefler; Turner Construction; and the University of Science and Technology, China.

PRAXAIR

Praxair Renews Supports of Professor in Operations Research

Praxair has renewed its pledge of support for the Praxair Professor in Operations Research, the post held by ISE's SUNY Distinguished Teaching Professor **Mark Karwan**. Praxair's gift also supports a lecture series in the ISE department which brings nationally and internationally recognized researchers to campus.

Thank You, Donors

We thank our donors for their generosity.

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

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

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



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

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

- Assistant Vice President Tim Siderakis: tsiderak@buffalo.edu, 716.645.0970
- Senior Director Michael Madonia: mmadonia@buffalo.edu, 716.645.0969
- Director Patrizia Latvala: latvala@buffalo.edu, 716.645.5020
- Assistant Director Bethany Mazur: bll2@buffalo.edu, 716.645.2133
- Associate Donna Linenfelser: dfelser@buffalo.edu, 716.645.0997

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

Pre-College 26







Fifth Annual BEAM Trek: Energize

This year's BEAM Trek offered high-school student teams the opportunity to compete in an engineering adventure focused on alternative energy sources and energy efficiency. The teams engaged in a brain-teasing race around the campus to solve challenges posed by UB faculty.

A team from Hutchinson Central Technical High School (Hutch Tech) earned the top distinction of "Buffalo's Best Engineering Team of the Future," with all teams earning awards that carried monetary prizes. High schools and their sponsors were: City Honors – Moog; Orchard Park – American Association of University Women; Nichols – TSC; Nardin – **Mark Karwan** and R&P Oakhill; Hutch Tech – Buffalo Public Schools Career & Technical Education; Williamsville East – Gambacorta and Dental Associates; Kenmore West – Erie Community College WNY Career Pathways Consortium (ECC WNY CPC); Alden – ECC WNY CPC; Charter School of Applied Technology – National Grid; Cardinal O'Hara – National Grid.



Lighter than Airships with BEAM

City Honors middle-school students participating in BEAM's after-school club explored the theme "Lighter than Airships," creating helium blimps and hot-air balloons and lanterns. The club was facilitated by Moog's David Gromek and Kathrine Rejewski, who worked with teachers Jean Hess and Peter Hingston to introduce students to concepts of modern air ships, including electromagnetic propulsion, flight, flight envelopes, and radio controls. Using radio control and electric motors, the student teams were able to fly their small helium blimps through an indoor flight course.

CSE Co-Sponsors Buffalo I/O Conference

High school and college students at the Buffalo I/O conference in Davis Hall's Agrusa Auditorium learned about computer-related careers through brief presentations by industry leaders. The event also provided informal networking opportunities. Conference sponsors were InfoTech Niagara, the Western New York Computer Science Teachers Association, and our CSE department.

Photo: Carl Alphonse.





1970s

Christopher Scolese, BS EE '78, is the Center Director of NASA's Goddard Space Flight Center. Scolese has served NASA in several roles, including NASA associate administrator at NASA Headquarters (Washington, D.C); NASA acting administrator; NASA chief engineer; and Goddard Space Flight Center deputy director. His many awards include the Presidential Rank Award of Meritorious Executive, the NASA Distinguished Leadership Medal, and the UB Alumni Association Clifford C. Furnas Award.

1980s

Joseph W. Delaney, PE, BS '87 MEng '89 CivE, is president and general manager of CM Services Group. Joseph C. Downie, BS EE '82, was appointed site director of Northrop Grumman Amherst Systems' business unit. **Gerald M. Knapp**, PE, BS '88 MS '89 IE, is the Zigler Associate Professor of IE and a graduate and undergraduate coordinator at Louisiana State University.

Donald A. Pillittere, BS EE '81, published his book, *Hot Chili and Cold Beer for the Project Manager's Soul.*

Raghu Ram, MD, BS EE '85, was promoted to vice president and chief medical officer of HealthNow NY Inc., d/b/a BlueCross BlueShield of Western NY and BlueShield of Northeastern NY. His MD is also from UB.

