



# BUFFALOENGINEER

SPRING 2008



## New Home of Computer Science and Engineering and Electrical Engineering

### Award-Winning Season

#### Faculty

**Presidential Winner**  
Lee (CSEE)

**ACS Astellas Award**  
Takeuchi (CBE/EE)

**SUNY Top Honor**  
Mitin (EE)

**IIE Achievement**  
Batta (IE)

**4 NSF Career Awards**  
Demirbas (CSE)  
Mosqueda (CSEE)  
Tsai (CSEE)  
Yoon (EE)

**National Academy  
of Engineering**  
Lockett (CBE)

#### Students

**Student Teams Place  
Nationally**  
Seismic Design Team  
(CSEE/MCEER)  
Rube Goldberg Team  
(Theta Tau)



## Message from the Dean:



UB Engineering is proud to be a school rapidly on the rise. We have recently learned that our ranking is 52nd in the *US News & World Report's* national survey of engineering schools, up from 61st. The average incoming SAT score has also increased significantly, by 45 points in the past two years.

The school is growing in student population and faculty numbers, and in physical size. We are busy finishing the design of a new building to house the Computer Science and Engineering and Electrical Engineering departments, with a ground breaking next spring. In the past year, graduate student admission has swelled by 37 percent; and from Fall 2006 to Fall 2007, undergraduate enrollment increased by 4.7 percent. We also welcome seven new members to our current award-winning faculty, five of whom have received top NSF-sponsored awards, including

a Presidential recognition honoree.

We are very pleased that this honor went to **George C. Lee**, in Civil, Structural and Environmental Engineering. Lee, SUNY Distinguished Professor and Samuel P. Capen Professor of Engineering, received the NSF Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.

Four NSF CAREER recipients this year bring UB Engineering's total to a remarkable 27 since 1985: in Civil, Structural and Environmental Engineering, **Christina Tsai** and **Gilberto Mosqueda**; in Computer Science and Engineering, **Murat Demirbas**; and in Electrical Engineering, **Yong-Kyu Yoon**.

Acknowledgement of lifetime achievement went to our faculty, as well. UB Distinguished Professor and Chemical and Biological Engineering Chair **David A. Kofke** received the 2007 Jacob F. Schoellkopf Award. **Michael J. Lockett**, also of CBE, was inducted into the National Academy of Engineering. In Electrical Engineering, professor and chair **Vladimir V. Mitin** has been named SUNY Distinguished Professor, the system's highest professorial title. Greatbatch Professor **Esther Takeuchi**, a new faculty with a joint appointment to Chemical and Biological Engineering and a member of the National Academy of Engineering, was the inaugural recipient of the American Chemical Society's Astellas USA Foundation Award, for contributions to research that improved public health. In Industrial Engineering, **Rajan Batta** was recognized with the Institute of Industrial Engineers's David E. Baker Distinguished Research Award.

Our students are also thriving, working creatively in teams with a professional spirit of collegiality: UB's Seismic Design Team placed third in the Pacific Earthquake Engineering Research (PEER) undergraduate competition in New Orleans; while UB's burger-building team traveled to Illinois, placing third while competing for the first time in Theta Tau's Rube Goldberg Machine Contest. These accomplishments are indicators of a promise for even greater achievements by both our faculty and students in UB's School of Engineering.

Sincerely,



Dean Harvey G. Stenger Jr.

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### Departmental Research Highlights:

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**CSE Distinguished Prof. Srihari, CSE, on Research Projects, p. 15;**

**Gambling Against Online Fraud, p. 15; Science Fiction Becoming Science Fact, p. 12**

**CSEE Hospital Room Shook Up in First Seismic Experiment of Its Kind, p. 13**

**EE UB Engineers Can Detect An Electron's Single Spin, p. 12**

**ISE UB Engineers Find Airport Security Speeds Up For Laptops, p. 15;**

**Redesigning Tracking Tools May Have Unintended Consequences, p. 13**

**MAE UB's Mechanical Engineering in Vietnam, p. 8; Virtual Surgery, p. 13**



Join **UB Believers** and help create the future of our communities—at the university, local and state levels. UB Believers is an advocacy group that supports the University at Buffalo's 2020 growth plan. Your voice will be part of a growing chorus dedicated to strengthening Western New York's economy and quality of life. To learn more, please visit: [ubbelievers.buffalo.edu/ubbelievers/home](http://ubbelievers.buffalo.edu/ubbelievers/home).

## White House Recognizes George Lee for Mentoring Excellence



The White House honored SUNY Distinguished Professor **George C. Lee** (CSEE) with a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM), administered by the NSF. The award honors a commitment to mentoring students and boosting the participation of minorities, women, and disabled students in science, mathematics, and engineering.

CSEE professor since 1961, George C. Lee is Samuel Capen Professor of Engineering. He was the founding MCEER director, the School of Engineering dean, as CSEE department chair, as Calspan-UB Research Center associate director, and UB Greater

Regional Industrial Technology Program (UB GRIT) director. Lee founded the Engineering Career Institute ECI, a supplemental summer program for UB engineering students that provides local companies with skilled interns.

His research has ranged from earthquake engineering to modeling of the mechanics behavior of biological systems. His scholarship and leadership in multidisciplinary earthquake engineering is internationally recognized.

For over 40 years Lee has mentored underrepresented Buffalo area high school students and has fostered UB organizations for underrepresented groups. He appointed the School of Engineering's first director of minority programs and was the principal founding director of BEAM, Buffalo Engineering Awareness for Minorities.

A prolific researcher, Lee has co-authored four books and published 250 papers on structural engineering and mechanics, steel structures, and earthquake engineering.

His many awards include the NSF Superior Accomplishment Award, the American Society of Civil Engineers' Newmark Medal, the UB Alumni Association's Walter P. Cooke Award, the President's Medal for Distinguished University Service from UB, the UB Engineering Dean's Award for Achievement, and the UB Award for Outstanding Contributions to International Education.

## New Building Gets Million-Dollar Gift



A global industry leader with a strong interest in Western New York has gifted \$1 million to UB Engineering, to be used toward construction costs associated with a high-tech engineering building on the Amherst Campus.

The corporation, a generous and longstanding partner of UB, made the gift anonymously, and wished to support the school because it has been a boon, continuously supplying the corporation and the local area with an ambitious, technically skilled workforce.

"We are grateful to our corporate partner for its generous gift, for its commitment to UB Engineering and for helping us to achieve our ambitious goals," said **Harvey G. Stenger Jr.**, dean of the school. "Our futures are interconnected and our ongoing collaborations will produce new research, technology and a highly skilled workforce for this company and the region."

## EE Chair Vladimir Mitin Honored as SUNY Distinguished Professor



**Vladimir Mitin**, professor and chair of the Department of Electrical Engineering was named a SUNY Distinguished Professor in recognition of international prominence and reputation in nanophononics, the branch of nanotechnology concerned with energy transfer, detection, and conversion at the nanoscale level.

The rank of distinguished professor, the highest faculty rank in the SUNY system, is an order above full professorship and has three co-equal designations: distinguished professor, distinguished service professor, and distinguished teaching professor.

CONT. ON PG. 5

## FOUR RECEIVE NSF CAREER AWARDS



(L TO R): YOON, TSAI, MOSQUEDA, DEMIRBAS

Four UB Engineering faculty were awarded the National Science Foundation's Faculty Early Career Development (CAREER) award, totaling a remarkable 27 UB Engineering faculty to have received the award since 1985. According to the NSF, the CAREER Program offers its most prestigious awards in support of the early career-development activities of teacher-scholars who most effectively integrate research and education within the context of the mission of their organization.

The four assistant professors who received the 2008 NSF CAREER award, and their projects, are:

**Murat Demirbas** (CSE): "An In-Network Collaboration and Coordination Framework for Wireless Sensor Actor Networks."

**Gilberto Mosqueda** (CSEE): "Hybrid Simulation Platform for Seismic Performance Evaluation of Structures Through Collapse."

**Christina Tsai** (CSEE): "Stochastic Modeling and Uncertainty Analysis of Sediment Transport in Regular and Extreme Surface Flow Environments."

**Yong-Kyu Yoon** (EE): "RF/Microwave components and devices using micro-/nano machined metamaterial"

# Alumni

## Voldman Lecture



**Steven H. Voldman** (BS EE '79), on the Electrostatic Discharge Association (ESDA) board of directors, gave a talk entitled, "Electrostatic Discharge (ESD) in the Nano-electronic Era." He toured the EE department and touted UB as an excellent location for ESD research. In the ESDA newsletter, *Threshold*, Dr. Voldman discusses the pioneering work of UB's EE professors.

FRONT ROW (L TO R): JAMES WHALEN, PROFESSOR (EE), YONG-KYU YOON, ASSISTANT PROFESSOR (EE), STEVEN VOLDMAN, JENNIFER ZIRNHELD, LECTURER (EE). Voldman, an IEEE Fellow, has authored a three-book series on ESD and has written over 150 technical papers. He is the recipient of 156 issued US patents in semiconductor technology, CMOS latchup, and ESD.



