



The Integrator

A Fond Farewell for El-Sharkawi

Professor Mohamed El-Sharkawi retires after 35 successful years

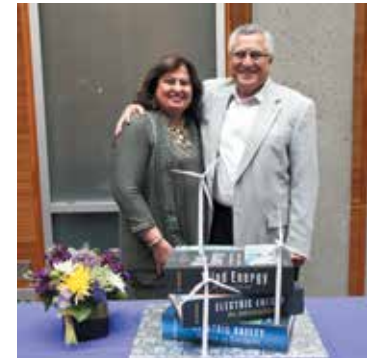
The crowd was energized, appropriately enough, as they gathered to celebrate EE Professor Mohamed El-Sharkawi's 35 years of energy and power research and teaching.

"Can anybody tell me why everyone is so happy to see me retire?" El-Sharkawi joked.

More than 80 faculty members, former students, family members and industry colleagues celebrated El-Sharkawi's retirement on May 14. After guests gathered, Department Chair Radha Poovendran welcomed everyone to the celebration to honor an "outstanding" faculty member.

Poovendran highlighted a handful of El-Sharkawi's many accomplishments over the years, including being elected an IEEE Fellow; authoring four textbooks and more than 250 technical papers and research books; holding five licensed

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Jean-Marcus Strole Photography

Mohamed listens to guests share stories (top); Eric Sortomme, Ph.D. '11, offers a hug (left); and Mohamed and his wife, Fatma, admire the cake, crafted to resemble textbooks Mohamed authored (right).

UW EE Ranked #18 Best Grad School for 2016

Saying we have the best news to share, rather than just good news, is more fitting. For UW EE was ranked #18 in *U.S. News & World Report's* recent listing of the best graduate schools for 2016. Congratulations, UW EE faculty, staff and students!

Rankings are announced annually after statistical data is gathered from surveys sent to academics and professionals to evaluate the quality of students, faculty and research at each school. This data is supplemented with expert opinions about the quality of schools.



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MESSAGE FROM THE CHAIR



Dear Alums,

Great things continue to happen in our department as a result of the fantastic efforts put forth by our students, faculty, staff and alums. I am very proud of how the department continues to shine and raise its own bar, and I am excited about what we are able to achieve as a highly collaborative team.

At the core of the department is its people. I am delighted and

energized by all of the hard work that is happening behind the scenes, resulting in UW EE being ranked #18 by *U.S. News and World Report*. We have deep wells of untapped potential that will continue to surface and further our success in both the near and long terms. For the moment, I would like to highlight three people who have contributed to our department's outstanding success.

Alum Milton Zeuschel (BSEE '60) was presented with a Diamond Award in May. He was honored for Entrepreneurial Excellence and his significant contributions in engineering. Having created three companies in different technology sectors, Milton reminds us that commitment and the will to succeed are true foundations for prosperity. The award is made more special as honorees were chosen by a committee of peers. Congratulations, Milton!

UW EE also recently celebrated the outstanding career of Professor Mohamed El-Sharkawi, who is retiring after 35 years. A passionate teacher and mentor to many EE students over the years, Mohamed was a visionary researcher and educator with four widely used textbooks. At his retirement ceremony, he was rightfully honored with the IEEE Region 6 Outstanding Educator Award. Mohamed will continue his renewable energy research as a Fulbright Scholar for 2015-2017. We deeply appreciate his dedication to research and teaching. He is an example to all of us. Thank you, Mohamed!

I am also pleased to announce that we were fortunate to have alum Dr. Stewart Wu (MSEE '85, PhD EE '90), a student of former faculty member Professor Ward Helms, give the keynote speech at our June 2015 Commencement Ceremony. Stewart is the Vice President of Cortina Systems, Inc. and is known to have a unique combination of deep technical knowledge and entrepreneurial spirit. Those who know Stewart know him as a highly charismatic and hard-working individual who is generous with his time and commitment to service. In fact, Stewart serves on our Department's Advisory Board. Stewart is an inspiring example to many aspiring EE students. Thank you, Stewart, for your dedication to EE.

We have an excellent issue of *The Integrator* telling the stories of our star alums. Please read, enjoy and stay connected to UW EE.

