Welcome ECE Students!

ECE Chair’s Message

On behalf of the ECE faculty and staff I’d like to welcome our new students – freshmen, transfers and graduate students! As you start your UML career I encourage you to get involved in extracurricular activities offered by the department, college and university. The ECE Department and the College of Engineering offer many opportunities to extend yourself by participating in research, service learning and student groups. ECE examples include the IEEE and Eta Kappa Nu. I assure you that your college experience will be richer if you get involved!

This newsletter and future editions will include profiles of your fellow students who have gotten involved and enriched their educational experience. For instance, ECE has a significant number of undergrads who work with faculty on their research. Projects include nanomaterials, optical fingerprinting, using brain waves to assist ALS patients, and many more. These research projects can provide opportunities for travel and to present your work at professional conferences. For instance, four ECE undergrads travelled to India this summer for two weeks to work with Indian engineering students on assistive technology projects and electric vehicles. Another ECE undergrad (who is now a grad student) competed in the Intel embedded system design contest in Shanghai, China.

If you have a story about your experience as an ECE student let us know!

Have a great semester!

Professor Craig Armiento
Prof. Xingwei Wang Leads NSF Equipment Grant

Prof. Xingwei Wang recently received a National Science Foundation 3-year grant titled “MRI-R2: Acquisition of a Focused Ion Beam Scanning Electron Microscope (FIB-SEM) for Nano/Micro Fabrication/Characterization”, with Earl Ada, Carol Barry, David Kazmer, Mengyan Shen in the amount of $1,150,000.

This grant is to support the acquisition of a state-of-the-art Auriga CrossBeam Focused Ion Beam-Scanning Electron Microscope (FIB-SEM) workstation from Carl Zeiss for research and research training that are critical for workforce training and regional economic development. The requested system is the state-of-the-art equipment that can simultaneously perform machining and characterization of both conductive and nonconductive materials with best-in-class resolution. Complemented with existing extensive resources, the FIB-SEM will greatly strengthen UML’s signature research programs in nanomanufacturing and plastics engineering, and support the university’s strategic research plan in clean energy, life sciences and bioengineering. UML has been working closely with local companies and the acquisition will promote substantive and meaningful partnerships between academic and private sectors.

The requested equipment will immediately impact more than 20 faculty members and their research groups from nine departments. Graduate, undergraduate and K-12 students will benefit from a series of training. In addition, UML has long-standing ties with industry and flexible arrangements for equipment use by industry partners. External users will be attracted by the well-established events of the Nanomanufacturing Center (e.g., industry days, visits, and workshops). UML also has collaborative relationships with University of New Hampshire, Northeastern University, and other universities nearby that will also benefit from the requested equipment.

More information about Prof. Wang’s research can be found at http://faculty.uml.edu/xwang/

Prof. Samson Mil’shtein Receives Grant from Justice Department

Prof. S. Mil’shtein has received supplemental funding of $102,365.80 from the Department of Justice for the grant “Mobile Biometric System”, which brings two-year contract to $456,722.80. Prof. Mil’shtein leads his team in designing a state-of-art easy-of-use system that is set to improve the efficiency and accuracy of biometric recording in various areas of law enforcement.

During July 16-29, 2010, Prof. Mil’shtein attended two international conferences: International Conference on the Physics of Semiconductors (ICPS-2010) held in Beijing, China, and International Conference on Superlattices, Nanostructures, and Nanodevices (ICSNN-2010), held in Seoul, South Korea.

Prof. Mil’shtein’s recent publications include: (1) S. Mil’shtein, S. Maltabas, and O. K. Ekekon, “Ballistic Silicon Diode with Filament Control”, ICPS-2010 (To be published in the conference proceedings); (2) S. Mil’shtein and J. Palma, “FINFET with Constant Transconductance”, ICSNN-2010 (To be published in the an upcoming issue of the Journal on Nanotechnology); (3) J. Palma and S. Mil’shtein, “Field Effect Controlled Lateral Field Emission Diode,” Presented at 23rd International Vacuum Nanoelectronics Conference, Palo Alto California, July 2010 (to be published in an upcoming issue of the Journal of Vacuum Science and Technology) 2010; and (4) J. Palma and S. Mil’shtein, “Determination of Defect Densities in High Electron Mobility Transistors Using Current Transient DLTS”, Presented at 30th International Conference on the Physics of Semiconductors, Seoul, Korea, July 2010 (To be published in the conference proceedings.)
Prof. Ziyad Salameh Serves on Panel at Power and Energy Meeting

Professor Salameh served as a panelist at the IEEE Power and Energy Society General Meeting 2010 that was held in Minneapolis, MN, in July 26-29th, 2010. He presented his view on renewable energy and showed the audience a video clip about the wind turbine and electric vehicles at UMass Lowell campus. In the conference, Prof. Salameh also presented two papers: “Overview of Building Integrated Wind Energy Conversion Systems” co-authored by Ziyad Salameh and Chintan Nadu, and “Small Scale Distributed Generation System at UML” by Ziyad Salameh and A. Cultura.