1990s

Ram Kumar Krishnamurthy, MS EE '95, a senior principal engineer and director of high performance circuits research at Intel Labs, is an IEEE fellow. He received the Distinguished Technical Paper Award at the 2012 International Solid State Circuits Conference.

David Negrin, BS CS '98, is an enterprise storage solutions research analyst for Ideas International Limited.

2000s

Vikas Dua, BS '04 MEng '06 EE, is director of AEG Partners.

Hemanth Satyanarayana, MS ME '07, is CEO of Imaginate Software Labs in Augmented Reality, which received the 2012 MIT Technology Review's TR35 India Award for the innovative digital interactive platform called Trialar, a virtual try-on room experience. The prestigious TR35 award recognizes top young global innovators under the age of 35.

Christopher R. Wallin, PE, BS CivE '03, was appointed Schenectady City Engineer by Mayor Gary R. McCarthy.

Students Continued from pg 12



Jianping Xiang with award, shaking the hand of MAE Professor Hui Meng

MAE Student Jianping Xiang Receives Scholarship Award

MAE PhD student **Jianping Xiang**, studying with MAE Professor **Hui Meng** as his major professor, won a prestigious Chinese Government Award for Outstanding Selffinanced Students Abroad. The award was presented by Chinese Ambassador Sun Guoxiang at a ceremony held in the Consulate General of the People's Republic of China in New York, NY. Jianping Xing is the first UB student to receive the prestigious scholarship award, which honors overseas Chinese doctoral students under 40 who hold an outstanding academic record.

Students Visit National Fuel

A field trip to National Fuel Gas (NFG) Supply Corporation afforded UB Engineering students a tour of the Concord Compressor Station in Springville, led by station General Foreman Mike Yasurek, and the opportunity to meet with station employees, including some UB Engineering alums. Students also visited NFG's Mineral Springs campus in Buffalo. The tour was arranged with the help of Deans Advisory Council member, National Fuel Vice President **Ann Wegrzyn** (BS IE '85).



EE Student Team: IEEE Photovoltaic Specialists Best Poster Award

An EE graduate student team of **Eric Kozarsky** with co-authors **Juhyung Yun**, **Chong Tong**, **Xueli Hao**, **Jun Wang**, and their advisor, EE Professor **Wayne A. Anderson** was awarded Best Poster at the 38th IEEE Photovoltaic Specialists Conference (Austin, Texas) for their research on "Thin-Film ZnO/Si Heterojunction Solar Cells: Design and Implementation." The research focuses on improvements in efficiency and light absorption of thin films.



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Engineers Week 2012

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

Ribbon Cutting for Barbara & Jack Davis Hall



A ceremonial ribbon cutting held to mark the official opening of Barbara and Jack Davis Hall was attended by SUNY, state, and UB officials. Left to right: EE student Michael Sparks; NYS Assemblyman Robin Schimminger; UB President Satish K. Tripathi and wife, Kamlesh Tripathi; Margaret Jacobs and husband, UB Council member Jeremy Jacobs; Barbara Davis and husband, Jack Davis; UB Engineering Interim Dean Rajan Batta; NYS Senator George Maziarz; and Binghamton University President, former UB Engineering Dean Harvey G. Stenger, Jr.



National Grid Camp

This summer, thanks to a grant from National Grid, UB Engineering offered the inaugural session of a residential summer camp. About 60 area high school students attended, gaining a glimpse into engineering careers through hands-on experience in building special projects and solving problems. The projects included creating a miniature wind turbine and a solar-powered Rube Goldberg contraption.

Buffalo-area Engineering Awareness for Minorities (BEAM) Executive Director Marilyn Helenbrook said that after completing the camp, many students expressed enthusiasm for the possibilities available at UB and in engineering careers.

Upon the program's conclusion, **Jack Davis** (BS IE '55) gave a keynote address and Interim Dean **Rajan Batta** presented each student with a scholarship, if they choose to enroll in UB Engineering.

National Grid continues to be a generous partner to our School. Its Regional Executive Director is Dean's Advisory Council Chair **Dennis Elsenbeck** (MEng ME '96).