## ALUMNI MEMBERSHIP

Graduates of UB's School of Engineering have the opportunity to improve their alma mater through the joint membership between the Engineering Alumni Association and the UB Alumni Association. Members can participate in fun events such as the upcoming football tailgate and can feel proud about giving back to UB.

### Membership dues:

- support alumni in 21 cities in the U.S. and 11 international locales, providing important opportunities to network and reconnect;
- support scholarships for engineering students as well as student events such as Engineers Week;
- help produce *UB Today*, the alumni magazine, and @ub, the University's e-newsletter, sharing the latest accomplishments and remarkable research happening at UB;
- connect UB alumni to current students through support of the University Student Alumni Board and partnerships with the offices of Student Life, Student Affairs, Athletics and Career Services; and
- deliver programs such as mentoring, "Dinner with Twelve Strangers," and Homecoming.

Just by joining the alumni association, members can make a direct impact on UB, current students and alumni around the world.

To renew or begin your membership, go to [www.alumni.buffalo.edu](http://www.alumni.buffalo.edu). Once there, click on the "Membership" tab at the top right. Then, in the left column, you can join either online or by mail. Be sure to notice the special membership type for UB Engineering alumni.

## Engineering Alumni Association

### Board of Directors:

Stephen P. Buechi  
James D. Boyle  
Colleen O'Connell  
Michael J. Dray  
Jeff Dudek  
Joseph Frandina  
Steven Golyski  
Dayle Hodge  
John Kociela  
Jonathan E. Kolber  
Anthony S. Markut  
Brian J. Peer  
Michelle C. Rhodes  
Richard A. Rink, P.E.

### Founding Faculty Advisor:

Howard E. Strauss, P.E.

### Coordinator Emeritus:

William W. Swenson, P.E.

### Coordinator:

Robert E. Barnes

## UBEAA TAILGATE

**ARMY VS. UB BULLS**  
**SATURDAY, OCTOBER 18, 2008**  
**PLEASE CALL 716.645.2768 X1110**  
**FOR DETAILS.**

## In Memoriam

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

PAUL J. AHRENS, BS EE '72

P. ALLISTER BURT, BS ENGINEERING '47

R.O. CHRISTENSON, BS, EE '52

CHARLES CREWSON, BS EE '55

JULIUS DOROBIALA, BS ME '56

JESSE FENU, BS ME '95

WALTER W. HARRIS BS IE '53

DANIEL G. KAMPRATH, BS ME '50

NORMAN KLIPFEL, BS IE '55

JAMES J. KOPCZYNSKI, BS EE '64

ILAN LESKLY, BS EE '71

RICHARD MARKOVITZ, BS ME '50

ROBERT MAUSTELLER, BS EE '71

HERBERT MULKINS, BS ME '50

STEPHEN J. NOVITS, BS ME '50

RAYMOND ORZEL, BS ENGINEERING '49

PETER PERRONE, BS IE '51

PETER RADESI, BS EE '70

DAVID RICHARDSON, BS IE '50

BANKS RODEN, MS IE '89

FRANKLYN W. ROESCH, BS ME '49

THEODORE ROGALSKI, BS EE '67, MS EE '69

JOHN DE ROSA, BS ME '71

BRIAN SANTIAGO, BS ME '99

JAMES SEFCIK, BS CE '82

GORDON SHAHIN, BS IE '50

CLAY SMITH, BS ME '60

MICHAEL STANKEWICH JR., MS CIE '70

WILLIAM TRACY JR., BS ME '54

PAUL TRAUTMAN, BS EE '62

EDWARD WALKER, BS EE '50

RIDGELEY WARE, BS EE '50

GORDON WILSON, BS ME '49

JOHN WOODWORTH, BS ME '48

## UB Engineering Alumni Association Spirit Award



**KURT CAVALIERE** (FRONT, RIGHT) RECEIVES SPIRIT AWARD CHECK. **ASSOC. DEAN BARNES** (REAR, IN CAP) WITH BOARD MEMBERS (L TO R) **RICK RINK** (BS CIE '80), **JOE FRANDINA** (BS CIE '78), AND **JAMES D. BOYLE** (BS CIE '78).

## MITIN (CONT. FROM PG. 3)

Mitin helped develop UB's nanoeengineering program, creating one of the best equipped undergraduate nanoelectronics labs in the US, and establishing the interdisciplinary UB Center on Hybrid Nanodevices and Systems.

His work has helped shape understanding of nanoscale electron-phonon kinetics and transport, with broad-ranging applications in such areas as quantum sensing and information technologies, national security, medicine, and astrophysics.

In 2005, Mitin received a generous faculty development grant from the New York State Office of Science, Technology and Academic Research to conduct multidisciplinary research designed to develop and commercialize multifunctional

nanosensors and sensor networks to enhance health care, especially for remote applications, to improve detection of contaminants and to boost advances in quantum communication.

Mitin has authored over 430 professional publications; he has co-authored four textbooks and four monographs, and has delivered more than 70 invited talks.

His honors include the prestigious Humboldt Fellowship, which supported his work at the Max Planck Institute in Stuttgart, Germany. He also received the Exceptional Scholar Award for Sustained Achievement from UB.

Mitin earned a doctorate from the Institute of Semiconductors at the Ukrainian Academy of Sciences in Kiev, Ukraine.

## Wendling Celebration



The Engineering School held a commemorative reception for **Herbert Wendling** (BS ME '49). Founding faculty members and professors emeriti **Charles Fogel** (BA '35 MA '38 Physics) and **Howard Strauss** (MS '54 ME) joined Mrs. Faith Wendling, her family, and friends, in celebrating Mr. Wendling's achievements.

## UB Career Services: Here to Serve You

### Seeking high quality job candidates?

UB Engineering graduates are academically competitive and have the experience to know how to apply concepts to real world challenges. Contact the UB Career Services office to arrange on-campus interviews or to discuss creative ways to showcase your organization to current students. E-mail [jobs@buffalo.edu](mailto:jobs@buffalo.edu) for more information.

### Have advice for current college students?

The Meet-a-Mentor program is a win-win situation for students and alumni who choose to participate. Mentors have the flexibility to decide their level of involvement in the program and students are able to tap into alumni who can give insightful advice about their industry, the world of work, and job searching. Learn more about the program and how you can get involved by contacting Laura Godwin at [ljgodwin@buffalo.edu](mailto:ljudwin@buffalo.edu).

### Job hunting?

Career Services offer a wide variety of services to engineering and applied sciences alumni, including résumé/cover letter critiques, job search and interviewing tips, access to online job postings, résumé referral, on-campus interviewing, and individual career counseling appointments. Visit the Career Services office in 259 Capen Hall to speak with a counselor or call (716) 645-2231.

For more information about any of these programs, log on to [www.ub-careers.buffalo.edu](http://www.ub-careers.buffalo.edu).

## Engineering Alumni Association Tailgate



# Students

## Seismic Design Award



UB SEISMIC DESIGN TEAM IN NEW ORLEANS.

Institute's annual meeting. UB's team—Barbaros Cetiner, KarHim Chui, Cheuk Kwok, Melissa Norlund, Neda Stoeva and Robert Wurstner, constructed a 5-foot balsa wood scale model in a cost-effective earthquake-resistant frame.

Students representing CSEE and MCEER placed 3rd nationally in the Undergraduate Seismic Design Competition, held during the Earthquake Engineering Research

## Order of the Engineer



**Aerospace Engineers:** Ashlee Ludka, Carey Marrian, Melissa Orrange, Lauren Blas, Kurt Cavalieri, Thomas Fernekes, Clayton Studi, Douglas Thomas, Lukas Eckhart, Timothy Ames, Myrnl D'Arcangelo, Craig Owczarzak, Shajan A. Thomas (ME), Kurt W.R. Bessel.



**Civil Engineers:** Bassem S. Almuti, Charles B. McGuire, Chelsea L. Marshall, Gregory A. Ellett, John E. Prince, John F. Veith, Joseph B. Kasperski, Josiah B. Johnson, Kar Him Chiu, Matthew L. Alboum, Melissa E. Norlund, Michael A. Casullo, Neda T. Stoeva, Raymond J. Cestaro, Ricardo Euyoque, Robert D. Wurstner, Thomas R. Coyne, Trisha M. Miazga, Walter J. Zitz.



**Mechanical Engineers:** Amy M. Shroeder, Christopher A. Dentinger, Daniel Q. Wemmell, David S. Brugger, John R. Amend, Jr., Katherine M. Piepszy, Keith A. Cadogan, Lev N. Wechsler, Matthew F. Nichter, Melanie A. Lopez, Mulekezi L. Sebuharara, Sharon L. Greenfield, Steven P. Zippier, William J. Simon. Jacob E. Duffney, Corey D. Hmiel, Collin D. Mooney.



**Electrical Engineers:** Adam H. Kraus, Bobby D. Thai, Charles P. Hashem, Hojun Lee, Jenna L. Mertowski, Jesse E. Evers, John D. Hallauer, Jonathan D. Morabito, Joseph Iannucci, Jr., Ledum E. Nordee, Maria Bucukovska, Michael J. Dinezza, Michael P. Glienke, Min Gee Hong, Ryan W. McCombs, Sean W. Feltz, Shana J. Sessler, Victoria L. Kaiser, William A. Cuthbert. Dayton A. Lewis-Taylor (kneeling, in red shirt) is also in CSE Order of the Engineer.



