UB's School of Engineering is the fastest-growing of the more than 300 accredited engineering schools in the U.S. and is one of the three largest in New England.

Faculty Notes
SOE has some of the brightest and most accomplished faculty. This report summarizes the activities they perform in the professional community.

Student Awards & Scholarships
Engineering student awards and scholarships.

Faculty Publications
More than 400 faculty and student scholarly publications have been included in world-class academic conferences and journals over the past three years.

Alumni News
Check out the latest news about our alumni and their achievements.

Laboratory Lineup
Find out more about the cutting-edge research laboratories that have been established by SOE faculty.

Colloquium Series
Engineering Colloquium Series brings outstanding scientists, engineers, and leaders of government and industry to SOE to present challenging and stimulating ideas on scientific, technical and management topics of current interest.
The School of Engineering at the University of Bridgeport (UB) is home to the largest graduate engineering program in the State of Connecticut (M.S. and Ph.D. students).

Among doctoral research universities in the United States (national universities), the University of Bridgeport has consistently ranked among the top international universities as per the US News and World Report magazine annual rankings, in addition to ranking near the top within the areas of diversity and small class sizes. The School of Engineering (SOE) at UB is the most internationally diverse college at the university.

The School of Engineering at UB is home to the fastest growing graduate Biomedical Engineering program in New England, and over the last six years, the SOE has exhibited the highest growth rate at the graduate level among all engineering schools in the nation.

Fields of engineering study at UB include: Computer Engineering, Electrical Engineering, Mechanical Engineering, Biomedical Engineering, Computer Science, and Technology Management. The School of Engineering at the University of Bridgeport is internationally renowned for its interdisciplinary programming and also offers many research and graduate concentrations, certificates, and dual-degree opportunities within several multi-disciplinary fields of study, including: Bio-Technology, CAD/CAM; Computer and Information Security; Computer Communications and Networking; Entrepreneurship; Environmental and Energy Management and Engineering; Intellectual Property Management; Manufacturing, Microelectronics and Computer Architecture; Robotics and Automation; Service Management and Engineering; Signal and Image Processing; Software Engineering; Supply Chain Management; Very Large Scale Integration (VLSI); and Wireless and Mobile Communications.

Sponsored research funding at the School of Engineering has quadrupled in the last four years. The School houses several research centers and laboratories that are internationally renowned within the following areas:

Applied Computational Fluid Dynamics; Sustainable Energy and Environment; Cloud Computing; CNC Milling; Robotics, Intelligent Sensing and Control; Multi-Media Information Systems; Nanomaterials & Nanobiomaterials Engineering; PLC Controls & IC; Renewable Energy; Hybrid Unmanned Vehicles and Projectiles; Signal Processing and Wireless and Mobile Communications.

The School of Engineering has led the efforts to establish, jointly with the State of Connecticut, a high-tech business incubator targeting new start-ups and early-stage high-tech companies, which supports and enables the growth and commercialization of UB's applied research and intellectual property initiatives. The CTech IncUBator is a partnership between Connecticut Innovations, the State of Connecticut's quasi-public authority for technology investing and innovation development, and the University of Bridgeport. Located at UB's main campus in Bridgeport, CT, the CTech IncUBator is Fairfield County's first and only university-based incubator for high-tech start-ups. The incubator's purpose is to assist in commercializing new technologies, create jobs and foster regional economic development. The CTech IncUBator currently houses four high-tech companies.

With a very strong Industry Advisory Board and significant collaborative relationships with more than 700 companies and industries in the New England and Mid-Atlantic regions, the School of Engineering has, and continues to place, thousands of engineering undergraduate and graduate students in co-ops and internship positions while they are still in the academic programs, in addition to maintaining a stellar record of full-time job placement upon student graduation.

We hope you enjoy this edition of the School of Engineering Annual Report. If you have any comments for news that you would like to share with us, please e-mail them to Susan Kristie, the School Administrative Manager at kristie@bridgeport.edu.

Tarek M. Sobh, Ph.D., P.E.
Vice President for Graduate Studies and Research,
Dean, School of Engineering
The University of Bridgeport’s School of Engineering has more highly qualified instructors than any other online master’s degree program, according to a new ranking released today by U.S. News and World Report.

The magazine’s honor-roll ranking recognized the online graduate program for “leading the pack in faculty credentials and training.”

School of Engineering Dean Tarek Sobh, who also is vice president for graduate studies and research at UB, called the distinction “wonderful recognition for the work we’ve done to offer truly distinctive and superlative online engineering education.”

Sobh continued, “They are saying our faculty has the best credentials, which is wonderful. In most schools you’ll find a mix of adjunct and full- and part-time teachers. But from the start, we set out to distinguish ourselves by devoting the best resources possible to our distance-learning programs. The online master’s track is an integral part of the School of Engineering curriculum, not an afterthought.”

UB launched its online master’s degree program in 2003 to accommodate growing demand; many of the hundreds of students in the program are working professionals seeking to stay up-to-date in latest advances while balancing a career, Sobh said.

Ten engineering professors offer e-classes in the program via online videos or Blackboard, a distance-learning technology. Students can earn a master’s degree in technology management or computer science within 18 to 30 months.

UB to host ASEE Zone 1 conference in 2014

UB has been chosen to host the ASEE Zone 1 conference in 2014. The Zone conference [which encompasses three Regional ones; The Northeast, St. Lawrence and Mid Atlantic regions] is held once every 5 years; and this time is being held after six years from its last program in West Point in 2008. This is a great honor, since we very recently held the Northeast Regional conference in UB in 2009; which was, by far, the most successful of all recent editions of the northeast ASEE regional conferences. The ASEE Zone includes Schools of Engineering in:

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, Canada, New York, Delaware, Maryland, New Jersey, Pennsylvania and Washington, D.C.

Prof. Navarun Gupta, the current ASEE northeast region President, played a pivotal role in presenting UB’s proposal and securing the approval. We are very appreciative of his efforts.
UB Faculty Research Day, held on February 10, was once again an overwhelming success! It was truly a spectacular day. We had a total of 110 research posters, submitted by 40 faculty, 61 graduate students, and 9 undergraduate students. This is an increase from the 88 poster submissions in 2011. Participation was distributed as follows: the School of Engineering had a total of 62 posters, followed by Health Sciences (11), International College (9), and between six to eight posters each representing the Schools of Arts and Sciences, Business, Education, and the Shintaro Akatsu School of Design.

This year’s 170 attendees included poster authors, as well as other faculty, Industry Advisory Board members, Incubator tenants, community leaders and partners, and venture capitalists. A number of members of the Board of Trustees were able to make time in their schedules to visit the poster session. They talked with faculty and students alike in a room that was energized with a buzz of information and discovery.

Following the morning poster session, participants were welcomed by President Neil Albert Salonen, UB’s Co-Chair of the Board, Frank Zullo, Esq., and Tarek M. Sobh, Ph.D., Vice President for Graduate Studies and Research. Keynote speaker, Keya Sadeghipour, Ph.D., Dean of the College of Engineering at Temple University, then delivered a thought-provoking presentation on “Science and Education in the 21st Century.”

Lunch time provided the opportunity to break into multiple topic sessions, including “Integrating Faculty and Undergraduate Research” (Robert Riggs and Beth Skott), “Experiences with Obtaining Funding to Conduct Mixed Methods Research” (Thomas Christ), “Alternative Teaching Technologies” (Jerald Cole), and “Human Subjects Research and the IRB Process” (Lori Noto). Twelve featured poster talks followed and a wine and cheese reception concluded the all-day program. Awards were presented for first, second and third place for the graduate student poster competition, and first place for the undergraduate student poster competition. Honorable mentions were also awarded for both categories.

**Graduate Student 1st Place:** Ashish Aphale (Engineering), “NMR Detection of Graphene Nanoribbon”. Additional Authors: Daniel Comman and Fahmeed Hyder. Advisor: Prabir Patra, Ph.D.

**Graduate Student 2nd Place:** Jennifer Cheng (Engineering), “Graphene and Amyloid Peptide binding and its Implications in Alzheimer’s Disease”. Additional Authors: Ashish Aphale, Shrinivas Bhosale, Isaac Macwan, Anwesha Bhattacharya, and Ishita Mukherji. Advisor: Prabir Patra, Ph.D.

