This newsletter is published for the alumni, faculty, students, corporate supporters and friends of the Department of Electrical & Computer Engineering at the University of Connecticut. Suggestions and information are always welcome.

Please send correspondence and address corrections to the address below or email rajeev@ engr.uconn.edu.

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The creative efforts of the School of Engineering staff members Nan Cooper, Chris LaRosa and Mary McCarthy are gratefully acknowledged.
Message from the Head of the Department

I am pleased to share with you the Winter 2014 edition of our Newsletter. As the data for student enrollment and faculty research/scholarship show, the ECE Department had another strong year. In the following pages, you can learn about some of the highlights from the last year. As always, I am grateful for the continuing support of our alumni and external partners. If you have any comments or suggestions, please drop me a line at rajeev@engr.uconn.edu. Also, don’t forget to check our website (http://www.ee.uconn.edu/) for the latest news about our programs.

ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT 2012-2013 SUMMARY

FACULTY
30 tenured/tenure track faculty

2012-2013 GRADUATES
47 B.S.E., 25 M.S.*, 16 Ph.D.**

CURRENT STUDENTS
254 undergraduate, 142 graduate

RESEARCH
150 journal articles
195 conference papers
114 active research projects
$6M in research expenditures

*Includes 18 BME students advised by an ECE faculty member
**Includes 1 BME student advised by an ECE faculty member

Astronaut Rick Mastracchio, STS-118 mission specialist, on a Crew and Equipment Translation Aid (CETA) cart. Photos courtesy of NASA.
CASE Distinguished Academy Award-winner Anthony DeMaria

The 2013 CASE (Connecticut Academy of Science and Engineering) Distinguished Service Award-winner Anthony DeMaria has served as a distinguished professor-in-residence in the University’s electrical & computer engineering department in the School of Engineering since 2003. He founded and served as chairman and CEO of DEOS, a Bloomfield, Conn.-based leading manufacturer of sealed-off, RF excited waveguide CO2 lasers for industrial and governmental applications, which was purchased in 2001 by Coherent Inc. He remained chief scientist at the company until his retirement in 2012. DeMaria is an elected member of the National Academy of Engineering (1976) and the National Academy of Science (1997) for his pioneering development of picosecond laser pulse physics. He is a Fellow of the American Physical Society and IEEE, and a Fellow and past president of the Optical Society of America and SPIE. In 2004, he received the Connecticut Medal of Technology, and in 1984 he was awarded the IEEE Centennial Medal.

Dr. Luh Recipient of IEEE Award

Dr. Peter Luh, the SNET Professor of Communications and Information Technologies in the Electrical & Computer Engineering Department, received the IEEE Robotics & Automation Society (RAS) Pioneer Award for 2013 “for pioneering contributions to the development of near-optimal and efficient planning, scheduling, and coordination methodologies for manufacturing and power systems.” Dr. Luh is an IEEE Fellow and was also the founding Editor-in-Chief of the IEEE Transactions on Automation Science and Engineering (2003-07) and the Editor-in-Chief of the IEEE Transactions on Robotics and Automation (1999-03).

John Chandy Receives Award

Dr. John Chandy has been recognized as a United Technologies Corporation Professor in Engineering Innovation in the School of Engineering. The three-year award has been established to recognize exceptional achievements of young faculty who exemplify excellence, being at the very top of their area of research.

ECE Welcomes New Faculty and Staff

The Electrical and Computer Engineering Department welcomed one staff member (Jeannette Burke), three assistant professors (Ashwin Dani, Domenic Forte, and Liang Zhang), and two associate professors (Yang Cao and Martin van Dijk) in Fall 2013.

Yang Cao holds a joint appointment in the Institute of Materials Science. He received his PhD from UConn in 2002 and was employed as a Senior Scientist and earlier as a Materials Scientist at GE Global Research (2002-13). His expertise includes the development of new dielectric materials based on emerging nanotechnologies for energy efficient electric machines for industrial applications, transportation and power generation.

Ashwin Dani received his PhD in Mechanical & Aerospace Engineering from the University of Florida in 2011. His expertise lies in nonlinear estimation and control, robotics, autonomous navigation, multi-agent systems, stochastic estimation and control, and vision-based control. Dr. Dani was most recently a post-doctoral research associate at the University of Illinois at Urbana-Champaign.