## Engineer's Week 2008

UB Engineering would like to thank their corporate sponsor Amherst Systems Northrop Grumman for supporting Engineering Week. Congratulations to **Jessica James**, Engineering Club Coordinator, for organizing a wildly successful event.



BRIDGE BUILDING EVENT AT ENGINEER'S WEEK



THETA TAU RUBE GOLDBERG MACHINE DEMONSTRATION AT ENGINEER'S WEEK



**Industrial Engineers:** Amanda E. Stange, Colin J. Dooling, Dave Y. Chang, David J. Myers, Jamie L. Jackson, Khai Chiang Chung, Margaret I. Devendorf, Matthew J. Henchey, Noah H. Bednowitz, Rishard M. Hyde, Siti Isnaniah Mohd Hanaffi, Vinay K. Anipindi, Yus Adi Adzlee Mohd Yusof, Jasmine N. Worthy.

**Chemical Engineers:** Hiromi Yoshida, Kayte Lynn Ranieri, Sitisnaniah Mohdhanaffi, Abraham Ramos, Richard Galas, Analisa Sanchez, Krista Brown, Ellen Cardone, Ryan Tomko, Jessica James, Christina S. Yacooob.

## Tau Beta Pi Inducts New Members



TAU BETA PI, NEW YORK NU CHAPTER INDUCTED UNDERGRADUATE AND GRADUATE NEW MEMBERS IN ITS FALL INDUCTION CEREMONY. TAU BETA PI IS THE LARGEST AND OLDEST ENGINEERING HONOR SOCIETY, THE NATION'S SECOND-OLDEST HONOR SOCIETY, AND THE ONLY ENGINEERING HONOR SOCIETY REPRESENTING THE ENTIRE ENGINEERING PROFESSION.

### TBP NY Nu Chapter Induction Ceremony and 40th Anniversary Reunion



#### UNDERGRADUATE AND GRADUATE TAU BETA PI INDUCTEES

**Seniors:** Matthew Alboum, Christopher Beres, Bradley Cheetham, Thomas Doedline, Thomas Frank, Ka Kei Michael Iao, Josiah Johnson, Victoria Kaiser, Jude Kerlavage, Adam Kraus, David Myers, Katherine Piepszny, Chad Poe, Andrew Prok, Amy Schroeder, Jeffrey Selk, Robert Smith, Christina Yacooob.  
**Juniors:** Robert Colorafi, Ching-yang Vincent Hsu, Christopher Hughes, Aniruddha Joi, Paul Mongiovi, Jan Panteli, Thomas Piwtorak, Kevin Pulstulka, John Roach, Christopher Unangst, Jacob Weiner, Adriane Wotowa-Bergen.  
**Graduate Students:** Dayle Hodge, Abhirath Parikh, Raghvendra Singh, Roman Yampolskiy.



#### ALUMNI MEMBERS OF NY Nu WITH DEAN STENGER

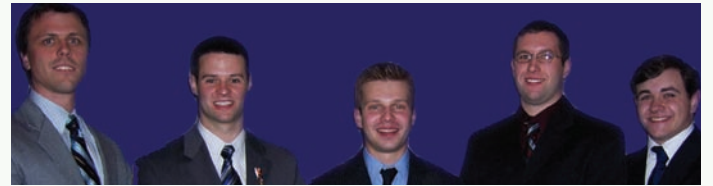


TAU BETA PI REUNION  
**NORM WEINGARTEN, A MEMBER OF THE FIRST INDUCTED CLASS, CURRENTLY WITH CALSPAN FLIGHT RESEARCH GROUP.**



#### SPONSORSHIP RECOGNITION

**TBPS KURT CAVALIERI (RIGHT) AND THOMAS HEIDINGER PRESENT AMHERST SYSTEMS-NORTHROP GRUMMAN REPS WITH SPONSORSHIP RECOGNITION PLAQUE**



#### 2007-2008 NY Nu TAU BETA PI OFFICERS

**MICHAEL RAUSCH, JOHN AMEND, JR., KURT CAVALIERI, DAVE BRUEGER, TOM HEIDINGER**



#### TAU BETA PI HONORS RECRUITMENT DINNER

**RECRUITERS FROM BABCOCK & WILCOX MEET CHRISTINA YACOOB AT THE DINNER.**



#### POLISHING THE BENT

### Engineers Without Borders Aiding Kigoma Residents in Tanzania



**MASAMICHI IKEDA (CSEE) (LEFT) WITH KIGOMA RESIDENT, RESEARCHES A LOCAL WATER WELL.**

The UB student club Engineers Without Borders (EWB), advised by CSEE Professor **Cemalettin Basaran** and mentored by **Michael Weyand, P.E.**, has teamed with the non-governmental organization (NGO) MIBOS to build a primary school for war orphans in the Kigoma region of Tanzania, and provide them with a stable source of clean water for the orphans and for 10,000 locals. The water source will also be used for irrigation.

### EE Capstone Students Present Their Work

EE Seniors displayed design successes resulting from EE494, taught by Research Professor **Douglas C. Hopkins's**, director, Electronic Power and Energy Research Laboratory; Assistant Director, UB Electronics Packaging Lab; and Institute Fellow, Energy Systems Institute.

EE 494 gives students experience in devising a problem, determining its solution, identifying the tasks included, and executing them against their own timeline.

Projects were: Reversing Automobile Video Monitoring by Team NRG; The Temperature Orb by At-A-Glance; The Bling Marqer Upgrade; Emergency Electric System by SmartTech; Kitchen Inventory Tracking Technology by xTrEAM; Witricity by JJR; Home Operation and Media Interface (HOMI) by Optimum Solutions; The Temperature Orb by At-A-Glance.

# Education

## Dean's Scholars Program



UB Engineering is attracting exceptional freshmen engineering students who have demonstrated academic promise with its new Dean's Scholar's Program. The program allows 20 highly talented incoming freshmen to receive a \$3,000 yearly tuition scholarship, individual advisement from the Dean during their freshman year, and an array of special seminars and social outings. Dean's Scholars have toured Northrop Grumman Am-



DEAN'S SCHOLARS AND STUDENT CLUB OFFICERS AFTER CRUISING ON THE *MISS BUFFALO*.

herst Systems (left) and the GM Power Train facility (right). They have also enjoyed outings including a cruise on the *Miss Buffalo* and an architectural tour of downtown Buffalo, and a Bison's game.



## UB's Mechanical Engineering in Vietnam

A top Vietnamese university, Nguyen University of Technology (TNUT), near Hanoi, has partnered with UB to teach the Engineering School's undergraduate mechanical engineering curriculum.

Under a Vietnamese government program, 14 of Vietnam's leading universities are eligible to apply for support from Vietnam's Ministry of Education and Technology to model specific degree programs after U.S. programs.

Vietnam selected only UB's program to model in the discipline of mechanical engineering.

### 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 <http://www.eng.buffalo.edu/EngiNet/> for class lists and more program information.

For more information, contact the EngiNet™ Office at 716/645-2768 x1106 or [enginet@eng.buffalo.edu](mailto:enginet@eng.buffalo.edu).

## New Ecosystems Program for Doctoral Students

UB Engineering is participating in a consortium that has been awarded an NSF Integrative Graduate Education and Research Traineeship (IGERT) program grant to train doctoral students to be future environmental experts, through an innovative integration of science, engineering, philosophy, and public policy. Named the Ecosystem Restoration through Interdisciplinary Exchange (ERIE), the program focuses on the ecological recovery of the Great Lakes and Western New York region.

**Alan Rabideau**, professor (CSEE) and ERIE director explained that one of the program's goals is to draw professional considerations across disciplines to tackle socially relevant problems with a greater wealth of information at hand.

Faculty from across UB and several other universities and colleges will cooperate in the program.



# Awards

## CBE Chair Kofke Receives Schoellkopf Award



**David A. Kofke**, UB Distinguished Professor and chair (CBE), received the 2007 Jacob F. Schoellkopf Award for his significant and lasting contributions to the field of applied thermodynamics. He was cited for his creative insight and advancement of applied thermodynamic theory through the development and application of molecular simulation methods that yield both qualitative and quantitative understanding of complex behaviors.

The award, given by the Western New York section of the American Chemical Society, honors a Niagara Frontier resident for outstanding work and service in the chemistry or chemical engineering fields.

Also recognized were Kofke's innovative and important pedagogical contributions to the undergraduate chemical engineering curriculum and his outstanding mentoring to undergraduate and graduate students.

A UB faculty member since 1989, Kofke received the SUNY Chancellor's Award for Excellence in Teaching, the SUNY Chancellor's Award for Excellence in Research and Creative Activities, and a UB Exceptional Scholar Award for Sustained Achievement.