Professor Salameh attended IEEE Vehicle Power and Propulsion Conference 2010 which was held in Lille, France, Sep1-3, 2010. He presented a paper, titled “Temperature Effects on Fast Charging Large Format Prismatic Lithium Iron Phosphate Cells” by D. Patel, F. Tredeau and Z. Salameh. IEEE VPPC2010 is co-sponsored by IEEE Power Electronics Society (PELS) and IEEE Vehicular Technology Society (VTS). The conference aims to provide a forum for sharing knowledge, experience and creative ideas in vehicle power and propulsion in order to develop and promote "clean technology" for future transportation systems.

Prof. Kanti Prasad Serves on Advisory Board of Indian Institution

Prof. Prasad has been selected to be on the International Academic Advisory Board (IAAB) of Meghe Group of Institutions, Nagpur, India. The plaque was presented at MIT inaugural celebration held on 11th of June 2010. The inscription on the plaque is on the right.

Meghe Group of Institutions, Nagpur (M.S.) India
Inaugural Meeting on 11th June 2010 at Massachusetts Institute of Technology, Cambridge, USA
Hon’ble Member on the International Academic Advisory Board
Meghe Group of Institutions
Grateful to you for joining
Our endeavors & sharing our vision
Imparting Quality Education
Hon’ble Kanti Prasad

Prof. Yan Luo Awarded NSF Grant and Chairs Conference Session

Assistant Prof. Yan Luo is leading an NSF funded project on building multicore processor-based programmable edge nodes for Global Environment for Network Innovations (GENI), a major NSF initiative on revitalizing the next generation Internet. Luo leverages his computer architecture expertise in designing high performance network systems, bridging the gap between the network research community and the computer architecture community. He is newly awarded NSF REU fund (total amount $45,525) to support the research and travel of the undergraduate students.

Prof. Luo traveled to New Delhi, India to attend SIGCOMM’2010, the flagship ACM conference on data communications between Aug 30 and Sept 3. In the conference he presented a research paper co-authored with ECE students Timothy Ficarra and Eric Murray. He was invited to chair a session in the SIGCOMM Virtualized Infrastructure and System Architecture workshop.
Four ECE undergraduate students, Nichole Griffin, David Harrington, Erin Webster and Heather Sweeny, led by ECE staff Alan Rux and Senait Haileselassie, visited two Indian institutions to help the starting of assistive technology projects for the new school year.

The ECE representatives visited B V Raju Institute of Technology (BVRIT) located at Hyderabad, A.P. India and Shir Vishnu Engineering College for Women at Bhimavaram, A.P. India. They took over night train trip between schools to help the faculty at those schools and interact with students on various assistive technology projects, for example, converting a gas powered auto rickshaw (three-wheel taxi) to an electric vehicle at BVRIT.

The ECE team also helped with the starting of assistive technology projects for the new school year at both schools. They worked with local grade school (7th-8th grade students) with hands-on science projects. This trip was the second one that our ECE assistive technology personnel made to India to promote advanced technology education and establish friendships between the US and Indian students. The sightseeing and experiencing local cuisine also gave the team a refreshing experience about Indian culture.

ECE Students Win Prize in Intel-Cup Design Contest

Invited by the contest organization committee of 2010 Intel-Cup Embedded System Design Contest, three ECE undergraduate students, Eric Murray (team leader), Guofu Yuan and Amon Faria, advised by Prof. Yan Luo participated the contest by designing an Intel Atom processor based E-book reader system. The system leveraged the newest Intel Atom development platform and open-source e-reader software, and enhanced the functionality and user experience through multicore programming and Hadoop cloud computing paradigm. Murray gave a demo of the system and presented the design in front of a judge panel in Shanghai, July 22, 2010. This was the 2nd time UML attending this bi-yearly international contest.

(picture above: Eric Murray proudly shows the prize certificate)
Editor’s Note: We regularly present profiles of our wonderful student researchers and postdocs. Please email Prof. Yan Luo (yan_luo@uml.edu) to introduce your ECE team members.

Ph.D. Student in Prof. Xingwei Wang’s Team

| Xiaodong Ma                          |  
| Ph.D.                              |  
| Biomedical Engineering and Biotechnology |  
| Electrical and Computer Engineering Department |  
| University of Massachusetts Lowell (2007-2010) |  

Xiaodong Ma was a Ph. D student in the Biomedical Engineering and Biotechnology Joint Doctoral Program (BME&BT) of University of Massachusetts at Lowell. He joined Prof. Xingwei Wang’s group since 2007 in Electrical and Computer Engineering Department working on optical fiber biosensors and surface enhanced Raman scattering (SERS) sensors. Since 2008, he worked on a project in a start-up company, VasoTech, Inc., for R&D of a novel biodegradable polymer coated drug-eluting stent. He is an interdisciplinary researcher whose research interests and expertise cover various fields such as Drug-Eluting Stents (DES), Optical Biosensors, SERS and Bio-nanopatterning. He has finished his doctoral study and completed the Ph. D defense in August, 2010. During the doctoral study, he has published 1 paper on DES and submitted 5 papers including DES and biosensor/SERS to peer-reviewed journals (under review process). In addition, 4 posters were presented at conferences such as the American College of Cardiology (ACC) meeting and the Material Research Society (MRS) meeting. Currently, he is looking for a position to deepen/extend his interdisciplinary knowledge and make his contributions to R&D or manufacturing of medical devices.