**Graduate Student 3rd Place:** Tariq Abuzaghleh (Engineering), “A Computer-aided Method for the Cobb Angle Measurement”. Advisor: Buket Barkana, Ph.D.

**Graduate Student Honorable Mentions:**
- Saman Pezeshki (Chiropractic), “Utilizing YouTube in Chiropractic Academia”. Advisor: Chris Good, D.C.
- Sumaya Abusaleh and Varun Pande (Engineering), “Optimized Algorithm for Face Detection Integrating Different Illuminating Conditions”. Advisor: Khaled Elleithy, Ph.D.

**Undergraduate 1st Place:** Carlos Colon (Biology), “The Effect of Soil Quality on Phosphate, Nitrite, pH, Water Retention and its Effects on Germination, Leaf Production, and Flowering of Arabidopsis thaliana”. Advisor: Kathleen Engelmann, Ph.D.

**Undergraduate Honorable Mentions:**
- Matthew Breland (Engineering), “DNA Origami Structures for Engineering Applications”. Advisors: Jani Pallis, Ph.D., Christian Bach, Ph.D., and Hassan Bajwa, Ph.D.
UB students win Connecticut Space Grant Consortium Awards to work on NASA-related research and other work

Four University of Bridgeport (UB) students have been awarded funds from the Connecticut Space Grant Consortium to further their work designing labs, developing sound-recognition technology, pursuing other research, and/or interning at United Technologies Corporation (UTC) and other leading companies in the state.

“We are thankful and thrilled that the Connecticut Space Grant Consortium has awarded UB students and organizations with these funds,” said Dr. Jani Macari Pallis, a professor at UB School of Engineering. “This support will truly assist our students in pursuing real-world applications in aviation and aerospace.”

Matthew Breland, an undergraduate majoring in computer engineering, won a $5,000 Space Grant for the spring 2012 semester. He and his faculty mentor, Dr. Hassan Bajwa, from the University’s Electrical Engineering Department, are working on a project entitled, “High Efficiency Broadband Solar Cell for Aerospace Applications.” The research aims to develop an antenna for power-harvesting applications. Breland’s award includes a ten-week, part-time Industrial Internship, which has been forwarded to UTC and other Connecticut companies for their consideration, for the spring 2012 semester. The internship is capped at $2,600 and he received an internship at the Warnaco IT department in Milford, CT.

Manuel Curillo, an industrial design major, was awarded $5,000. He and Dr. Pallis are developing a new engineering curriculum and facilities to support NASA-sponsored student engineering competitions on campus. In particular, they will design a small lab to emulate lunar and Martian surfaces.

Edwin Gravrand, who is majoring in computer engineering, was awarded $5,000. He and his faculty mentor, Dr. Buket Barkana of the Electrical Engineering Department, are investigating technology that recognizes environmental sounds and noise. Their research is entitled “Sounds of Context, Environment, and Noise Evaluator.”

Yasser Elleithy, a graduate student in Computer Science has been awarded a summer Industrial Internship for up to ten weeks, capped at $5,000.

In addition, UB’s campus chapters of the National Society of Black Engineers and the Society of Women Engineers received $500 each to co-host outreach activities to grow public awareness on campus and at several K-12 public schools about Connecticut’s and NASA’s space-related research.

The School of Engineering sponsored a public talk by a Nobel Laureate at UB on Friday, October 21st!

Sir Harold W. Kroto, 1996 winner of the Nobel Prize in Chemistry, delivered a special lecture on science and education at the University of Bridgeport on Friday, October 21.

His address, “Creativity Sans Frontiers,” was held at 3 p.m. at the Mertens Theater in the Arnold Bernhard Center, 84 Iranistan Avenue. It was free and open to the public.

Sir Kroto, who is Francis Eppes Professor of Chemistry at Florida State University, won the Nobel Prize in Chemistry with Robert Curl and Richard Smalley for discovering a spherical form of carbon known as C60, or fullerene.

Composed of 60 atoms and extremely stable, C60 resembled geodesic domes made by Buckminster Fuller and is hence also referred to as “buckyball.” The fullerene family discovered by the three scientists eventually included cylindrical carbon nanotubes that are the basis of nanotechnology today.

At Florida State, Sir Kroto founded Global Educational Outreach for Science, Engineering, and Technology, an educational campaign that embraces technology to improve the level of science education, from elementary school to college, throughout the world.

“We're extremely honored to have a Nobel Laureate at the University of Bridgeport, particularly when the University is transitioning to a research-based institution,” said Dr. Prabir Patra, Director of Biomedical Engineering and Assistant Professor of Mechanical Engineering.

“It was a lifetime opportunity when I met Sir Kroto in 2010 at Rice University, on the 25th anniversary of fullerene. We spoke for quite a long time, and he graciously accepted President Salonen’s invitation to come speak.”

The event was hosted by Office of the Vice President for Graduate Studies and Research.
CISSE 2011 is the seventh conference of the CISSE series of E-conferences. According to Dr. Khaled Elleithy and Dr. Tarek Sobh, conference co-chairs, "CISSE is the world’s first Engineering/Computing and Systems Research E-Conference. CISSE 2005 was the first high-caliber research conference in the world to be completely conducted online in real-time via the Internet."

According to Dr. Elleithy, "The final program of CISSE 2011 included 103 papers that will be published in one book by Springer" [http://www.springer.com/engineering/circuits+%26+systems/book/978-1-4614-3534-1]. "The faculty and the students of the School of Engineering have contributed significantly to the conference. A number of School of Engineering faculty are members of the technical committees and have reviewed many of the conference papers. Furthermore, the final program of the conference contained papers authored by faculty and students from the School of Engineering," Elleithy said.

The concept and format of CISSE is very exciting and ground-breaking. The PowerPoint presentations, final paper manuscripts and time schedule for live presentations over the web had been available for weeks prior to the start of the conference for all registrants, so that the participants could choose the presentations they wanted to attend and think about questions that they might want to ask. The live audio presentations were also recorded and are part of the permanent CISSE archive, which also includes all the papers, PowerPoint and audio presentations.

The CISSE conference audio room provides superb audio and video, even over low speed Internet connections, the ability to display PowerPoint presentations, and cross-platform compatibility (the conferencing software runs on Windows, Mac, and any other operating system that supports Java). In addition, the conferencing system allows for an unlimited number of participants, which in turn grants the opportunity to allow all CISSE participants to attend all presentations, as opposed to limiting the number of available seats for each session.

**Robotics and the Monster Jam Trucks**

Dr. Joyce Hu, Chair and Associate Professor of Mechanical Engineering were guests of Field Entertainment and the Barnum Museum Large and Page Communications, Inc. to go behind the scenes at the Webster Bank Harbor Yard Arena to see the Monster Trucks and meet the drivers.

Dr. Joyce Hu, Chair and Associate Professor of Mechanical Engineering, Xiang Yang, Bo He and Chintankumar Upadhyay, Mechanical Engineering students, Ahmed El-Sayed, Computer Science and Engineering Ph.D. student, and three visiting professors from An Hui Science and Technology University in China visited the Harbor Yard Arena on Friday, March 2, 2012. They had an exclusive opportunity to meet the drivers and see the trucks in the Monster Jam.

The visiting professors from An Hui Science and Technology University in China were Professor Fengjv Zheng and Professor Qiliang Zeng (Mechanical Engineering) and Professor Liu Bin (Computer Science).

They all went to the back stage and met and talked with the drivers. News 12 and the CT Post were also there interviewing the drivers.

Four Monster Jam trucks were sitting on ice rink which was turned into a dirt covered stage. After answering questions around the Monster Jam trucks, one driver led them to the huge truck which ships the Monster Jam trucks. He let the group enter the truck and showed them how the Monster Jam trucks are stored during the shipping and also the spare parts carried with them.

Everyone in the group enjoyed the conversations with the drivers. They were offered free tickets for the Friday night show at the Webster Bank Arena. All the students and professors were very glad to receive the tickets, as they were eager to see the show.

Dr. Joyce Hu and engineering students were invited to see the Monster Trucks and meet the drivers.
The University of Bridgeport was selected by NASA to be one of four universities in the U.S. to participate in the 2012 eXploration Habitat (X-Hab) Academic Innovation Challenge led by NASA and the National Space Grant Foundation.