### ABBREVIATIONS USED IN UB ENGINEERING NEWS

#### DEPARTMENTS

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

#### DEGREE DISCIPLINES

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

## Project Wins National Award



The Center for Industrial Effectiveness (TCIE) was awarded the University Economic Development Association's 2007 Award of Excellence in Workforce Development for a project with Saint Vincent Health Center (SVHC) in Erie, PA.

The annual Excellence in Economic Development Awards competition identifies outstanding efforts in assisting members' clients to become more globally competitive, more viable in their fields of expertise, or more capable of delivering services to the public sector.

TCIE won the award for instituting a 20-month training and mentoring program to instill a Lean Six Sigma problem-solving culture. An emergency department process modeling project was conducted by UB Professor **Li Lin** (ISE).

Lean Six trainers worked extensively with SVHC project leaders to identify critical-to-quality metrics and guide 16 Lean Six Sigma projects. SVHC estimated that overall cost savings for the program have already reached \$540,000.

UB Engineering's TCIE program links UB's technical resources to virtually every industry reflected in the region's business community, fostering partnerships and managing diverse projects. For more information about TCIE please visit <http://www.tcie.buffalo.edu/>.

### SRIHARI (CONT. FROM PG. 15)

so many man-hours, grades for exams taken in January may take several months to report.

The program's speed—literally seconds per essay—is the most obvious advantage of the computational tool.

The UB team's software was 'trained' to evaluate essays based on six specific writing traits: ideas, organization, word choice, sentence structure, voice and conventions like spelling, usage and punctuation.

Three hundred essays were scored by human

against which 96 computer-scored essays were judged. Essays were graded on a scale of 0-6. The computer program graded the essays within one point of those assigned by human examiners in 70 percent of tests.

In different but related work, Srihari published results in the *Journal of Forensic Identification* showing that there are differences between the fingerprints of twins, whether fraternal or identical.

Srihari will also chair a computational forensics workshop that will attract international forensics researchers.

### PE Contact Hours for License Renewal

UB Engineering is pleased to be recognized as an approved NYS provider site for professional engineer continuing education. UB Engineering provides PE Continuing Education options in three forms:

1. Graduate courses via our distance learning system EngiNet™
2. Special short courses
3. Departmental seminars

For further information, registration, or particular company needs, contact the EngiNet™ office at (716) 645-2768 x1132 or [enginnet@eng.buffalo.edu](mailto:enginnet@eng.buffalo.edu).

# Faculty & Staff

## UB Engineering Welcomes New Faculty



**Chang Wen Chen**, Professor, Computer Science and Engineering received his PhD from the University of Illinois at Urbana-Champaign. His experience includes the Allen S. Henry Distinguished Professorship in Electrical and Computer Engineering at Florida Institute of Technology. Some of his research interests have been image and video coding, processing, and analysis, reliable and secure multimedia streaming over P2P, wireless and ad hoc networks, mobile multimedia systems, and medical

image analysis and biomedical information processing, and collaborative signal processing and data aggregation for sensor networks.

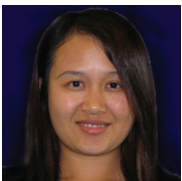


**Chong Cheng**, Assistant Professor, Chemical and Biological Engineering, received his PhD in Chemistry from City University of New York. Before joining UB's faculty, he was a postdoctoral research associate at Washington University, St. Louis. His primary research is in nanoparticle design for drug delivery, with special focus on biodegradable functional polymers and nanostructures; new drug delivery systems; and synthetic materials

for tissue engineering.



**Jason Corso**, Assistant Professor, Computer Science and Engineering, received his PhD in Computer Science from The Johns Hopkins University and worked as a postdoctoral research fellow in the Medical Imaging Informatics group at the University of California, Los Angeles (UCLA) and in the Laboratory of Neuro Imaging, Center for Computational Biology, UCLA. He was also closely affiliated with the Center for Imaging and Vision Science in the Department of Statistics at UCLA. His research interests include computer and medical vision, computational biomedicine, machine intelligence, statistical learning, perceptual interfaces, and smart environments.



**Maoyi Huang**, Research Assistant Professor, Civil, Structural and Environmental Engineering received a Ph.D. degree in Civil and Environmental Engineering from the University of California, Berkeley. She was a postdoctoral research associate of the Department of Global Ecology at the Carnegie Institution for Science, Stanford, California. Her work involves the modeling of carbon cycle processes in the context of land-use and climate change with coupled carbon-climate-satellite modeling approaches. Two of her focus areas are the Amazon and Hawaii. Her research interests include surface water hydrology; land surface modeling; ecosystem modeling; and ecohydrology.



**Natalia Litchinitser**, Assistant Professor, Electrical Engineering received her PhD in Electrical Engineering and Computer Science from Illinois Institute of Technology. Before joining UB, she was an assistant research scientist in Electrical Engineering and Computer Science at Univ. of Michigan's School of Engineering. She is working in the research field of photonic materials, particularly in the study of nonlinear optics in metamaterials.

CONT. ON PG. 11

## Faculty News

**Rajan Batta**, associate dean for graduate studies (School of Engineering) and professor (ISE), has received the 2008 David E. Baker Distinguished Research award, the highest research award from the Institute of Industrial Engineers (IIE), given for a lifetime of significant research accomplishments. He has also been elected the Vice President of Publications, IIE.

**Ann Bisantz**, associate professor (ISE), has received *Buffalo First's* 40 under 40 award, for her exceptional professional success and community involvement in the field of education. The award recognizes Buffalo's citizens under 40 years old.

**Michael F. Buckley** (BS EE 1978), lecturer (CSE), has been awarded a grant from Microsoft to develop a course and web-community on "socially relevant computing," a topic he has pioneered. The site will be hosted as part of Microsoft's website and maintained by UB.

Also, a device Buckley developed with CSE lecturer **Kris Schindler** and a group of students has reached the market. Applied Sciences Group Inc. (ASG) is in partnership with Talker Inc. (a UB spin-off) to release aid devices for speech motor disabilities. The Talker is a touch-screen computer allowing users to speak through its synthetic voice. The device is distinct from others in its ability to predict and complete phrases that users input.

**Alexander Cartwright**, professor (EE) has been appointed UB Vice Provost for Strategic Initiatives. Cartwright's responsibilities will include building a research infrastructure and collaborative efforts across multiple strategic strengths, building special UB initiatives, ensuring continued advancement of the strategic strength initiatives, liaising between strategic strengths and relevant vice presidents and vice provosts, coordinating common activities for strategic strengths, and establishing and assisting in implementing new strategic initiatives.

CONT. ON PG. 11

## NEW FACULTY (CONTINUED FROM PAGE 10)



**Tommaso Melodia**, Assistant Professor, Electrical Engineering, received a PhD in Electrical and Computer Engineering from the Georgia Institute of Technology in June 2007 after working at the Broadband and Wireless Networking Laboratory (BWN-Lab). He also received degrees in Telecommunications Engineering from the University of Rome, La Sapienza, Italy. His research interests cover modeling and optimization of ad hoc and sensor networks; wireless multimedia sensor networks; underwater acoustic sensor networks; cognitive radio/dynamic spectrum access networks; wireless sensor and actor networks; and wireless mesh networks.



**Atri Rudra**, Assistant Professor, Computer Science and Engineering received his PhD from the University of Washington, Seattle in Computer Science and Engineering. His work experience includes time at the IBM India Research Lab in New Delhi, India. His research field is in approximate solution algorithms.



**Gottfried Strasser**, Professor, Electrical Engineering received a PhD from the University of Innsbruck, Austria. Before coming to UB, he was an associate professor at the Institute of Solid State Electronics, Technical University of Vienna. His research interests include semiconductor electronics, optoelectronics, and nanotechnology of advanced materials; epitaxial growth and devices processing.



**Esther Takeuchi**, Greatbatch Professor of Advanced Power Sources, Chemical and Biological Engineering and Electrical Engineering, received her PhD in Organic Chemistry from Ohio State University. She is a member of the National Academy of Engineering. Her experience includes several positions in development and research at Greatbatch, Inc. Her research interests include lithium battery cells for implantable applications and development of power sources for implantable cardiac defibrillators.



**Changxu Wu**, Assistant Professor, Industrial and Systems Engineering, received his PhD in Industrial and Operations Engineering from the University of Michigan, Ann Arbor. His recent research has involved new software tools for modeling human performance and workload. The software is based on a psychological theory developed for modeling human performance and mental workload in single and dual task situations.

### KOFFAS (CONT. FROM PG. 14)

biosynthesis strategies may be adapted for other commercially significant classes of compounds like vitamins and anti-parasitic drugs.

Beyond efficiency, microbial biosynthesis offers several benefits. It can reduce or eliminate the need for undesirable elements like toxic heavy metal catalysts and dangerous solvents in the production of specialty chemicals. Also, the natural enzymes the UB researchers are using can facilitate chemical reactions that are difficult to accomplish with conventional chemistry.

## FACULTY NEWS (CONTINUED FROM PAGE 10)

**Andre Filiatrault**, professor (CSEE), Outstanding Researcher/Scholar, SUNY Research Foundation. The recognition is for contributions to a field or discipline; significant externally funded research; a significant number of publications; inventions patented or licensed; honors or other recognition received from peers.

