

ELECTRICAL & COMPUTER ENGINEERING DEPARTMENT

ANNUAL REPORT SUMMARY

2016-2017

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 2016 undergraduate enrollments were: 257 students in the EE program, 72 students in the CompE program, and 11 students in the EGPHY program. During the academic year 2016-2017, we awarded 77 B.S.E. degrees in EE, 15 in CompE, and one 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 126 refereed journal articles, 141 full conference proceedings, and 54 short conference proceedings/presentations. ECE faculty members developed many new courses/innovations, were keynote speakers at 8 international conferences, and delivered 38 invited talks. The faculty worked on 111 sponsored grants with annual expenditures exceeding \$6.1 million. During the year, the ECE faculty advised 140 graduate students; of these, 18 successfully completed their Ph.D. degrees and 12 students garnered their M.S. degrees. Yang Cao and Sung Yeul Park were each awarded one patent.

FACULTY HONORS

ECE faculty members received several prestigious awards.

Peter Luh is the recipient of the 2017 IEEE RAS George Saridis Leadership Award in Robotics and Automation from the IEEE Robotics and Automation Society (RAS).

The ISIF Award for Lifetime of Excellence in Information Fusion has been renamed "ISIF Yaakov Bar-Shalom Award for Lifetime of Excellence in Information Fusion".

Peter Willett was selected for appointment to a Centennial Term Professor.

Peng Zhang was selected as a Castleman Term Professor in Engineering Innovation.

Marten van Dijk received the Most Frequently Cited Paper Award (2000-2009) at the 2017 Symposium on VLSI Circuits in Kyoto, Japan.

A paper co-authored by Wen Chen, Bahram Javidi, and Xudong Chen published in *Advances in Optic and Photonics* was the #1 cited article of the journal between 2014-2016.

Our endowed chairs include Yaakov Bar-Shalom, who is the Marianne E. Klewin Endowed Professor in Engineering, Peter Luh, who is the SNET Professor of Communications & Information Technologies and Krishna Pattipati, who is the United Technologies Corporation Chair in Systems Engineering. Marten van Dijk is the Charles H. Knapp Associate Professor in electrical Engineering.

ECE faculty members are also leaders in many professional societies/organizations. Anthony DeMaria, Eric Donkor, Faquir Jain, and Bahram Javidi are SPIE Fellows; Yaakov Bar-Shalom, Anthony DeMaria, John Enderle, Bahram Javidi, Peter Luh, Krishna Pattipati, Geoffrey Taylor and Peter Willett are IEEE Fellows; John Enderle and Bahram

Javidi are American Institute for Medical and Biological Engineering Fellows; Anthony DeMaria and Bahram Javidi are Optical Society of America Fellows; 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. 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, and Shengli Zhou are all members of the Connecticut Academy of Science and Engineering (CASE). During 2016-2017, 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, research, and future plans. 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, Cigna, Coherent, Comcast, GE Consumer & Industrial Technology, ISO New England, Lumentum, Mitre Corp., Naval Undersea Warfighting Development Center, Eversource Energy, Phonon Corporation, Pratt & Whitney, SAVANT, Sikorsky Aircraft Corporation, Silicon DFX, and UTC Aerospace Systems. The Department is also active in collaborative research and development projects with many other companies.

The third CyberSEED Cybersecurity, Education & Diversity Challenge, an event that combined industry and academic speakers and three cybersecurity competitions, was held October 10th and 11th. It was organized by the Center of Excellence for Security Innovation (CSI)

GRADUATE STUDENT AWARDS

Taofeek Orekan served as a Session Chair of the MTS/IEEE OCEANS '16 the most prestigious conference in ocean engineering. A paper by Lingyi Zhang, David Sidoti, Krishna Pattipati and David Castanon of BU won the Best Student Paper Award at the 2016 International Conference on Information Fusion held in Heidelberg, Germany. At the same conference, Gang Yao, Mike Williams and Ashwin Dani received First Runner Up. Avnish Kumar received the Fall 2016 ECE Teaching Assistant Award. Wenjie Huang, Yiqi Liu and James Wilson received the award for Spring 2017.

STUDENT ACTIVITIES

The UConn student honor society Eta Kappa Nu (HKN), advised by Prof. Monty Escabi, was awarded the 2015-2016 IEEE-HKN Outstanding chapter Award in recognition of excellence in their chapter administration and programs. Their YouTube Channel, "UConn HKN" continues to expand with 43 online tutoring videos with over 164,000 total views from around the world. The Institute of Electrical and Electronics Engineers (IEEE) student chapter had another successful year with many new faces. There were several diverse workshops held to teach students the basics and encourage them to explore the topics deeper. The chapter is advised by Prof. Ali Gokirmak. The SPIE UConn chapter sponsored a social gathering and seminars throughout the academic year. They were co-sponsored with the Optical Society of America (OSA). Their most notable speaker was Shinji Ohsuka from Hamamatsu Photonics K.K., Japan. The chapter is co-advised by Profs. Faquir Jain and Qing Zhu.

ECE PERSONNEL CHANGES

Dr. Abhishek Dutta joined ECE/ME jointly in Fall 2016. He received his Ph.D. degree from Ghent University, Belgium in 2013. Before coming to UConn, he was a post-doctoral fellow at the University of Illinois at Urbana-Champaign. Dr. Necmi Biyikli will be joining the department this Fall 2017. Dr. Biykli received his Ph.D. from Bilkent University in Turkey in 2009. He is currently a Research Fellow at Utah State University.

Shane Eagleson joined the ECE department staff to provide IT and technical support.