Students from UB, led by mechanical engineering professor Dr. Zheng “Jeremy” Li designed habitats and science concepts that could be used by future deep space explorers.

They were responsible for designing, manufacturing, assembling, and testing all of their concepts and hardware.

A panel of engineers and scientists assessed their progress at each stage of the competition.

Teams from Oklahoma State University; University of Maryland, College Park; and Ohio State University also were chosen.

“Ohobviously, it’s an honor to be among one of four U.S. universities to receive the X-Hab Challenge Grant,” said Dr. Tarek Sobh, Vice President for Graduate Studies and Research. “This award strengthens our ongoing partnerships with NASA: UB is a member of the Connecticut Space Grant Consortium, which funds student- and faculty-led research. Last year, UB undergraduate engineering students were awarded a $4,500 grant to build a lunar excavator that was showcased at the Kennedy Space Center in Florida. And students over the past year have been selected for competitive NASA-sponsored research and internships.”

The National Space Grant Foundation covered the costs of the teams’ design development, as well as their participation in testing their projects at NASA’s Johnson Space Center in Houston, TX.

“It is a testament to the University of Bridgeport—its professors, faculty, and most importantly, its students—that they will have a chance to participate in shaping the future of space technologies,” said Senator Joseph Lieberman (I-CT). “This is truly an incredible opportunity for our students to continue—quite literally—reaching for the stars.”

Upsilon Pi Epsilon (UPE) is the international honor society for students in computer science, information technology, computer engineering, and management information systems programs. On May 4, 2011, 5 new members were inducted into a life-long membership with UPE. The induction to the UPE also entitled them to a year-long membership with ACM. The name of the new members are Mr. Tariq Alshugran, Ms. Wafa Elmennai, Mr. Eugene Gerety, Mr. Samir Hamada, Mr. Haiyang Wang.

Another good news is that Ms. Laiali Almazaydeh was awarded the 2011 UPE Scholarship Award ($1000 Cash Award). Congratulations, Laiali!
Profs. Lawrence V. Hmurcik and Linfeng Zhang of the Electrical Engineering Dept. were called individually by the Journal of Applied Physics to review the manuscript "A semi-analytical model for semiconductor solar cells". Prof. Hmurcik received his Ph.D. in 1980, with the topic of his research being polycrystalline solar cells. He also worked in industry on both semiconductor and electrolyte solar cells. Prof. Zhang received his Ph.D. in 2006, and he is the chief architect of the school's sustainable energy engineering program (SEE). Besides solar cells, Prof. Zhang's interests include fuel cells and MEMS (microelectromechanical systems).

Sarosh Patel, PhD student in Computer Engineering, and Lawrence Hmurcik, Professor of Electrical Engineering, investigated a "haunted house" in Connecticut. When the wind howled fiercely at night, lights in the house would grow very bright in one room but dim and flicker in another. The TV would blare overly loud and then grow silent. The trend would then change as some appliances overworked while others were dead. Patel-Hmurcik found the house wiring in perfect order, as were the appliances. They also found the electric feed from the power company to the house and to all other houses on the street to be in order. But they noticed that the neutral return wire that collects electricity used in the house behaved erratically during these "ghostly manifestations". They suspected a loose neutral on the power pole. They called the power company. After this was fixed, all ghostly manifestations ceased.

Mr. Sarosh Patel, Ph.D. student in Computer Engineering, and Lawrence V. Hmurcik, professor of Electrical Engineering, recently published an article in the journal, Electrical Construction and Maintenance. Titled "The case of the plasma spray", it details the design flaws in the power distribution in a large company where a technician was burned over 80% of his body. A simple short circuit should have tripped a circuit breaker. Instead, 4000 amps flowed through a wire, causing it to vaporize into a plasma that blanketed the unlucky technician.

Prof. Tarek Sobh and Prof. Xingguo Xiong in the School of Engineering jointly edited a book, "Prototyping of Robotic Systems: Applications of Design and Implementation" (ISBN10: 1466601760). The book was published on February 29, 2012 by IGI Global publishing company. It collects a wide range of research results from the robotic research community around the world, including scientists and engineers from universities, research institutes and industry. Prof. Elif Kongar, Prof. Jeremy Li, and Ph.D students Sarosh Patel, Ahmed ElSayed from School of Engineering also contributed chapters to the book. This book covers the design and implementation of various robotic systems and their applications, from complicated industrial robots to state-of-the-art micro and nanorobots for surgical applications, as well as robotic systems for educational purposes. It is intended for researchers and engineers engaged in the design and prototyping of modern robotic systems, as well as students of mechanical engineering, electrical engineering and computer engineering who are interested in the robotics field.

Manan Joshi, Ph.D. student in Computer Engineering, and Lawrence Hmurcik, Professor of Electrical Engineering investigated a fire involving a CFL (compact fluorescent lamp, i.e. the "pretzel" bulbs with energy efficiency). Whereas incandescent lamps are rugged and the burnt filament stays in the glass bulb, and whereas the long fluorescent lamps are structurally strong so as to avoid cracking, the CFL is under a great deal of stress due to its being twisted into a "pretzel" shape. CFLs have exploded if overheated. Joshi-Hmurcik found that one CFL exploded in a young girl's closet. Hot glass landed on clothes on the floor. The resulting fire killed the girl. The bulb was a "bargain" variety that was too fragile for sustained use, but unfortunately the girl left the bulb on continuously as a night light.

Lawrence V. Hmurcik, Professor of Electrical Engineering, was one of several experts called by the Camden, NJ Police Department to determine the cause of a building fire. Earlier, experts implicated a heater for a large aquarium. Hmurcik's results showed the heater to be a second burn site, ignited by an overhead lighting fixture, which...
was the cause.

Sarosh Patel, Ph.D. student in Computer Engineering, and Lawrence Hmurcik, Professor of Electrical Engineering, recently published an article in Electrical Construction and Maintenance magazine entitled "The case of the mis-matched capacitors”. Twice in one year, a fireball of electricity struck a utility worker near a storage capacitor charged to half a million volts. Although the plates of the capacitor had been fully discharged by the two linemen, the center of the capacitor was active and emitted a burst of electricity the size of a basketball. Patel-Hmurcik published safety protocols to avoid this accident in the future.

Umatri Pradhananga, pursuing the M.S. in Electrical Engineering (EE), and Lawrence Hmurcik, Professor of EE investigated a home fire in Meriden. After hurricane "Irene", a homeowner lost power and hooked up a generator to power his house. A fire started. Pradhananga did a theoretical analysis of the electrical wiring in the hookup, and she found a defect that Hmurcik observed in his on-site investigation.

Lawrence V. Hmurcik, Professor of Electrical Engineering, reviewed the manuscript "A generalized state-space approach to solving dynamical systems with applications to optimization". This was done for the IEEE Transactions on Industrial Informatics Journal.

Aymen Lpizra, adjunct professor in Electrical Engineering (EE), and Lawrence Hmurcik (Professor of EE) recently investigated a fire in Durham. A generator was hooked up to a house, and the service from the power company was terminated. The power company provides a good ground connection to sink stray electricity. Leakage from the generator was not routed to ground. It caused excess heat which in turn caused appliances to catch fire.

Prof. Lawrence Hmurcik of the Electrical Engineering department reviewed the paper "The study of band offsets at different buffer/Cu2ZnSnSe4 interfaces" for the journal, Applied Physics Letters.

Prof. Hmurcik is a reviewer for the 9th International Conference on Remote Engineering and Virtual Instrumentation in Bilbao, Spain. His duties are to check the factual quality of papers submitted for human-machine-interface science.

Jack Toporovksky and Lawrence V. Hmurcik of Electrical Engineering investigated a fire in Pittsfield, Massachussetts. The compressor in a water cooler, which the homeowner bought to insure a supply of spring water, caught fire. Toporovksky-Hmurcik also found this kind of accident is common around the country. The water put out the fire in the compressor but not before it did over $100,000 in smoke and flood damage.

Prof. Lawrence Hmurcik of Electrical Engineering reviewed the article "The effect of photonic bandgap materials on the Shockley-Queisser limit" for the Journal of Applied Physics.