Domenic Forte received his PhD from the University of Maryland in 2013 and brings expertise encompassing hardware issues in cybersecurity, dynamic energy and thermal management in distributed systems, and green computing in large-scale datacenters. As a co-op student (2007-09) at the National Institutes of Health, Dr. Forte developed an automated animal monitoring system.

Liang Zhang received his PhD from the University of Michigan, Ann Arbor in 2009. Dr. Zhang’s research expertise includes modeling, analysis, continuous improvement and control of manufacturing, supply chain and service systems; and mathematical modeling, analysis and control of battery systems. He was previously an assistant professor at the University of Wisconsin-Milwaukee.

Jeannette Burke joined the department as an administrative services specialist working for the CHASE center. While completing her MSAT at University of Hartford, she worked for Public Safety at the university.
Marten van Dijk, Co-Author of Award Winning Paper

Dr. Marten van Dijk, Associate Professor of Electrical and Computing Engineering, is a co-author (with E. Stefanov, E. Shi, C.W. Fletcher, L. Ren, X. Yu, and S. Devadas) of a paper awarded one of three best student paper awards at the ACM Conference on Computer and Communications. The paper is entitled “Path ORAM: An Extremely Simple Oblivious RAM Protocol.”

Dr. Tehranipoor Selected for Prestigious 3-Year Appointment

Dr. Mark (Mohammad) Tehranipoor has been selected as the second Charles H. Knapp Associate Professor in Electrical Engineering. His 3-year appointment begins December 1, 2013. He is also the Director of the Center for Hardware Assurance, Security, and Engineering (CHASE). Dr. Tehranipoor is the co-author (with J. Villasenor) of an article entitled “The Hidden Dangers of Chop-Shop Electronics,” which was featured as the cover story in the October 2013 issue of the IEEE Spectrum.

Shengli Zhou Elected a Fellow

Dr. Shengli Zhou (Electrical & Computer Engineering) was elected a Fellow of the IEEE (the Institute of Electrical and Electronics Engineers) in recognition of his “contributions to wireless and underwater acoustic communications.” Dr. Zhou is co-director, with Dr. Jun-Hong Cui, of the Underwater Sensor Network (UWSN) Lab at UConn and an expert in underwater acoustic communications and networking, multi-user and multi-carrier communications, space-time coding, adaptive modulation, and cross-layer designs for wireless systems.

Research Laboratory Named for Yaakov Bar-Shalom

A research laboratory at the Universidad Tecnica Federico Santa Maria, Valparaiso, Chile, will now bear the name of Dr. Yaakov Bar-Shalom. Dr. Bar-Shalom, who is a Board of Trustees Distinguished Professor and the Marianne E. Klewin Endowed Professor in Engineering, received a request from Dr. Fernando Auat Cheein, in the Department of Electronics Engineering, to name his laboratory the Prof. Bar-Shalom Laboratory of Robotics. In explaining his request, Dr. Auat Cheein noted that “it is a tradition in my Department that all laboratories have names of well-known researchers…your books had (and have) a huge influence on my research...” Dr. Bar-Shalom was deeply touched by the request and readily agreed.

Green Guide Features UConn Faculty

The spring 2013 issue of the Connecticut Green Guide, published by the Hartford Business Journal, featured a cover story profiling research underway within the Center for Transportation and Livable Systems. The five-page spread highlighted studies conducted by Drs. Norman Garrick, Nick Lownes and Joe Bushey (Civil & Environmental Engineering), Peng Zhang (Electrical & Computer Engineering) and Peter Miniutti (Landscape Architecture), including work focusing on parking and the economy, revitalizing Fairfield County Transit, car-sized power plants, slime mold transportation, reducing stormwater runoff and reconnecting New London.