**Michael Lockett**, adjunct professor (CBE) was elected to the National Academy of Engineering for "contributions to the theory and practice of distillation." Lockett joined CBE in March of 2007 after 25 years with Praxair as a Corporate Fellow.

**Gilberto Mosqueda**, assistant professor (CSEE), Rising Star, SUNY Research Foundation. The recognition is for promise based on getting external funding for the first time; getting a first patent or license; getting published for the first time.

**Puneet Singla**, assistant professor (MAE), had his paper entitled: The Partition of Unity Finite Element Approach to the Stationary Fokker-Planck Equation selected as best paper of the AIAA/AAS Astrodynamics Specialists conference in Keystone, Colorado.

**Esther Takeuchi**, professor (CBE/EE), has been selected as an inaugural winner of the Astellas USA Foundation Award, administered by the American Chemical Society (ACS). The award identifies individuals or teams who exemplify the criterion of having significantly contributed to scientific research that improved public health through their contributions in the chemical and related sciences. There is a monetary award and the opportunity to speak at a half-day symposium during the ACS National Meeting.

**A. Scott Weber**, professor and chair (CSEE), has received a Boy Scouts' Good Scout award, for his years of exceptional service.

**WE WARMLY REMEMBER JOAN KURTZ, SENIOR ACADEMIC ADVISOR, WHO WENT THE EXTRA MILE FOR STUDENTS.**

## Science Fiction Becoming Science Fact



VENU GOVINDARAJU SPEARHEADS CUTTING-EDGE RESEARCH AT CUBS, CEDAR

**Venu Govindaraju**, professor, CSE, is founding director of the Center for Unified Biometrics and Sensors (CUBS), and associate director of the Center of Excellence for Document Analysis and Recognition (CEDAR).

Since earning master's and doctoral degrees in computer science from UB, Govindaraju has been principal or co-principal investigator on research projects funded by sources from Army Research Labs, Office of the Director of Central Intelligence, National Security Agency, National Science Foundation (NSF), the John R. Oishei Foundation, and Google.

Much of Govindaraju's research relates to biometrics, which he describes as "the science of identifying people." Govindaraju says

CUBS looks at different aspects of biometrics: facial, voice, fingerprint, iris, and gait recognition; and odor detection and hand geometry.

Biometrics renders PINS and passwords useless because high-tech cameras, scanners, or smart cards ensure authentication based on person-specific characteristics—physical or behavioral.

Govindaraju is also a principal researcher in a collaborative project with UB experts in electrical engineering and communication to train computers to detect deceit based on "micro-expressions of the face." The project seeks to eliminate such problems as bias, fatigue, and other human errors from this emerging deceit hot-spot detection method. "We're putting together computer algorithms so that this same thing can be done by a program." The project gains support from the Department of Defense and NSF.

Govindaraju is also collaborating with UB colleagues to create algorithms that comprehend handwritten text in Arabic, English, Hindi and Sanskrit—he is fluent in the latter three.

UB alumni who've contributed to CUBS projects have gone on to careers at such companies as IBM, Amazon, Motorola and Qualcomm, he says.

## How Vulnerable Is New York?

A two-day conference in Manhattan, organized by Protect New York and sponsored by the New York State Office of Homeland Security and UB's MCEER—From Earthquake Engineering to Extreme Events, looked at protecting New York City and the State from another terrorist attack or major disaster.

The conference promoted the application of science and rigorous reasoning in public policy, journalism, and business.

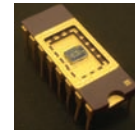
**Michel Bruneau**, professor (CSEE) led a session on securing critical state infrastructures. Bruneau was part of a team of UB and MCEER engineers investigating buildings damaged near Ground Zero after 9/11.

Mark Frank, associate professor (Communication) and **Venu Govindaraju**, professor (CSE), and director, UB's Center for Uniform Biometrics and Sensors (CUBS), discussed how biometrics can gauge behavior.

UB has identified "mitigation and response to extreme events" as a UB 2020 focus. UB researchers across academic disciplines are working collaboratively on ways to reduce risks from natural and human-caused hazards.

**More information on the conference is available at <http://www.protectnewyork.org>.**

## UB Engineers Can Detect An Electron's Single Spin



A SEMICONDUCTOR DEVELOPED BY UB ENGINEERS PROVIDES A NOVEL WAY TO TRAP, DETECT AND MANIPULATE ELECTRON SPIN.

UB engineers have developed a device that traps, detects, and manipulates the single spin of an electron, overcoming major obstacles in spintronics and spin-based quantum computing.

Funded by the U.S. Department of Energy and published online in *Physical Review Letters*, the research brings closer to reality electronic devices based on the use of single spins and their promise of low-power/high-performance computing.

Principal investigator **Jonathan P. Bird**, professor (EE), noted that the system can trap and detect spin at temperatures of about 20 degrees Kelvin, a higher and more feasible temperature for developing viable technology than other systems that have been tested.

Co-authors are **Youngsoo Yoon**, doctoral student (EE); **L. Mourkh** of Queens College and the College of Staten Island (both CUNY); **T. Morimoto**, **N. Aoki** and **Y. Ochiai** of Chiba University, Japan; and **J. L. Reno** of Sandia National Laboratories.

## Are Meds in Our Drinking Water?

An Associated Press study found traces of medicines such as anti-depressants, antibiotics, and sex hormones in nearly a third of 62 major city water systems it checked, raising questions of possible health concerns.

**James Jensen**, professor (CSEE), explained that any time a pill is taken, it will be digested and ultimately excreted into the sewage system. Then it's on to wastewater treatment plants where treated water flows into lakes, rivers, and reservoirs and finally to drinking water plants.

**Scott Weber**, professor and chair, (CSEE) said that he's researching how to operate wastewater treatment plants to mitigate the effect of medicines in the public drinking supply. "We don't know whether there's a direct link between these chemicals and absolute health risk," said Weber.

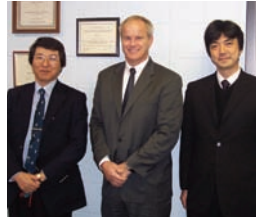
## Redesigning Tracking Tools May Have Unintended Consequences

UB researchers presented findings at the Human Factors and Ergonomics Society revealing that proper design of computational tools is critical if they will be used successfully in patient-care settings. The researchers studied the effect of electronic technologies, which nationally are replacing traditional, dry-erase patient status boards, revealing that manual whiteboards allowed innate flexibility in communications between health-care providers and other emergency department staff.

Associate professor **Ann Bisantz** (ISE), a co-investigator, noted, "Without that public display, providers have to sit down at the computer and check it, which can add time or reduce awareness."

Bisantz said modifications based on user data, such as the information in this study, can help in the design of technology to best support user needs.

## UB Engineering Hosts International Partners



MASAKI NAKAGAWA, DEAN HARVEY STENGER JR., AND KAZUHIRO CHIBA

As UB Engineering and Tokyo University of Agriculture and Technology (TUAT) are pursuing joint research opportunities, UB hosted TUAT visitors Masaki Nakagawa, computer science professor and director, Center for Innovation and Intellectual Property (CIIP), and Kazuhiro Chiba, CIIP vice director and vice dean of United Graduate School of Agricultural Science, TUAT. Their UB tour included the Structural Engineering and Earthquake Simulation Laboratory (SEESL), the Center for Unified Biometrics and Sensors (CUBS), and the Center for Excellence for Document Analysis and Recognition (CEDAR).

### Virtual Surgery

**Thenkurussi Kesavadas**, associate professor (MAE), is working with Roswell Park's Drs. James Mohler and Khursid Guru on technology to be used in simulating robotic surgery. The robotic surgeon allows doctors to perform surgeries with more precision and greater ease of healing, but represents a major shift for traditionally trained surgeons—in method, and in that the doctor performs the surgery at a distance from the patient, without the benefit of the sense of touch.

To ease the transition, the team is developing a simulation device to train doctors to use these devices in a risk-free environment. The group is also working to implement tactile sensations into the virtual training process. The group would like to commercialize the tactile technology for inclusion in all new surgical robots. Until then, robotic surgeons must gauge what is being touched by their sense of sight

## Hospital Room Shook Up in First Seismic Experiment of Its Kind



DUMMY "BEN" ON GURNEY IN TYPICALLY-EQUIPPED "HOSPITAL ROOM".

The NSF-funded Nonstructural Components Simulator (NCS) had an initial public demonstration at UB's Structural Engineering and Earthquake Simulation Laboratory (SEESL), providing engineers with a first realistic, experimental method of simulating and evaluating how earthquakes damage buildings.

The NCS is in a class by itself as a seismic testing apparatus for nonstructural components, the world's only system capable of simulating how a building's contents and distributed systems react to quake-like conditions, said **Gilberto Mosqueda**, assistant professor (CSEE), lead designer and builder of the facility, with **Rodrigo Retamales**, a CSEE doctoral student.

UB is part of a consortium participating in a five-year, \$3.6 million NSF NEES Grand Challenge grant to investigate the performance of non-structural systems during earthquakes.