Muder Al'miani, Ph.D. candidate, and Buket Barkana, Assistant Professor of Electrical Engineering, delivered a paper at the Eighth Annual IEEE Long Island Systems, Applications and Technology Conference on May 4. The paper, “Automatic Segmentation Algorithm for Brain MRA Images,” presents a novel algorithm to segment the vascular structure of the brain. Although the burden on vascular segmentation has been reduced by the advances in MR acquisition techniques, due to the complexity of the body vasculature, the small diameters of the vessels, the filtering and segmentation problem has not been fully solved. The Al'miani/Barkana model detects more small blood vessels than any other models.

Khaled Elleithy (Computer Science and Engineering) presented two papers and chaired a session at the 15th Communications and Networking Simulation Symposium in Orlando, FL, March 26-29.

Elif Kongar (Technology Management) co-presented a paper at the Northeast Decision Sciences Institute's 2012 Annual Conference, held in Newport, RI, from March 21-23.

Neal Lewis, Professor of Technology Management, served as a session chair and presented four papers at the 2012 Industrial and Systems Engineering Research Conference in Orlando, FL in May; he presented a paper at the 2012 American Society for Engineering Education National Conference in San Antonio, TX in June 2012.

Prabir Patra (Biomedical Engineering) presented at the Explorer Seminar of the Indiana Section of the American Association for Dental Research on March 8.

Ashraf Mousa (Ph.D. student in Computer Engineering and Science) has been given an internship through the Connecticut Innovation Internship Program. He will be working on solar panels at the Connecticut company, SolarChange.

Dr. Gad Selig gave a presentation on "Winning Risk Management Strategies in Program and Project Management: Lessons Learned From the Real World," for members of Westchester PMI Chapter on October 11, 2011.

Lawrence Hmurcik (Electrical Engineering) presented a paper at the 2012 American Society of Engineering Education’s St. Lawrence Section Conference held at Potsdam, NY, March 23-24.
The Faculty Research Council has awarded 10 new Seed Money Grants for 2012-2013. The Seed Money Grant program is open to full-time faculty, with preference to newer faculty members. Engineering recipients include:

1. Buket Barkana, Ph.D. (Electrical Engineering), for her research project, "K-12 STEM Teacher Education Program", a joint project of the School of Engineering and the School of Education. Co-PIs: Nelson Ngoh, Joanna Badara, and Allen Cook (School of Education).

2. Miad Faezipour, Ph.D. (Computer Science and Engineering), for her research project, "Breathing Movement Classification for Lung Cancer Patients". Prabir Patra (Biomedical Engineering) and Hassan Bajwa (Electrical Engineering) are Co-PIs.

3. Jani Pallis, Ph.D. (Mechanical Engineering), for her research project, "DNA Scaffoldbased Nanoscale Antenna". Christian Bach (Technology Management and Biomedical Engineering) and Hassan Bajwa (Electrical Engineering) are Co-PIs.

4. Prabir Patra, Ph.D. (Biomedical Engineering and Mechanical Engineering), for his project, "2D Atomically Thin Graphene Nanoribbon (GNR)-DNA Self Assembled Piezo Structures for Energy Harvesting". Miad Faezipour (Computer Science and Engineering) is Co-PI.

5. Zhengping Wu, Ph.D. (Computer Science and Engineering), for his research project, "A New System Accounting Framework for Reliable Cloud Systems".

Hassan Bajwa, Ph.D. (Electrical Engineering), supported a research-focused scholarship award of $5,000 made to Matthew Breland, a Computer Engineering major, for the Spring 2012 semester by the Connecticut Space Grant Consortium.

$150,000 to Tarek Sobh, Ph.D., Distinguished Professor of Computer Science and Engineering, for "Design and Implementation of the Hybrid Projectile", funded through a Connecticut Center for Advanced Technology subaward. (November 1, 2010 – May 2, 2012)

$30,000 to Khaled Elleithy, Ph.D., Professor of Computer Science and Engineering and Electrical Engineering, for "Advanced Proto Gun-Launched Extern Munitions Utilizing Manned/ Unmanned Projectile", funded through a University of Hartford subaward. (September 1, 2010 – August 31, 2012)

$24,999 to Linfeng Zhang, Ph.D., Assistant Professor of Electrical Engineering, for "A Nationwide Consortium of Universities to Revitalize Electric Power Engineering Education by State-of-the-Art Laboratories", funded through a University of Minnesota subaward. (July 30, 2010 – July 29, 2013)

$20,000 to Zheng (Jeremy) Li, Ph.D.,Assistant Professor of Mechanical Engineering, for "Geo-Lab Reduced Gravity Sample Holders/Manipulator Tools", funded by the National Space Grant Foundation (for NASA). (8/1/2011 – 9/30/2012)

$8,000 to Neal Lewis, Ph.D., Associate Professor of Technology Management, to "Develop a Center for Student Entrepreneurship and Innovation at the CTech Incubator@University of Bridgeport (Planning Grant)", funded by the National Collegiate Inventors & Innovators Alliance. (April 1, 2011 – August 31, 2012)

$6,000 to Jani Macari Pallis, Ph.D., Associate Professor of Mechanical Engineering and Technology Management, for "Multiphysics Modeling of Gas Tungsten Arc Welding", funded by the Connecticut Space Grant Consortium. (June 1, 2011 – May 31, 2012)

Jani Macari Pallis, Ph.D. (Mechanical Engineering), supported a research-focused scholarship award made to Manuel Curillo, an Industrial Design major. The $5,000 "Directed Scholarship" was awarded to Manuel for the Spring 2012 semester by the Connecticut Space Grant Consortium.

Buket Barkana, Ph.D. (Electrical Engineering), supported a research-focused scholarship award made to Edwin Gravrand, a Computer Science and Engineering major. The $5,000 "Directed Scholarship" was awarded to Edwin for the Spring 2012 semester by the Connecticut Space Grant Consortium.

Joyce Hu (Mechanical Engineering), was awarded a $5,741 grant for Phase II of a software development project for Pegasus Vertex, Inc., a Texas-based company specializing in drilling engineering software.

Four IBM Shared University Research Awards of equipment have been awarded to Hassan Bajwa, Ph.D., Assistant Professor of Electrical Engineering; Khaled Elleithy, Ph.D., Professor of Computer Science and Engineering and Electrical Engineering; Elf Kongar, Ph.D., Assistant Professor of Technology Management and Mechanical Engineering; and Prabir Patra, Ph.D., Assistant Professor of Biomedical Engineering and Mechanical Engineering.

Dr. Zheng (Jeremy) Li and his students demonstrate the operation of the milling machine.
Dr. Linfeng Zhang explains the functionality of a special instrument for energy analysis.

Renewable Energy Research Laboratory

Linfeng Zhang, Ph.D.’s 2008 Seed Money Grant award funded research into fuel cells and chemical sensors. Fast forward to 2012. Dr. Zhang is midway through a large-scale project, “A Nationwide Consortium of Universities to Revitalize Electric Power Engineering Education by State-of-the-Art Laboratories,” a three-year, $2.5 million grant funded by the U.S. Department of Energy to the University of Minnesota. The University of Bridgeport is one of 64 collaborating institutions.

President Obama’s goal to have 80 percent of America’s electricity come from clean energy sources is most ambitious and spurs Dr. Zhang’s passion to conduct research and develop courses for the next generation of electrical engineers. He says, “It is urgent to train a new generation of engineers who are able to harvest, convert, and store sustainable energy as well as to integrate this energy into the power grid.” And it’s no small feat. According to the U.S. Energy Information Administration’s report on Trends in Renewable Energy Consumption and Electricity 2009, only eight percent of the nation’s 94.628 quadrillion Btu energy supply comes from renewable energy sources, primarily biomass (51%), followed by hydroelectric (34%), with ten percent or less produced by wind, geothermal, or solar sources. Dr. Zhang has established the Renewable Energy Research Laboratory at the University of Bridgeport. In this lab, experimental studies can be conducted on wind electricity, solar electricity, hydrogen fuel cells, rechargeable batteries, and power electronics. In addition, a grid-tied microgrid was proposed and set up with distributed energy sources and storage. Technologies in communication, controls, parallel computing, and data acquisition are used in the power system management for an optimal power flow and enhanced reliability. Moreover, software, such as ETAP, HOMER, and SCAPES, can be used for power system analysis and the design of solar cells.