NIH Grant Supports Dr. Zhu

Professor Quing Zhu has received a four-year, $1.43 million grant from the National Institutes of Health in support of her research aimed at predicting the effectiveness of preoperative or neoadjuvant chemotherapy (NAC) used in treating advanced breast cancers. NAC is increasingly used in the management of locally advanced breast cancers as well as in patients whose cancers can be surgically removed but which may not be amenable to breast conserving approaches. Dr. Zhu will field test the system on breast cancer patients, in collaboration with teams of physicians at the UConn Health Center, led by Dr. Susan Tannenbaum; Hartford Hospital, led by Drs. Andrew Ricci and Patricia DeFusco; and Waterbury Hospital, led by Dr. Scott Kurtzman.
For nearly 30 years, the nonprofit TED-Ideas worth spreading- has been devoted to “ideas worth spreading.” On Sept. 21, speakers from UConn and elsewhere focused on the future in the first TEDxUConn.

David Ritter (a Computer Engineering major) co-founded TEDxUConn along with vice president of design Tom Benneche and vice president of technology Dillon Jones. The initial idea for September’s TEDxUConn was to forecast what life would be like in 2023. When that topic seemed too constricting, the team decided on a general discussion of trends and predictions about the future, and set about making it happen.

More Student News

Sean Fisher, who obtained his B.S in May 2013, received a Fellowship from Stanford University where he began pursuing his Ph.D. in August 2013. Sean, who was in the honors program, has presented his work at several conferences and had his first journal paper accepted in the Journal of Applied Physics (2013).

Sherwin Li received the 2013 US Department of Energy Building Innovators Award and Shu Wan received the 2013 Connecticut Energy Foundation Scholarship. Both students are advised by Dr. Peng Zhang.

Rosario Scalise received a scholarship from the IEEE Power & Energy Society Scholarship Plus Initiative for 2013-2014. The initiative recognizes undergraduate students who have declared a major in electrical and computer engineering, are high achievers with strong GPAs with distinctive extracurricular commitments and are committed to exploring the power and energy field.

Spring 2013 ECE teaching awards were granted to Outstanding Teaching Assistants

Alireza Ghahari and Nicholas Williams.

James Hare received the Outstanding Teaching Assistant award for Fall 2013.
Fast Track to Success

To say Zhaohui Wang was on the fast track to success at the University of Connecticut would be an understatement. During her time at UConn, she published 12 journal papers and 17 conference papers, worked on two proposals funded by the National Science Foundation, and co-authored a textbook, *OFDM for Underwater Acoustic Communications*, due to be published later this year. All that in just four years! Wang started her research, which focuses on wireless communication and signal processing in underwater environments, in 2009. She also took home the Collegian Innovation and Leadership Award for her exceptional achievements in the area of underwater acoustic communications and networking at the 2013 Women of Innovation Awards Ceremony. Dr. Wang received her PhD in May 2013. She is now an Assistant Professor in the Department of Electrical and Computer Engineering at Michigan Technological University.

Expedition 38: Returning to Orbit

UCONN alumnus Rick Mastracchio launched to the International Space Station on a long duration mission on November 7th, 2013 and will return to earth in May 2014. Mastracchio, Koichi Wakata of the Japan Aerospace Exploration Agency, and veteran cosmonaut Mikhail Tyurin of the Russian Federal Space Agency, make up space station Expedition 38.

Mastracchio grew up in Waterbury, Conn., and graduated from the University of Connecticut. He received his Bachelor of Science Degree in Electrical Engineering/Computer Science in 1982. Selected as an astronaut in 1996, he is a veteran of three spaceflights. Follow Rick through his Twitter account @AstroRM.

Senior Design Day was held May 3, 2013 at Gampel Pavilion. After two semesters of hard work, 14 teams in the Electrical & Computer Engineering Department demonstrated their projects to students, faculty members, corporate sponsors, and visitors. An assessment group of ECE faculty members (Profs. Ali Bazzi, Faquir Jain, and Lei Wang) interviewed all the student teams to identify the top projects.

Dr. Helena Silva advised the top two winning teams. The “iDrive Ultra Handle Testing” received the First Place Award. Second Place was awarded to the “VCSO Shock Compensation” team. An Honorable Mention was given to the EE sponsored “Underwater Networks Localization” team, advised by Dr. Shengli Zhou.

First Prize: iDrive Ultra Handle Testing (sponsored by Covidien)

Left to right: Prof. Chandy, Anthony Trombetta, Christopher Bublmann, Jason Galis, Michael Broxman, Tyler Arpin, Michael Nault, and Joseph Drouillard.