To test the new simulator, UB engineers and SEESL technicians constructed a fully equipped, upper-story composite hospital measuring 10-by 12-feet, outfitted with typical systems, such as sprinklers, medical gas lines, ceiling-mounted lamps, and wall-mounted computer monitors.

The experiment mimicked two seismic levels of intensity. During the lower intensity, "design basis" test, UB engineers were surprised to see EKG monitors, mounted to current California standards, fall from their pedestals. The maximum considered earthquake test caused a few ceiling tiles to fall. Over 100 earthquake engineers and national industry representatives attended.

The demonstration can be seen at: [http://nees.buffalo.edu/projects/ncs/webcast/wmv/demo4\\_S.wmv](http://nees.buffalo.edu/projects/ncs/webcast/wmv/demo4_S.wmv).

## CE Discovery Controls Particle Motion

**Dr. Jeffrey Errington**, associate professor (CBE), and Director of Undergraduate Studies, contributed to a research discovery in controlling fluid particle motion through tiny channels, potentially aiding the development of micro- and nano-scale technologies such as drug delivery devices, chemical and biological sensors, and components for miniaturized biological "lab-on-a-chip" applications.

The research, which appears in *Physical Review Letters*, shows that particle motion is strongly linked to how the particles arrange themselves in a channel, in much the same way that traffic proceeds smoothly with lanes for cars on the highway or children in hallways. A similar principle applies for the motion of fluid particles in narrow channels; fluid particles move past one another more easily if they first form "layers" aligned with the boundaries of the channels.

## Virtual Frog Dissection



### V-FROG ALLOWS COMPUTER DISSECTIONS

A spin-off of UB's Virtual Reality Laboratory (VRL), Tactus Technologies, has developed and marketed V-Frog, the world's first virtual-reality-based frog-dissection software.

With a mouse and PC, students can "pick up" a scalpel, cut V-Frog's skin, and explore its internal organs. The software is designed for grades 7–12, and AP biology.

Tactus president and chief scientist **Kevin P. Chugh** (PhD MAE '01) explained, "You can go through the entire alimentary canal, using the endoscopic function—something you could never do with a real frog." V-Frog allows exploration of nerves, blood vessels, and close observation of the brain, a beating heart, and digestion; it can also compare amphibian physiology to that of other organisms.

V-Frog frees students from a lab environment, while instructors can also model a dissection for repeated classroom projection. V-Frog is also more economical than using real frogs.

Educators, legislators, students, and the U.S. Humane Society support virtual-reality frog dissection because it ends exposure to chemicals and alleviates specimen or ecosystem harm.

The research and development of V-Frog drew upon 120 sources, including **Kesh Kesavadas**, associate professor (ME), chief technology officer for Tactus Technologies, VRL director, and Tactus' **James Mayrose** (BS AE '89, MS ME '93, PhD ME '00) and UB graduate James Lalley.

## BioBlower To Protect Against Biological Attacks



UB spin-off company Buffalo BioBlower Technologies LLC has developed a powerful air sterilization technology that has killed every biological agent meeting its challenge, including airborne spores, viruses and bacteria in independent tests conducted for the U.S. Department of Defense. U.S. Rep. Louise M. Slaughter secured the funding from the Department of Defense.

With these positive results, BioBlower may soon protect soldiers from biological attack, according to James F. Garvey, professor (Chemistry), and co-founder and chief technical officer of Buffalo BioBlower Technologies with **John Lordi**, chief executive officer, and research professor (ME). **James D. Felske** and **Joseph C. Mollendorf**, both professors (ME), are co-inventors with Garvey and Lordi.

A U.S. patent will issue soon covering the BioBlower technology.

BIOBLOWER, SHOWN HERE WITH DEVELOPERS (FROM LEFT) JAMES GARVEY AND JOHN LORDI, IS MOVING CLOSER TO BEING USED TO PROTECT SOLDIERS FROM BIOLOGICAL ATTACK.

## Mattheos A. G. Koffas

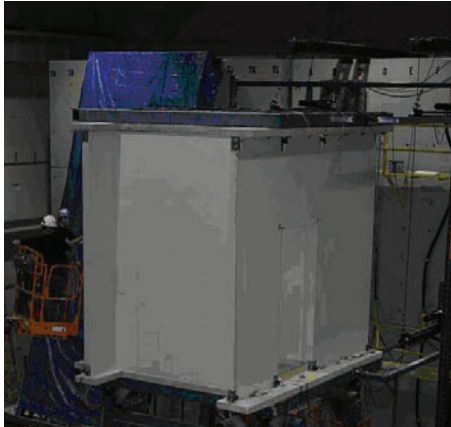


A UB research team led by **Mattheos A. G. Koffas**, assistant professor (CBE), is collaborating with First Wave Technologies Inc, a tech development company based in UB's New York State Center of Excellence in Bioinformatics and Life Sciences. First Wave was awarded a competitive NSF Phase I Small Business Innovation Research (SBIR) grant to research efficiency in producing innovative pharmaceutical compounds with microbial biosynthesis, which may radically transform their commercial production methods.

The researchers are attempting to "train" microbial systems to produce high yields of chemicals. In *Applied & Environmental Microbiology*, they reported successfully producing a higher yield of flavonoids than other efforts had produced. Flavonoids are used to fight aging, cancer, and obesity. Microbial

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## UB Engineers Find Airport Security Speeds Up For Laptops



An interdisciplinary group of UB ISE researchers have demonstrated that long lines cause airport security screeners to speed up inspection, but only for laptops. The group included **Colin G. Drury**, SUNY Distinguished Professor emeritus (ISE), an expert on the speed-accuracy tradeoff. ISE co-authors were **Rajan Batta**, professor, **Li Lin**, professor, and **Clara V. Marin**, doctoral candidate.

The NSF-funded research was presented at the Human Factors and Ergonomics Society's 51st annual meeting in Baltimore, and is in press with *OR Insight* journal.

The findings also may be relevant in settings from supermarkets to tollbooths and border crossings, and have implications for the ISE subfield called queuing theory, which, until now, has not specifically examined how servers' behavior may change when lines get very long.

Drury said that, in situations where it is critical that servers not speed up, it may be desirable to conceal the line's length from servers, while in other situations companies may want servers to be fully cognizant of queue length.

## Distinguished Professor Srihari, CSE, on Research Projects

A UB research team led by **Sargur N. Srihari**, SUNY Distinguished Professor, (CSE), director, UB's Center of Excellence in Document Analysis and Recognition (CEDAR), received an NSF award to develop new algorithms that may allow computers to grade children's handwritten essays.

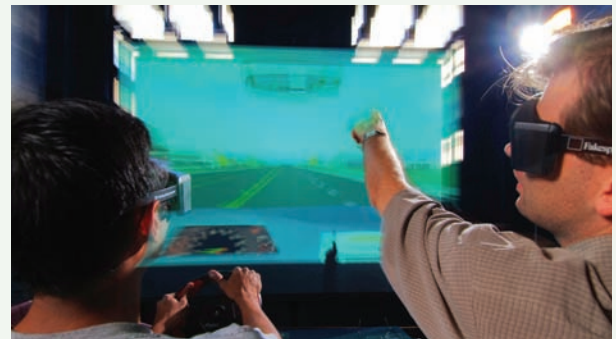
Srihari and James Collins, professor of Learning and Instruction (LI), are working with Janina Brutt-Griffler, associate professor, (LI); **Rohini Srihari**, professor, (CSE); **Harish Srinivasan**, doctoral candidate, CEDAR, and **Shravya Shetty**, former CEDAR graduate student, now employed by Google.

The UB research addresses two significant artificial intelligence problems, said Srihari, "We wanted to see whether automated handwriting recognition capabilities can be used to read children's handwriting, which is essentially uncharted territory," he said. The researchers also wanted to learn whether computers could score essays like human examiners.

Handwritten essays are an important part of standardized reading comprehension tests given in every state. But because grading them requires

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## The Motion Simulation Laboratory



The New York State Center for Engineering Design and Industrial Innovation's (NYSCEDI) Motion Simulation Laboratory is now open in 106 Furnas Hall after an expansion and renovation. The lab is one of a handful of similar facilities nationwide and allows simulation in training, design, and other applications in areas including automotive, aircraft/spacecraft, and large industrial equipment, minus the expense of building full-scale prototypes.

## Gambling Against Online Fraud



Web-based casinos suffer phishing attacks in which players' account details are stolen through fraudulent emails. In a successful attack, the victim's money is lost when the phishers and their accomplices gamble it away. Other crooks use software agents, or bots, which play automatically, often beating all but the best players.

To ensure a human, and the correct human at that, is playing, **Roman Yampolskiy**, student (CSE) and **Venu Govindaraju**, professor, (CSE), founding director, Center for Unified Biometrics and Sensors (CUBS), and associate director, Center for Excellence for Document Analysis and Recognition (CEDAR), have written software that monitors player's tendencies from betting quantity and frequency, to types of bets and folds. This information is bundled into a measure of the player's "gambling DNA" that can be used to confirm identity. Any deviation from that behavior is considered suspicious. After just an hour of play, Yampolskiy says, the software can authenticate players with 80 per cent accuracy—which improves the longer they play.