This research is a work in progress, one in which his students are involved through course work. Over the past few years, Dr. Zhang has developed six graduate-level electrical engineering courses that focus on sustainable energy: Sustainable Energy, Sustainable Energy lab, Fuel Cells, Solar Energy and Solar Cells, and Hybrid Vehicles. Design, testing, data collection and analysis are all critical components to the research that has the potential to shape and define industry-adaptable practices.
Laiali Hussein Almazaydeh, who is earning a PhD in computer science and engineering at the University of Bridgeport, has been awarded $1,000 from Upsilon Pi Epsilon, the international honor society for computing and information sciences.

Almazaydeh, 31, was selected based on her superior academic record, extracurricular activities, and recommendations from academic advisers.

“We expect and believe you will establish an admirable record for subsequent holders of this award to emulate,” UPE Executive Director Orlando Madrigal wrote Almazaydeh upon announcing her award.

Almazaydeh, who currently has a 4.0 GPA and expects to graduate in 2013, conducts research at the University’s Wireless and Communications Lab, where she is exploring different applications for wireless sensor networks (WSNs), which transmit data via radio waves. WSNs are used for monitoring various physical conditions, for example, air pollution or temperature.

Almazaydeh has coauthored several research papers on the use of WSNs in the peer-reviewed journal, International Journal of Database Management Systems, among other publications. She said she is interested in using WSNs "to contribute to society," and to enhance medical research in particular.

“She is a dedicated researcher in the area of wireless communications,” said Engineering Professor Khaled Elleithy, who is Associate Dean of Graduate Programs at the School of Engineering and one of Almazaydeh’s dissertation advisers.

“Her research results in the area of WSNs are innovative and constitute valuable contributions in ongoing research. She is one of those students who is open and receptive to new ideas; she is not afraid to explore creative ideas and strives to learn and grow continuously from the research challenges they pose.”

Almazaydeh’s courage as a researcher reflects her personal determination to pursue an education. Raised in Ma’an, Jordan, she was one of seven daughters. But unlike her sisters and mother, all of whom married by age 15, Almazaydeh balked at the thought of becoming someone’s wife. “It was not my dream,” she said. “I insisted that I complete my education to have a good career.”

When suitors asked her parents about marrying her, Almazaydeh cajoled her mother and father into letting her finish high school first. More proposals followed, but she again convinced her parents to let her attend Al Hussein Bin Talal University, where she earned a bachelor’s in computer science. Then Almazaydeh lobbied for graduate school, where, at 25, she eventually met her husband, a mechanical engineer, while she earned a master’s in computer information systems.

“He promised I could complete my education,” said Almazaydeh, who accepted his proposal. They have a daughter, 3, but Almazaydeh left both behind after receiving a scholarship from the Jordanian government to earn her Ph.D. at UB.

She has no regrets. “Computer engineering makes me part of the most important revolution that has changed the world of technology,” she says. “At UB, I have found encouragement and support to improve my research skills [using] real-life applications.”

Her family, whom she visits each summer, also has encouraged her. “When I left my daughter in [Jordan] this summer, she said, ‘Go study, Mommy. I won’t cry, I’m old,’” said Almazaydeh, who keeps photos of her ebullient doe-eyed daughter in her bag, along with research papers and her resume, “I am setting an example for her.”

And others.

In February 2011, Almazaydeh was invited to the United Nations in Manhattan to lead panels aimed at attracting more women into the field of science and technology. The American Association of University Women asked her talk about her education and life at a conference held at Housatonic Community College, in celebration of International Women’s Day last March.

“I will set an example for my daughter that women are powerful,” she said. “They can do good things in life.”

Laiali Hussein Almazaydeh was awarded $1,000 from Upsilon Pi Epsilon, the international honor society for computing and information sciences.
The School of Engineering Award Ceremony for Academic Achievement in Computer Science, Computer Engineering, Electrical Engineering, Mechanical Engineering and Technology Management for 2012 was held at the Bernhard Center. Below is a short biography for each awardee, written by the faculty who recommended them.

**Undergraduate Academic Achievement**

- Danny Wilson — B.S. Computer Science

For Academic Achievement in Computer Science at the Undergraduate level, the award goes to Danny Wilson. Danny Wilson is one of the most outstanding students graduating with a B.S. degree in Computer Science. Not only his outstanding talent is indicated by his high GPA, and top score in almost every course he has taken but also from the job offers he has already received. For example he has received full time job offers from United Services Automobile Association, Northrop Grumman and Travelers Insurance with whom he interned with in the summer of 2010 and 2011. He is truly a brilliant individual with a very friendly personality.

- Matthew Breland — B.S. Computer Engineering

For Academic Achievement in Computer Engineering at the Undergraduate level, the award goes to Matthew Breland. Matthew Breland is an excellent student in Computer Engineering with a GPA of 3.92. His work in the classes has simply been outstanding. He has strong skills in both hardware and software design and has participated in the NASA Lunabotics Mining Competition where he designed a lunar excavator. We are very proud to have such a brilliant student be part of the Computer Engineering program. In addition, he is also the Elected Chair of IEEE Student Chapter at the University of Bridgeport.

**Graduate Academic Achievement**

- Yasser Elleithy — M.S. Computer Science

For Academic Achievement in Computer Science at the Graduate level, the award goes to Yasser Elleithy. Yasser joined the School of Engineering as an undergraduate student and completed his studies in only three years with a 3.99 GPA. He continued his M.S. in CS and completed his degree requirements with a GPA of 3.98. All of the faculty have commented on his outstanding work ethic, his attention to detail and his class participation. He has brought excellent ideas to the projects he has undertaken. As a testimony of his academic excellence, the department of Computer Science selected him to teach some undergraduate classes such as digital design and Java. In addition to his excellent academic work, Yasser was selected twice by the CT Space Grant for Summer internships in UTC companies Otis and Hamilton Sundstrand.

- Umatri Pradhananga — M.S. Electrical Engineering

Umatri Pradhananga received her B.S. degree in Physics from Tribhuvan University, Nepal in 2007. Her interests were in condensed matter: semiconductors, electro-optics and quantum mechanics. Ms. Pradhananga joined the M.S. in Electrical Engineering program at the University of Bridgeport in September, 2011. Her research interests are in VLSI, Very Large Scale Integrated Circuits, under Prof. Xiong.

Ms. Pradhananga serves the Electrical Engineering department as a Graduate Assistant, working under Prof. Xiong, tutoring VLSI students and assisting in the teaching of the MEMS (microelectromechanical systems) course. Additional GA work comes from student teaching of the courses in Medical Machines, Fiber Optics lab, DSP (digital signal processing) lab.

Uma was also the winner of another award — the Graduate Assistant (GA) of the Year award for 2012 for the entire University.

- Feixiang Ren — M.S. Mechanical Engineering

Feixiang Ren finished his 27 credits with GPA of 3.927. He is currently doing his final project with Dr. Hu and expects to receive an A for his final project. He has been actively participating in research with both Prof. Li and Prof. Hu. He has published a paper and a poster in ASEE 2011 conference. A paper and a poster have been accepted for the ASEE 2012 conference.
ference. He also had a poster in the 2012 Faculty Research Day.

Kalgi Shah — M.S. Bio-Medical Engineering
Kalgi Shah is a graduate student at the School of Engineering, pursuing Master’s of Science in Bio-medical Engineering.

She had her schooling in India, with a concentration in Science subjects. She did undergraduate studies in Biotechnology from Sardar Patel University, India. After completion of her undergraduate studies, she worked on Cloning Techniques at Zydus Research Center, Ahmedabad, India.

She has excelled in the field of Biomedical Engineering here at the University of Bridgeport during the course of her studies, exhibiting a keen interest in the research of 'Isolation of Bacteria from Graphene Oxide Solution'.

Shailja Sanwal — M.S. Technology Management

The Academic Achievement Award in Technology Management goes to Ms. Shailja Sanwal. Her GPA is 3.92. Shailja is from India and earned a Bachelors of Arts degree there. She is a hard worker, dependable and very diligent. She has been the GA for Dr. Gad Selig for the last two years.