Second Prize: VCSO Shock Compensation (sponsored by Phonon)

Left to right: Max Madore, Shalin Shah, Joseph Hiltz-Maher, and Shaun Hew.

Honorable Mention: Underwater Networks Localization (sponsored by the ECE Dept.)

Left to right: Johanna Thomas, Patrick Lazar, Tausif Shaikh, and Kaleel Mahmood.

Expedition 38: Returning to Orbit

Above: Expedition 38 crew member Rick Mastracchio during pre-dive briefing, preparations, and suit up, before lowering into the water. (Photo/Bill Stafford). Below: Official portrait for Expedition 38. Crew members, from left, Mikhail Tyurin, Koichi Wakata, Richard Mastracchio, Sergey Ryazanskiy, Oleg Kotov, Mike Hopkins. (Photo/Robert Markowitz).
The awards honor School of Engineering alumni whose careers are characterized by their sustained and exemplary contributions to the engineering profession through research, practice, education, policy or service. These individuals bring enduring honor to their alma mater as practitioners and as citizens.

**SRIDHAR BANAVAR**  
(M.S., Ph.D. Electrical Engineering, '68, ‘73)  
Dr. Sridhar Banavar is the NASA Senior Scientist for Air Transportation System Studies at NASA's Ames Research Center. His research interests are in the application of modeling and optimization techniques to aerospace systems. He is a Fellow of AIAA and IEEE (2001) and received the IEEE 2004 Control Systems Technology Award.

**HSING-YAO CHEN**  
(Ph.D. Electrical Engineering, '68)  
Dr. Hsing-Yao Chen, now retired, has enjoyed an enviable 45-year career spanning engineering, managerial and advisory positions with CBS Laboratories, Zenith, RCA Electronics, Zenith Electronics, and Chunghwa Picture Tubes. He has over 50 U.S. patents, is a Fellow of both IEEE and the Society for Information Display, and has been appointed a visiting professor by three well-known Chinese universities.

**SOMNATH DEB**  
(M.S., Ph.D. Electrical Engineering, ’90, ’94)  
Dr. Somnath Deb is the President and Chief Technology Officer of Qualtech Systems, Inc., East Hartford, CT, which he co-founded in 1993. He has authored 48 technical publications, received four IEEE best technical paper awards, and received the NASA Space Act Award twice.

**JOSEPH H. YAN**  
(M.S., Ph.D., Electrical & Systems Engineering, ’93, ’96)  
Dr. Joseph H. Yan is the Principal Manager of Transmission Planning at Southern California Edison (SCE). During the 2000-01 meltdown of the California electricity markets, he was instrumental in discovering and reporting market problems and abuses; later, he developed the refund methodology that has been used in refund settlements and litigation, recovering billions of dollars for consumers.
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Industrial Advisory Board

I am completing my studies in Electrical Engineering and Computer Engineering (double major) this year. I am also in the honors program and minoring in Mathematics and Digital Arts. Earlier in my college career, I worked in a research lab at the Center for Clean Energy Engineering. I am now working in the Laboratory for Intelligent Networks and Knowledge-perception Systems (LINKS) with Prof. Shalabh Gupta. I have received the IEEE Power & Energy Society Scholarship, the Dominick A. Pagano Scholarship in Computer Science & Engineering, and an Office of Undergraduate Research Grant (in 2012 to fund a research project on the control system of a solar battery charger).

I work two University jobs on campus currently in addition to my studies. I work at UCTV (University of Connecticut Television) and supervise at the campus indoor rock climbing wall. I have completed three summer internships at General Electric working on technology that incorporates networked intelligence in electrical distribution equipment. I have been very active in campus organizations. I was the vice-chair of the campus IEEE branch from 2011 to 2013 and am currently the president of our campus Eta Kappa Nu chapter. I have participated in mentoring, tutoring, and outreach efforts within the ECE department through these organizations quite extensively.

I am looking forward to continue my graduate studies in the areas of control theory, autonomous systems, sensor networks, and machine learning and hope to have an opportunity to teach in the future.