ELECTRICAL & COMPUTER ENGINEERING DEPARTMENT
ANNUAL REPORT SUMMARY
2012-2013

UNDERGRADUATE EDUCATION
The Electrical & Computer Engineering (ECE) department offers undergraduate degrees in Electrical Engineering (EE), Computer Engineering (CompE, offered jointly with the Computer Science & Engineering Department), and Engineering Physics (EGPHY, offered jointly with the College of Liberal Arts and Sciences). Fall 2012 undergraduate enrollments were: 184 students in the EE program, 41 students in the CompE program, and 29 students in the EGPHY program. During the academic year 2012-2013, we awarded 40 B.S.E. degrees in EE, five in CompE and three in EGPHY.

RESEARCH AND SCHOLARSHIP
The ECE faculty conducts funded research in fields including systems and energy, communications and signal/image processing, biomedical engineering, microelectronics, photonics and optoelectronics, electromagnetics, nanotechnology, VLSI, computer engineering, and security. Scholarly productivity stimulated by research is strong. The faculty publications included approximately 150 refereed journal articles, 5 book chapters, and 195 full conference proceedings papers. ECE faculty members developed two software packages, offered many professional short courses, were keynote speakers at 5 international conferences, and delivered 48 invited talks. The faculty worked on 114 sponsored grants with annual expenditures of $6 million. During the year, the ECE faculty advised 134 graduate students; of these, 16 successfully completed their Ph.D. degrees and 26 students (including those in Clinical Engineering) garnered their M.S. degrees. Drs. Bahram Javidi was awarded three patents and Peter Luh, Lei Wang and Quing Zhu were awarded one each.

FACULTY HONORS
ECE faculty members received several prestigious awards. Dr. Shengli Zhou was selected as the first recipient of the newly endowed Charles Knapp Associate Professorship. He was also selected for this year’s School of Engineering Outstanding Faculty Advisor Award. Dr. John Chandy has been named as a United Technologies Corporation Professor in Engineering Innovation. Dr. Peter Luh is to receive the IEEE Robotics and Automation Society (RAS) Pioneer Award for 2013. Dr. Faquir Jain has been name a Fellow of SPIE for his scholarly achievements. Alumnus and Distinguished Professor-in-Residence Anthony DeMaria received the 2013 CASE Distinguished Service Award for his contributions to the Academy as a charter member, fourth president and past-president. Dr. Mohammad Tehranipoor was named Director of the Center for Hardware Assurance, Security, and Engineering (CHASE).

Congratulations to Shengli Zhou who was promoted to full professor as well as to Helena Silva and Ali Gokirmak who received promotion and tenure to associate professor.

Drs. Yaakov Bar-Shalom and Bahram Javidi are Board of Trustees Distinguished Professors. Our endowed chairs include Dr. Yaakov Bar-Shalom, who is the Marianne E. Klewin Endowed Professor in Engineering, and Dr. Peter Luh, who is the SNET Professor of Communications & Information Technologies and Dr. Krishna Pattipati, who is the United Technologies Corporation Chair in Systems Engineering.

ECE faculty members are also leaders in many professional societies/organizations. Drs. Anthony DeMaria, Eric Donkor, Faquir Jain, Bahram Javidi and Quing Zhu are SPIE Fellows; Drs. Yaakov Bar-Shalom, Steven Boggs, Anthony DeMaria, John Enderle, Bahram Javidi, Peter Luh, Krishna Pattipati, Geoffrey Taylor and Peter Willett are IEEE Fellows; Drs. John Enderle and Bahram Javidi are American
Institute for Medical and Biological Engineering Fellows: Drs. Anthony DeMaria and Bahram Javidi are Optical Society of America Fellows; Dr. John Enderle is an American Society of Engineering Education Fellow; Dr. Rajeev Bansal is a Fellow of the Electromagnetics Academy; and Dr. Anthony DeMaria is a Fellow of the American Physical Society as well as a member of the prestigious National Academy of Engineers.

Drs. Mehdi Anwar, Rajeev Bansal, Yaakov Bar-Shalom, Anthony DeMaria (who is a co-founding member), Eric Donkor, John Enderle, Monty Escabi, Faquir Jain, Bahram Javidi, Peter Luh, Krishna Pattipati, Geoffrey Taylor, Shengli Zhou and Quing Zhu are elected member of the Connecticut Academy of Science and Engineering (CASE). During 2012-2013, ECE faculty members held several conference chair posts and numerous positions on the editorial boards of journals.

**INDUSTRIAL CONNECTIONS**
The Department has an engaged Industrial Advisory Board (IAB), providing vital input on our curricula, recruitment, and strategies. Industrial feedback is essential in maintaining high-quality, relevant programs and is a major link in the ABET accreditation process. Additionally, the affiliated companies participate in collaborative research, sponsor senior design projects, provide internship opportunities for our students, and often hire them permanently. The companies represented on the IAB this year are Aptima, ARRIS Access and Transport, Coherent, Comcast, GE Corporate Financial Services, GE Consumer & Industrial Technology, Hamilton Sundstrand, ISO New England, JDS Uniphase, Naval Undersea Warfare Center, Northeast Utilities, Phonon Corporation, Pratt & Whitney, SAVANT, Sikorsky Aircraft Corporation, and Silicon DFX. The Department is also active in collaborative research and development projects with many other companies.

**GRADUATE STUDENT AWARDS**
Ph.D candidate Zhaohui Wang received the Collegian Innovation and Leadership Award for her exceptional achievement in the area of underwater acoustic communication and networking at the 2013 Women of Innovation Awards Ceremony. The fall 2012 recipient of the ECE Outstanding Teaching Assistant Award was Qihang Shi and the spring 2012 awardee was Kimberly Kaltecker. Umar Alqasemi is working on technology that combines photo-acoustic imaging with ultrasound imaging for early tumor detection. A paper (on which his is lead author) describing the technology, appeared on the cover of the July 2012 issue of the IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control.

**STUDENT ACTIVITIES**
The UConn student branch of the Institute of Electrical and Electronics Engineers (IEEE) organized several educational and professional activities in the past two semesters. The officers made members aware of many scholarship or employment opportunities and kept them informed about companies visiting campus each week for networking. They held department feedback and study sessions and general conversations about members’ individual projects and offered ideas/support for them. The members suggested changes to the EE curriculum and some were approved. They engaged other undergraduate students by holding general electronic applications classes and solder workshops.

**ECE PERSONNEL CHANGES**
The department will be adding five new faculty (one in conjunction with IMS) in fall 2013. Drs. Ashwin Dani and Liang Zhang will be joining the systems group. Dr. Dani received his Ph.D degree from the University of Florida, Gainesville in 2011. He is currently a Post-Doctoral Research Associate at the University of Illinois Urbana-Champaign. Dr. Liang Zhang received his Ph.D. degree from the University of Michigan, Ann Arbor in 2009. He is currently an Assistant Professor in the Department of
Industrial and Manufacturing Engineering at the University of Wisconsin-Milwaukee. Drs. Marten van Dijk and Domenic Forte will be joining colleagues in the computer engineering area as well as the CHASE center. Dr. Forte has just completed his Ph.D. at the University of Maryland. Dr. van Dijk received his Ph.D from Eindhoven University of Technology in the Netherlands. He is currently a research scientist at the MIT Computer Science and Artificial Intelligence Laboratory. Dr. Yan Cao will be joining IMS with ECE as his home department. Dr. Cao received his Ph.D from UConn in 2002.

Celine Goorahoo is the new Administrative Services Specialist who joined our ECE staff in August 2012.