Her research work consists of culturing of bacteria along with their classification by Morphological and Bio-chemical characteristics, as well as Molecular Analysis.

Quick report on American Society of Engineering Education competition in 2012

The ASEE groups the U.S. and Canada's 370 or so schools of engineering into four geographical zones, each with approximately 100 schools of engineering. Zone One represents all the schools of engineering in the following states/regions: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and Canada, New York, Delaware, Maryland, New Jersey, Pennsylvania and Washington, D.C.

The conference annually conducts three tracks, two of them are student competition tracks. The third track, is the regular faculty research paper presentation track. Each poster/paper in the competition is judged and scored by three judges from Zone 1.

University of Bridgeport School of Engineering students have the formula: for the third year running, they have captured first place and other top awards at the annual American Society for Engineering Education (ASEE) Competition.

The ASEE is organized by regions. As they have in the past, UB students competed against Northeastern University, UMass, University of New Haven, Boston University, and other college and university teams that are located in the ASEE northeast region.

This year, Laiali Almazaydeh's research project poster entitled "A new model for diagnosing Sleep Apnea through feature extraction of the SpO2 signal" (advisors: Prof. Elleithy and Prof. Faezipour) has won fourth place at the ASEE northeast conference in Lowell, MA.

The conference research poster competition included more than 120 high quality research posters from tens of engineering schools across the northeast, and the UB research posters were well received and ranked highly among the posters. UMASS Lowell was the only other school to win awards at the graduate level.

The trip to UMass Lowell was organized by Prof. Gupta. The next ASEE conference will take place at University of Norwich in Vermont and UB will be hosting ASEE Zone 1 conference in 2014.


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To unsubscribe, please send an e-mail to kristie@bridgeport.edu with the word UNSUBSCRIBE in the subject line.
In July 2012 Springer is publishing two new edited books by Professors Sobh and Elleithy. The books are part of Springer Lecture Notes in Electrical Engineering. The titles of the two books are:


A. Elrashidi, K. Elleithy, and Hassan Bajwa, “Effect of Curvature on the...
Performance of a Microstrip Printed Antenna Conformed on Cylindrical Body Using Epsilam-10 Ceramic-Filled Teflon as a Substrate,” American Journal of Materials Science, pp. 8-17, Nov. 2011.


Khaled Elleithy and Abdul Razaque, “Innovative usability testing to foster mobile applications to support collaborative learning environment (MCLE).” Journal of International Conference on Computer Science and Engineering (CSE-11) ICGST, Accepted.

Abdul Razaque and Khaled Elleithy, "Interactive linguistic prototypes to foster pedagogical activities through mobile collaborative learning (MCL)"International Journal of Interactive Mobile Technologies (IJIM)"Vol 5, No 3 (2011).

Abdul Razaque, Khaled Elleithy, Qasim Bani Hani, "Implementing and testing of anchor point node hybrid network architecture for remote areas with simulation of TCP”, IET Journal, Special Issue of Communication, 2011, Accepted.


Matthew Breland, Edwin Gravrand and Hassan Baja, "Engineered Nanoparticles for Targeted Drug Delivery" Accepted in 2012 IEEE Long Island Systems, Applications and Technology Conference, Long Island, NY, USA


Abdul Razaque, Khaled Elleithy, "Restoring privacy of users to foster Mobile Collaborative learning (MCL),"
ASEE Northeast Section Conference, University of Massachusetts Lowell, April 27th - 28th, 2012.


Beena Chaudhari (MSEE 2009) works for QUALGEN Wireless Solutions, located in King of Prussia, Pennsylvania. Ms. Chaudhari belongs to a group of 12 persons who are all recent UB graduates with the MSEE. Their work is to increase the bandwidth and number of phone channels in the new 4-G network. Ms. Chaudhari’s job title is Network Engineer. She uses software to maximize the benefits of the hardware that implements the 4-G network.

Ismail Sultan Khan (MSEE 2008) is Control Systems Engineer for Technical Service-Corporate, Leprino Foods, Denver, Colorado. He is in charge of food assembly line production and the supervision of new engineering hires.

Jim Mulholland (BSEE 1987) has been an executive for the past 15 years with Panasonic as a data/disk manager. Recently, he joined Ji2 Inc. in the same job. His clients include NBC News and many others whose goals are to extract data from disks and hardware for forensics and/or to destroy the disks/data in a fashion that does not breach company security.

Litai Lee (MSEE 2009), using the expertise gained at UB under Prof. Toporovsky in the PLC lab, now works for NuTech-Tooling, Meadville, PA as an Electrical Control Engineer.

Mahadev Malladi (MSEE 2010) is working for Bridgestone America in Nashville, Tennessee as a Software Engineer. He is working in the area of SQL server business intelligence. His task is to extract data from a given database and set up a “data warehouse” for permanent storage of this data.

Soumen Chatterjee (MSEE 2007), who has been an instructor for the department of Electrical Engineering (Manav Group of Institutions, Hisar, India) was recently appointed the department chair.

Mani Mahobia (MSEE 2010) was recently hired by Cvidian Corp. as a Controls Engineering doing work in PLCs (programmable logic control).

Mayur Patel (MSEE 2009) is working as a Control Systems Engineer for Odyssey Controls, Rochester, NY. His group recently built a control panel that he designed and wired according to skills learned from the PLC lab at UB. PLC stands for programmable logic controls.

Mounika Vemula (MSEE 2011) is working as a Automation Engineer for Xerox in Rochester, NY.

Chintan Rajaguru (MSEE 2009) has received a scholarship covering his tuition and living expenses as he studies for the Ph.D. at Boston University. His field of study is digital signal processing/audio signal processing.

Hardik Kumar Vyas (MSEE 2010) was recently hired by Hess Industries Inc., a multi-national conglomerate. His job title is Control Engineer, and he spends his time programming PLC (programmable logic controls) in support of machine automation systems.

Khalid Khan (MSEE 2007) was promoted to Senior Design Engineer at Neeetrin Inc. in New Milford, CT. He is an expert in implementing proper standards for power generators and power converters. Furthermore, he has developed new standards, where necessary, to improve the safety and reliability of the equipment his company sells.

Mohammad F. Balouch (MSEE 2007) is the IT project director for United Health Group, headquartered in Minneapolis, Minnesota. He is proud to report that his EE training played a big part in his rising to such a high rank in such a short time.

Pranay Chandra (MSCS 2008, BScpE 2007) is employed at Q-Logic in Alisovioje, California. He is a senior firmware engineer in charge of assembly coding of nic-chips. He also does verilog systems level simulations of new developments in computer motherboards. He also does Linux driver and BSD coding drivers of same.

Madhumitha Iyer (MSEE 2011) was recently hired by Qualcomm to work in their San Diego office as a Multimedia Test Engineer.

Mumtaz Mohammad (MSEE 2011) is working for Samsung Corp. at their Richardson, Texas office as an Engineer. His work calls on him to apply PLCs (programmable logic controls) to improving assembly line efficiency and to improving the human-machine interface capabilities of workers on the line where cell phones and computer tablets are produced.

Sandip Satasia (MSEE 2009) is a research engineer and designer for Games Wind US, working on wind turbine designs.

Siyuranga Koswatta (MSCpE 2003) obtained his Ph.D. from Purdue University in 2009. He is the author of several dozen journal articles on carbon nanotubes, graphene, and complex semiconductor devices. He has been employed by IBM Research since obtaining his Ph.D. (Bedford Hills, NY facility). His present focus is on silicon as applied to semiconductor structures in the same fashion as carbon nanotubes.

Vaibhav Bhatnagar (MSEE 2007) was recently hired as an Assistant Professor of Engineering at the Dehradun Institute of Technology, Dehradun, India.

Xia Sun (MSEE 2009) is a Research and Design engineer for Armstrong Snorks Toy Company in China. He and Litai Lee (MSEE 2009) are in the process of starting their own company in China for sales and export of electronics based equipment.