## Dean's Advisory Council Meeting



(R TO L): RUSSELL L. AGRUSA, LESTER A. GERHARDT, DEAN HARVEY STENGER, EPHRAHIM GARCIA (BLUE TIE), MICHAEL CADIGAN (PINK SHIRT). NEXT ROW, R TO L BEHIND STENGER: LEE RUNK (YELLOW TIE), MARIA LEHMAN, KITTY PILARZ. R LEFT BEHIND LEE RUNK: RAMJI L. GUPTA, TIMOTHY J. KLEIN, THOMAS LYNCH, DENNIS ELSENBECK, DOUGLAS J. HILLMAN.

Dean Stenger briefed members on the state of the school, faculty and staff news, and findings on school numbers including: enrollments, survey responses, and research expenditures. He also welcomed returning and new members. Emphasis fell upon the school's charge and organization, and addressed a new approach to problem-solving oriented toward new ideas, represented by four focus areas: student quality, quantity and representation; new markets for education; advancing reputation and resources; and productivity, excellence and growth.

After breaking out into teams and hearing subsequent recommendations, members were invited to visit the dedication celebration of the new Nonstructural Components Simulator (NCS) lab. Members who wished to attend were President Simpson's guests at the UB Bulls game the following day.

NOT PICTURED: NIRUP KRISHNAMURTHY; STEVEN L. LERNER; HORMOZ MANSOURI; SCOTT D. STEVENS; JOHN P. STOPHER; RAVINDER BANSAL; GINA B. HAMMOND; JOHN PILITSIS; JOHN STANFILL; THOMAS STEWART; EDWARD O. WATTS; ANN WEGRZYN

### UB Engineering Dean's Advisory Council

#### We welcome first-time DAC members:

Ravinder Bansal	John Stanfill
Gina B. Hammond*	Thomas Stewart
John Pilitsis*	Edward O. Watts
	Ann Wegrzyn*

#### Returning are:

Russell L. Agrusa*	Steven L. Lerner
Michael Cadigan*	Thomas Lynch*
Dennis Elsenbeck*	Hormoz Mansouri*
Ephrahim Garcia*	Kitty Pilarz*
Lester A. Gerhardt*	Lee Runk*
Ramji L. Gupta*	Scott D. Stevens*
Douglas J. Hillman*	John P. Stopher*

Timothy J. Klein*	
Nirup Krishnamurthy*	<i>*Denotes UB Engineering Alumni</i>
Maria Lehman*	

## Takeuchi Named to Greatbatch Professorship



A generous financial gift from Greatbatch, Inc. to the Engineering School will support the CBE and EE departments' work through the Greatbatch Professorship in Power Sources Research. **Esther S. Takeuchi**, professor, (CBE/EE), often cited as the woman awarded the most U.S. patents—134—has been named to the professorship. Before joining the UB faculty, Takeuchi worked at Greatbatch, Inc. for 22 years in a variety of research and development positions, most recently as chief scientist. Takeuchi is one of just 100 women elected to the National Academy of Engineering.

The Greatbatch gift will support Takeuchi's work in the areas of power and biomedical research. She is renowned for her work in developing tiny batteries that have helped make implantable cardiac pacemakers, defibrillators, and other medical devices a life-saving reality for millions.

Greatbatch, Inc., located in Clarence, is a worldwide leader in the design, development, and manufacture of critical components for implantable medical devices and other demanding applications.

Tom Hook, president and CEO said, "We look forward to growing our partnership with UB during this program."



## Praxair Celebration



DEAN'S ADVISORY COUNCIL MEMBER LERNER WITH KARWAN (LEFT), UPON ANNOUNCING THE PROFESSORSHIP.

A corporate reception honored contributions by Praxair Inc., a long-standing partner of UB Engineering, and leading provider of industrial gases.

**Mark H. Karwan** (ISE) was named the first Praxair Professor in Operations Research. Karwan's 30-year service included 12 years as UB Engineering Dean, from 1994–2006.

In addition, UB Vice President for External Affairs, Marsha Henderson, presented a certificate of appreciation to Praxair Senior Vice President and Chief Technology Officer Steven Lerner, for its long-term partnership with the school.



(L TO R:) DEAN STENGER, STEVEN LERNER, MARSHA HENDERSON, PROFESSOR KARWAN, DAN YANKOWSKI, PRAXAIR VICE PRESIDENT OF GLOBAL SUPPLY SYSTEMS



DEAN STENGER THANKS PRAXAIR'S DAN YANKOWSKI.

The reception also recognized Praxair's recent contribution to the Dean's Scholarship program. Scholarship money will go towards attracting the most promising candidates from each year's applicant pool.

## Donor Relations Reception



(L TO R): MICHAEL PRATT WITH EVENT CO-HOSTS RAVI BANSAL AND THOMAS LYNCH

Dean's Advisory Council members Ravi Bansal and Tom Lynch hosted a reception for Engineering School supporters on behalf of the School of Engineering. The reception featured UB Engineering's ambitious growth plans, which include a new engineering building, now in its final planning stages.

Speaking at the event were **Provost Tripathi**, **Dean Stenger**, Perkins + Will architects, and Dean's Council members Tom Lynch and Ravi Bansal.

**UB Engineering wishes to thank its donors.**

Please visit:

**[http://www.eng.buffalo.edu/  
AlumniFriendsDonors/AnnualGivingReport/](http://www.eng.buffalo.edu/AlumniFriendsDonors/AnnualGivingReport/)**  
for the 2006-2007 Donor Honor Roll.

## Edmund Hayes Society



**Thomas Albrechcinski**, NEES project administrator, hosted a tour of UB's Structural Engineering and Earthquake Simulation Laboratory (SEESL) for Edmund Hayes Society members, who have made bequests and deferred gifts to UB through UB's Office of Planned Giving. Learn more about continuing your legacy with the School of Engineering at <http://giving.buffalo.edu>.

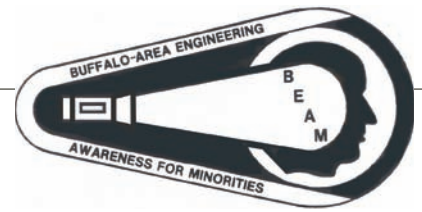
If you're energized by UB Engineering's excellence, and wish to participate in the school's dynamic and continued growth, please consider a gift to the Engineering School. The Engineering Development Staff can be contacted anytime at 1.888.205.2609 or directly, below.

Thank you! We appreciate your involvement.

Tim Siderakis, Assistant Dean & Senior Director: [tsiderak@buffalo.edu](mailto:tsiderak@buffalo.edu)  
716.645.2768, ext.1129

Michael Madonia, Director: [mmadonia@buffalo.edu](mailto:mmadonia@buffalo.edu),  
716.645.2768, ext.1122

Jenine Trzewieczynski, Assistant Director: [jt87@buffalo.edu](mailto:jt87@buffalo.edu)  
716.645.2768, ext. 1154



# Pre-College

## Buffalo-Area Engineering Awareness for Minorities

### James Legge

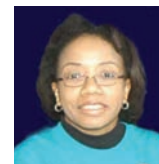
BEAM's second executive director, **James Legge Sr.**, 80, died after a long illness. Born in Fort Scott, Kansas, Mr. Legge moved to Buffalo in the 1930s; graduated from Technical H.S., and had a long and productive engineering career in the Buffalo area. Legge was an active member and former president of the Colored Musicians Club. He played bass with the Johnny Gibson Group, the CQ Price Band, and the Art Anderson Band. James Legge did much to expand the educational programs and company support of BEAM.

## Tech Savvy



TECH SAVVY STUDENT PARTICIPANTS

UB Engineering proudly supported Tech Savvy, organized by the Buffalo chapter of the American Association of University Women (AAUW) with UB Engineering alumni **Tamara E. Brown** (MEng CE 2003). About 350 students and 200 parents attended. Tech Savvy encourages sixth- to ninth-grade women to explore science, engineering, math, and technology careers. Featured were 20



fun hands-on student workshops and adult workshops for parents and teachers.

ALUMNA AND TECH SAVVY ORGANIZER, TAMARA BROWN

### BEAM Annual Awards Breakfast

This year's breakfast celebrated BEAM's mission, "Preparing Our Children for the Challenges of the 21st Century," and honored its dedicated volunteers for their years of service to students, schools, and the community. The table sponsors were Buffalo Public Schools, Career and Tech Ed.; DuPont; Fisher-Price; General Motors Powertrain; LP Ciminelli; Moog, Inc.; Watts Engineers & Architects; Annual Reports Printing Cannon Design; Corian Frames DuPont. The welcome was given by Tyra Johnson of Ciminelli; the invocation, by Jason Jones, National Grid. The breakfast was made by Emerson Culinary Arts Program students. The guest speaker was Dexter Johnson (BS AE '87, MS ME '89, PhD ME '95), NAFEP Fellow II, Chief, Structural Systems Dynamics Branch, NASA Glenn Research Center at Lewis Field. Johnson was BEAM's first PhD. The presentation of officers included Carmen Vella (ret.); and the award was presented by **Marilyn Helenbrook**, BEAM E.D., with Arthur J. McKinnon, Jr., Moog, Inc.. A benediction was given by Milton Cook.