Zahed Kamal (MSEE 2008) is working in Florida for IGATE Patni, as the team for a group that does strategic outsourcing of technical jobs around the world, including electrical and computer engineering jobs.
RESEARCH LABORATORY LINEUP

Applied Computational Fluid Dynamics Laboratory
The applied Computational Fluid Dynamics (CFD) lab at the Mechanical Engineering department was established to use CFD as an analysis tool to understand the transport phenomena (fluid dynamics, heat and mass transfer, chemical reactions and electromagnetic effects) in industrial processes and as a design tool to optimize engineering components and system design. Transport phenomena are present in various industrial processes and engineered systems, such as energy conversion, automobile aerodynamics, electronics cooling, HVAC (heating ventilation and air conditioning), welding, casting, etc.

Center for Sustainable Energy and Environment
The Center for Sustainable Energy and Environment (CEE) is led by Dr. Elif Kongar and serves as an interdisciplinary research facility at the School of Engineering to conduct extensive research on energy and environment related issues. The mission of the Center is to contribute to the body of knowledge in related areas while increasing awareness on green activities.

Research areas include: life cycle analysis, End-of-life (EOL) products, disassembly for environment, disassembly sequencing, disassembly scheduling, greening curricula, and increasing participation of women in engineering.

The Center also serves as a bridge between researchers and the community, aiming to create enthusiasm for Science, Technology, Engineering and Math (STEM). Dr. Jani Pallis and Dr. Kongar, are respectively the current Society of Women Engineers (SWE) counselor and faculty advisor and aim at increasing the female participation in STEM related research.

Cloud Computing Cluster
The Cloud Computing Cluster (CCC) develops and implements open-source technologies to support reliable, scalable, distributed computing in non-relational data environments for science and business.

CNC Mini Milling Machine Laboratory
A Haas CNC mini milling machine in the Mechanical Engineering Lab at the School of Engineering is currently being used to support academics and engineering education. Courses offered through the Lab include MEEG 479: CNC Machine Control and Mill, MEEG 423: CAM & CNC Machining, MEEG 424: Advanced CAM & Automation, and some electrical engineering courses. Students acquire knowledge and experience in CNC programming, understand basic machining processes, learn to set up and adjust the tools and fixtures and follow safety procedures. The hands-on machining experiences in this mechanical lab benefit our engineering students in their current academic course learning as well as future career plan/employment.

Digital/Biomedical Embedded Systems & Technology Laboratory
The D-BEST Research lab focuses on digital/embedded systems designs, wireless and computer networks with applications to bio-inspired research areas. D-BEST lab members explore research findings on the following:

1) Respiratory signal classification and synchronization with virtual medical animations to assist lung cancer patients.
2) Sleep disorders and apnea detection using ECG and SPO2 signals.
3) EEG signal processing and classification for stress/fatigue early detection.
5) Security in Wireless Infrastructure Networks.

Interdisciplinary Robotics, Intelligent Sensing, and Control (RISC) Laboratory
The Interdisciplinary RISC Lab resides in the Computer Science and Engineering department at the University of Bridgeport. It was formed in 1995 by its founder and coordinator, Professor Tarek Sobh, in order to conduct research in a variety of robotics-related fields, and as a step towards the development of commercially applicable projects. Research interests include: reverse engineering and industrial inspection, CAD/CAM and active sensing under uncertainty, robots and electromechanical systems prototyping, sensor-based distributed control schemes, unifying tolerances across sensing, design, and manufacturing, hybrid and discrete event control, modeling, analysis, and applications, mobile robotic manipulation, developing theoretical and experimental tools to aid performing adaptive goal-directed robotic sensing for modeling, observing and controlling interactive agents in unstructured environments.
Multimedia Information Group

The Multimedia Information Group (MIG) of the Department of Computer Science and Engineering was founded by Professor Jeongkyu Lee in August 2006. MIG's research explores the technology and application of multimedia and information including video surveillance system, graph-based video database management system, and medical videos.

Nanomaterials & Nanobiomaterials Engineering Laboratory

Recent times have seen a significant amount of research focused on the understanding of various physical properties associated with nanoscale materials, either by themselves or in conjunction with polymers. Nevertheless, for nanotechnology advances to impact human life, designing these materials and hybrid materials with desired properties and integrating these properties in future technology development is needed. Thus, it is necessary to have complete control over their structure, properties, and arrangement through growth and modification processes.

Renewable Energy Research Laboratory

Sustainable energy is an increasingly important component of the new energy mix. Lab experiments cover the technologies of energy conversion, utilization and storage in solar, wind, fuel cells, and hybrid systems. The smart micro-power grid is also designed and optimized through a simulation with consideration given to cost and environmental effects.

PLC & Controls Laboratory

The PLC Laboratory at the Electrical Engineering Department is led by Prof. Jack Toporovsky. This lab introduces students with little or no background to PLC systems (programmable logic control systems). Students learn the theory of PLCs: they read, design and understand basic ladder logic; they are aware of potential problems and hazards; they learn to perform common procedures such as editing programs, forcing, clearing faults, etc. Students also learn how to connect to PLC systems and how to effectively and logically troubleshoot PLC system problems using RSLogix 500/5000, Factory Talk software, Mitsubishi PLC and HMI software. The Controls Lab, located in the Engineering Building (Tech 210), is used for both instruction and research.

Signal Processing Research Group Laboratory

The Signal Processing Research Group (SPRG) resides in the Department of Electrical Engineering. It includes four major areas: Speech, Audio, Bio, and Astronomy. Speech and Audio research projects are led by Prof. Buket D. Barkana. Bio and Astronomy research projects are led by Prof. Navarun Gupta.

Wireless & Mobile Communications Laboratory

The Wireless & Mobile Communications (WMC) Laboratory at the Computer Science & Engineering Department is led by Dr. Khaled Elleithy. The mission of the WMC Laboratory is to advance the state-of-the-art in wireless and mobile communications. The following projects are currently being conducted in the WMC Laboratory:

1) QoS of Multi-user communications for Cellular Networks
2) Bit Error Rate Performance of Multi-user Wireless DS-CDMA receivers
3) Power-Efficient Wireless CDMA Systems
4) Fundamental Limits and Optimality of Wireless Mobile Ad Hoc Networks
5) Power-Efficient Wireless CDMA Systems
6) Performance Optimization of Multi-user Receivers.

UB SOE INTERDISCIPLINARY PROGRAMS

The Graduate Studies Division continues to offer several new initiatives, including interdisciplinary concentrations that may be incorporated into graduate programs of the Schools of Business, Engineering, and Education and Human Resources. Matriculated and non-matriculated students may earn professional graduate certificates in any of the concentration areas listed below by satisfying the area requirements. Students do not need to be enrolled in a degree program. Each of the following requires three or four courses to complete. For more information, feel free to contact Prof. Gad Selig at gadselig@bridgeport.edu, or Prof. Khaled Elleithy at elleithy@bridgeport.edu.

- Bio-Tech Management
- CAD/CAM
- Computer and Information Security
- Technology Entrepreneurship and New Venture Creation
- Environmental and Energy Management
- Global Program and Project Management
- Health Care Management and Systems
- Information Technology
- Intellectual Property Management
- Manufacturing Management
- Modern Database System
- New Product Development and Management
- Quality Control
- Service Management and Engineering
- Software Engineering
- Robotics and Automation
- Strategic Sourcing and Vendor Management
- Supply Chain Management
- Wireless and Mobile Communications
- Corporate and Government Security and Continuity Management
- Computer Communications and Networking
Creativity Sans Frontiers
Sir Harold W. Kroto
Eppes Professor of Chemistry & Biochemistry, Florida State University

Sir Harold W. Kroto, 1996 winner of the Nobel Prize in Chemistry, delivered a special lecture on science and education at the University of Bridgeport on Friday, October 21, 2011. Sir Kroto, who is Francis Eppes Professor of Chemistry at Florida State University, won the Nobel Prize in Chemistry with Robert Curl and Richard Smalley for discovering a spherical form of carbon known as C60, or fullerene. At Florida State, Sir Kroto founded Global Educational Outreach for Science, Engineering, and Technology, an educational campaign that embraces technology to improve the level of science education, from elementary school to college, throughout the world.