### Future City



**Dr. Deborah Chung**, National Grid Chair Professor, (MAE), made a presentation to students of Nativity of Our Lord School (Orchard Park) participating in the Future City competition. The competition involves designing

a city on SIMcity software, writing an essay on nanotechnology and monitoring structural systems, building a scale model of the city, and presenting it to a panel of engineers. Dr. Chung's Powerpoint, on ways to improve city infrastructures, including safer bridge travel, has been used by other schools including Oakland Public Schools (NJ) and Buffalo's Westminster Community School. The presentation is available for all interested schools. Please visit: <http://www.eng.buffalo.edu/futurecities/2007/infrastructure/>.

**BEAM** is a cooperative educational enrichment program that prepares inner city, minority, female and other under-represented students for careers in science, engineering, and technology. We encourage you to get involved by volunteering or recommending students for our programs.

BEAM's summer program for students in grades 7-12 is hosted at several area colleges and introduces students to opportunities for future study and careers.

BEAM was founded in 1982 by a consortium of the UB School of Engineering, Linde-Union Carbide (now Praxair, Inc.), Omega Phi Phi Fraternity and the Buffalo Public Schools.

Funding is made possible through the generous support of companies, educational institutions, community organizations and individuals.

Information on BEAM programs may be obtained through: **Marilyn Helenbrook**, Executive Director, [helenbrk@eng.buffalo.edu](mailto:helenbrk@eng.buffalo.edu), 716.645.3066.

# Class Notes

## 1950s

**Gordon Elwell**, BS ME '50, was appointed US Air Force Reserve commander, 911th Airlift Wing in Moon, Penn. He served Ramstein Air Base, Germany as the Air Force Reserve adviser to the commander of the US Air Forces in Europe.

## 1970s

**Michael Resetarits**, BS CE '73, joined Genesee Community College as an instructor of engineering, mathematics, and science.



**Dennis Schrader**, MS IE '79, appointed deputy administrator for national preparedness of Federal Emergency Management Agency (FEMA), by President Bush. Schrader had served as Maryland's first director of Homeland Security, as University of Maryland Medical Center's vice president, and was in the U.S. Navy for 26 years.

**Thomas Siller**, BS CIE '79, associate dean, academic and student affairs, College of Engineering at Colorado State University, is participating in the prestigious American Council on Education Fellows Program at the University of Oregon. The Fellows Program identifies and prepares senior leadership in the nation's colleges and universities.

## 1980s

**Michael Calise**, BS EE '83, was named executive vice president and head of US operations for Mitronics, Inc., developer of the Mitrion Software Acceleration Platform and the Mitrion Virtual Processor. Calise had been ClearSpeed Technology, Inc.'s president and head of global business development.

**Rick Emerling**, BS EE '83, was appointed manager of engineering at Curbell Electronics, after serving as a product engineer and software engineering manager in the Space and Defense Group at Moog Inc.

**Anne Fischer**, BS CE '80, will exhibit her work at the Memorial Art Gallery, Rochester NY in the show "MAGnificent Inspiration: The Art Quilt."

**Mark N. Glauser**, BS '82, PhD '87 ME, professor (MAE), Syracuse University's



DEAN STENGER WITH MARK GLAUSER, LEFT.

L.C. Smith College of Engineering and Computer Science, and associate director, research, New York State STAR Center for Environmental Quality Systems was elected fellow of the American Physical Society (APS) for his "innovative use of multi-point dimensional methods to elucidate key physics associated with time-dependent flow phenomena for flow control applications in turbulent jets, shear layers and separated flows.

**Wilfred V. Huang**, MS '82 PhD '87 IE, professor, Management Information Systems, Alfred University, led a student group to Heidenheim, Germany where they participated in lectures at the Berufsakademie Heidenheim University, and were featured in the local newspaper.

**Louis Jeffrey Markin**, BS IE '80, president and CEO, VirtualScopics Inc., was named to Rochester's 2007 Top 50. Prior to joining VirtualScopics he had been with Eastman Kodak Co for 26 years and received the Kodak Chairman's Leadership Award in December 2004.

**Chrysostomos L. Nikias**, MS '80, PhD EE '82, was elected to the National Academy of Engineers. Dr. Nikias is the Provost and Senior Vice President for Academic Affairs at USC Viterbi. His research interests are statistical signal processing and immersive technologies for the future internet.



**Roberta Ober**, BS CE '85, was part of a team awarded the Environmental Protection Agency 2007 National Notable Achievement Award. The Rocky Mountain Arsenal Revitalization Team, Region 8, transformed one of the world's most contaminated sites into a National Wildlife Refuge.



## 1990s

**Athena Hutchins**, BS CIE '97, was elected president, American Society of Civil Engineers' Buffalo section to promote the profession and focus on involving women in it. Hutchins is an engineering manager at Niagara International Transportation Technology Coalition, a binational coalition of 14 transportation agencies in Western New York and southern Ontario.



ROBERTA OBER, FOURTH FROM RIGHT, WITH THE ROCKY MOUNTAIN ARSENAL REVITALIZATION TEAM.

**Scott Paddock**, BS ME '93, was named executive vice president, client solutions by MEDecision, Inc., a provider of software, services and clinical content to health care payers. He had been senior vice president/general manager of the Applied Technologies Solutions Division of RWD Technologies and vice president of operations and sales for Dendrite International.

**Brian Reed**, BS '84, MS '86, PhD '91 CIE, William & Lillian Hackerman Chair of Engineering, Chair of the Civil and Environmental Engineering Department, University of Maryland, Baltimore County, has been studying the toxic trickledown effect on the environment and water supply in the aftermath of radiation dispersal devices, commonly known as dirty bombs.

## 2000s

**Gretchen Forbes**, BS ME '08, earned her New York State engineer-in-training certification while interning in the Robson Woese Inc.'s mechanical department.

**Martin Jay**, BS ME '06, has joined Petards, Inc., a leading developer of advanced surveillance systems, as a pre-sales engineer. He joins Petards after serving as a truss designer at 84 Components.

**Nicholas Soda**, BS CE '05, will marry Megan Balcom, BS Psychology '02. Soda works as an information technology manager and a firefighter for the Snyder Fire Department.

**Jared Vieselmeyer**, BS CIE '07, and Jeffrey Vieselmeyer, BS CIE '07, have been hired by Elmira Structures Inc. and K.V. Engineering of Elmira, NY. Both have also successfully fulfilled New York State Part 1 requirements of the professional engineering license, Engineer-in-Training.

**Glenn Walnicki**, BS CE '00, will marry Laine Vick. He is a turbine control systems designer for General Electric in Colorado.

**Steven Velinsky**, BS ME 1977, P.E., '77, professor (MAE), co-director, Advanced Highway Maintenance and Construction Technology Research Center, University of California, received the American Society of Mechanical Engineers (ASME) Machine Design Award.

**Jaideep Chatterjee**, MS CIE '02, PhD CIE '07, has joined Burns Cooley Dennis, Inc. as a senior geotechnical engineer.

Buffalo Business First featured **Aaron Taylor**, BS '93 MS '96 ME, founder, President and CEO of Lan-Trax, as one of 2007's "40 Under 40."

Since the early 1990s, the UB Engineering Alumni Association has carried on a tradition of giving scholarships to deserving undergraduate students. In order to continue this tradition, we need your financial support. Please consider donating to the UB Engineering Alumni Association Scholarship Fund and continuing the tradition of UB Engineering excellence.

Checks should be addressed to the UB Foundation and sent to:  
External Affairs  
UB Engineering Office  
412 Bonner Hall  
University at Buffalo  
Buffalo, NY 14260

# UB Engineering Calendar

**Engineering Opening Day**

**Sunday August 24, 2008**

**Fall Semester Begins**

**Monday, August 25, 2008**

**Homecoming and Parents and Family Weekend**

**Thursday, October 16-Sunday, October 19, 2008**



CHI EPS CARDBOARD SLED RACE



TAU BETA PI GOES BOWLING



CHI EPS DISPLAY AND TEST-DRIVE THEIR CARDBOARD SLED CREATIONS.

**Engineering Dean's Advisory Council**

**Friday, October 17, 2008**

**Fall Open House  
with Engineering Participation**

**Saturday October 18, 2008**

**UB Engineering Alumni Association Tailgate**

**UB Bulls vs. Army**

**Saturday, October 18, 2008**



BUILDING PAPER PLANES FOR A CHILD CANCER PATIENT.

*UB Engineering also maintains a calendar of events at <http://www.eng.buffalo.edu/events.php>.*

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: 716.645.2768 x 1110; 716.645.2495 (fax); or [ub-seas@eng.buffalo.edu](mailto:ub-seas@eng.buffalo.edu). Circulation 22,000.

*A special thank you to Leslie Graff, our associate editor of three years. Leslie is finishing her doctorate in English at UB. We wish her success.*

Robert E. Barnes, editor-in-chief  
Debra Steckler, editor  
Deanie Hedrick, managing editor

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University at Buffalo *The State University of New York*

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