Signal Processing and Classification in Biomedical Applications
Dr. Miad Faezipour
Assistant Professor, University of Bridgeport

Recent trends in clinical and telemedicine applications highly demand automation in signal processing and bio-signal classification. This talk addressed three biomedical applications and briefly discussed signal processing techniques used for classification. The first application is based on repetition-detection cardiac behavior profiling to classify/identify irregular heart beats from normal ones. Second, bed posture classification was discussed for pressure ulcer prevention. In this work, the patient’s posture is identified/classified through a whole-body pressure distribution map using principle component analysis of pressure images, and an efficient turning schedule is proposed for bed-bound patients. The third application was a study on the use of virtual reality to assist lung cancer patients. This work makes use of 3-D computer animations and human-computer interactions, allowing patients to destroy cancerous cells in a virtual environment. Human-computer interactions are to be classified for highest performance. The above approaches achieved classification accuracies greater than 97%, making them highly efficient for deployment in conjunction with traditional medical training, diagnosis and treatment.

Staying Healthy in the United States
Mrs. Melissa Lopez
Director, Student Health Services, University of Bridgeport

Health affects all aspects of college life. It is important college students lead a well-balanced life and learn healthy behaviors so that they can succeed academically and later on in their career. During this presentation, students learned about illnesses that affect college students in the U.S. and the importance of prevention and healthy behaviors. In addition, other topics such as health insurance in the U.S., prevention of the flu (including H1N1) and health resources on campus were covered.

Fast Realistic Rendering using Points
Dr. Rui Wang
Assistant professor, University of Massachusetts

Fast simulation of photorealistic rendering effects such as complex light paths and dynamic materials has been a long sought-after goal in computer graphics. Today a common approach is to approximate the source of illumination by a discrete set of points, such as virtual point lights. The main difficulty with such an approach is the computation cost when dealing with a large set of points. In this talk, Dr. Wang presented several efficient techniques to tackle this problem, including bidirectional importance sampling, adaptive clustering, and reflectance filtering. We implement these techniques on modern graphics hardware to achieve interactive rendering rates under dynamically changing geometry and materials. These techniques are applicable for lighting, architectural, and visual design problems, providing users with realistic rendering feedbacks in real time.

Mathematica in Education and Research
Mr. Troy Schandt
Academic Account Executive at Wolfram Research

This talk illustrated capabilities in Mathematica that are directly applicable for use in teaching and research on campus. Attendees with no prior experience report that this talk helps with getting started using Mathematica language and workflow. With improvements like the new free-form input and expanded areas like finance, statistics, engineering, software development, and image processing, even the most advanced users reported learning quite a bit from Mathematica technical talks.
All attendees received an electronic copy of the examples, which can be adapted to individual projects.

The Development of the First Air Machine, through the Wright Aeronautical Engineering Collection at the Franklin Institute

Ms. Kristin Qualls

Collections & Exhibit Specialist, The Franklin Institute Science Museum

Orville Wright deeded to The Franklin Institute all of his and his brother’s, Wilbur Wright’s, original wind tunnel apparatus, model airfoils, test data and drawings of their early airplane. In addition to the intrinsic and irreplaceable value of the many items in the collection, there exists within them a record of the logical, step-by-step program of engineering research and development by which the Wright Brothers enabled themselves to achieve success in flying their first powered airplane. Ms. Kristin Qualls, Collections & Exhibit Specialist, The Franklin Institute Science Museum, Philadelphia, Pennsylvania and Dr. Jani Macari Pallis, Mechanical Engineering, traced the evolution of the Wright brothers’ first flight through the Wright Aeronautical Engineering Collection.

Preventing MITM attacks using Visual Security Augmentation (VISAGE)

Dr. Dongwan Shin

Associate Professor, New Mexico Tech

In this talk, Dr. Shin revisited the man-in-the-middle (MITM) attack, which can be easily exploited on risky public networks and trusted private networks alike. The problem occurs when a middleman positions himself into the communication link between two legitimate users. A recent study conducted by Lieberman Research Group shows that more than a half of respondents expressed their serious concerns about the security of online shopping and banking, and the rapid growth of smartphones and tablets will likely increase the general public’s concerns. The MITM attack is behind many culprits for their security concerns such as online fraud and identity theft. Even though there are many guidelines and solutions for the attack, they are not sufficient enough to protect against such a destructive attack. One recent example, called SSL stripping attack, confirms this observation. This attack is so effective that it could affect tens of millions of online users of popular SSL-protected websites such as e-commerce, m-commerce and social network sites. Considering SSL is regarded as the last technical resort to the middleman problem online, this instance of the attack clearly demonstrates the resiliency of the MITM attack problem and the urgency for its solutions. Two novel approaches were presented to address MITM attacks by using visual security augmentation. Specifically, motivated by typical traffic lights, Dr. Shin introduced a set of visual cues aimed at thwarting the attack. The visual cues, called security status light (SSLight), can be used to help users make better, more informed decisions when their sensitive information needs to be submitted to the websites. The design and implementation of the visual cues were discussed along with the result of an empirical study. A user study was conducted to investigate the effectiveness of our scheme, and its results show that our approach is more promising than the traditional pop-up method adopted by major web browsers.

Nanotechnology and the Energy Challenge

Dr. Emilio Mendez

Emilio Mendez, Center for Functional Nanomaterials Brookhaven National Laboratory And Department of Physics and Astronomy State University of New York at Stony Brook

Since 1973, the year of the first major oil crisis, the world’s energy consumption has doubled, but the portion of fossil fuels has barely changed. In 2008, 81% of the energy used still came from a combination of oil, coal, and natural gas. This large dependence on fossil fuels presents one of the world’s biggest challenges because the earth’s reserves are limited; their uneven distribution exacerbates geopolitical problems; and, most urgently, fossil-fuel burning is the main source of greenhouse gases that affect climate change. The answer to this challenge goes from reducing energy consump-

Improve Your Public Speaking Skills

Mr. Paul Gruhn

Senior Systems Engineer at Yale University

In this presentation we visited some of the fears and limitations people often encounter when speaking in public and then offer practical tips and advice on how to get your public speaking abilities to the next level. Finally, everyone participated in some simple speaking exercises, guaranteed to improve your public speaking skills. Applying a few simple tips to your attitudes and mental mind set will break through a lot of the walls that can enclose our communication effectiveness. How we think about ourselves and public speaking, and the level of knowledge and preparedness on a given topic; all affect how our final presentation came across. Implementing practical tips on breathing, posture, eye contact, and engaging you audience will start to bring your speaking skills to the next level.
Dear Alumni and Friends of UB:

You are part of a lasting legacy, and right now, you can help strengthen this legacy for the future, with your gift to the School of Engineering (SOE). Your support allows for new programs, enhanced classrooms, more student scholarships and a revitalized campus - all of which contribute to our continued growth and renewal.

You already know that knowledge is the key to building bridges of understanding. Cutting-edge programs and technology are leading the way for today’s engineering students at UB. The University was founded on the belief that education should be accessible to all, and today we are keeping that promise. But we can’t do it alone. Your support means we can strengthen our commitment to superb, functional, career-oriented degrees and world-class research and development endeavors. Please help the School of Engineering remain at the forefront of education, research and scholarship. Your gifts will help make that program a reality.

UB's School of Engineering is the fastest growing school of engineering in the nation (among 300+ accredited engineering schools) and is home to the largest graduate engineering program in Connecticut, with over 1,100 current graduate students, and is one of the four largest engineering programs in New England. The School of Engineering’s recent accomplishments have been hailed in academia, the engineering community and the media as an amazing success story in the growth of academic quality, enrollment and research productivity among engineering schools in the country in the last 50 years. Attached please find a list of our recent highlights. We are very proud of our faculty and students who made these successes possible!

Friends and alumni of the University of Bridgeport’s School of Engineering represent diverse and accomplished professionals who understand the importance of a solid education. Your legacy is the foundation upon which we build for tomorrow - and our future is bright.

If you have contributed in the past, we thank you and hope you will renew and consider increasing your support. If you are making a first-time gift, please know that all contributions, at any giving level, are greatly appreciated.

The following is a link to our annual giving website: http://www.bridgeport.edu/alumni/give

To find out more about our achievements or provide your input on how we may serve you better, please call me directly at (203) 576-4116 or send me an e-mail at sobh@bridgeport.edu

With gratitude for your generosity,

Tarek M. Sobh, Ph.D., P.E.
Vice President for Graduate Studies and Research and Dean of the School of Engineering

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