Yours truly,

Radha Poovendran
Professor & Chair

AWARDS & HONORS



Kai-Mei Fu

Assistant Professor Kai-Mei Fu is the recipient of a 2015 Cottrell Scholar Award, which funds early career faculty who excel

in research and teaching. Director of the Optical Spintronics and Sensing Lab, Fu's research focuses on identifying and controlling the quantum properties of point defects in crystals. Fu, who teaches pre-engineering and graduate-level courses, is the founder of an outreach program for Seattle elementary school children.



Chris Rudell

Assistant Professor Chris Rudell was awarded a National Science Foundation (NSF) CAREER Award. The NSF's most prestigious

award for junior faculty, the five-year \$500,000 grant funds research and educational programs. Director of the Future Analog System Technology Lab, Rudell's proposed research seeks to explore and develop highly integrated, ultra-broadband and low-power transceivers to address future wireless infrastructure demands.



Arka Majumdar

Assistant Professor Arka Majumdar was awarded an Air Force Office of Scientific Research (AFOSR) Young Investigator Research

Program grant. One of 57 researchers selected from more than 200 proposals, Majumdar will receive \$120,000 per year for three years to investigate a hybrid silicon/silica photonics platform for low-power digital optoelectronic switching and logic devices. Majumdar joined UW as an Assistant Professor in Fall 2014.

Driving School

EE students shape future of cars with EcoCAR3

Seattle may not be known for its automobile industry and UW may not even have an official automotive program, but if you step inside the UW EcoCAR3 team lab you may think otherwise. Especially when you hear how well the team performed at their first competition last year.

“We did remarkably well last year and made a good footprint for ourselves,” said Bruce Darling, Electrical Engineering Professor and one of three faculty advisors for the team.

Winning 10 different awards, the UW team placed second last year in the EcoCAR2 competition, which spanned



EE graduate student Brian Magnuson points at the car built during the previous EcoCAR2 competition, which won second place the first year the team competed.

three years. The UW team competed against strong teams from cities with a history of automobile manufacturing and schools with automotive programs, which usually dominate the competition, said Darling.

Building upon previous success, and

with even more students participating, the current EcoCAR3 competition spans four years. Comprised of 80 students, 32 of whom are electrical engineering students, the team continually adds new members as teammates graduate. Mostly undergraduates,

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Fond Farewell

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patents; and receiving the Outstanding Educator Award for the IEEE Western Region. El-Sharkawi is also known for his commitment to students, Poovendran said, teaching undergraduate and graduate students as well as short courses for professionals throughout the world.

“Being people-centric is something I’ve noticed about Mohamed,” Poovendran said. “Thank you for 35 years of dedication to the department and for helping to create an excellent place.”

“What I will remember most about Mohamed is that, in addition to being very intelligent, he always treated others very well and had a smile for everyone. He is truly top notch in every way.”

Betty Tobin, Former EEIC Board Member



Mohamed shares a slideshow and talks about highlights over the years, including his early work in wind energy (left); More than 80 colleagues, family members and former students gather to celebrate Mohamed (center); and Mohamed receives a gift from the department, presented by EE Chair Radha Poovendran (right).

Alums Honored for Work in Male-Dominated Careers

There's a good reason why all the honorees are women. Twelve women, including UW EE alums Dawn Gidner (MSEE '01) and Shira Broschat (PhD EE '89), were recognized for their work in male-dominated careers by the Northwest Asian Weekly Foundation in February 2015.

After graduating with a master's degree, Gidner accepted a position at Honeywell Aerospace in Redmond, Wash., where she works as a radar engineer. Gidner was interested in engineering from an early age. Hanging on her office wall is a certificate she received at the age of 8, which reads "Junior Tinkertoy Engineer." Gidner also remembers talking her parents out of a broken toaster.

"I spent a lot of time surrounded by toaster parts, figuring out how it might work," Gidner said.



John Liu/Northwest Asian Weekly

Alums Dawn Gidner (seventh from left) and Shira Broschat (sixth from left) are honored.

After completing her Ph.D., Broschat accepted a job at Washington State University, where she works as a professor and curriculum coordinator in the school of electrical engineering and computer science. With a current focus on machine learning, data analysis and mathematical modeling, her work has applications in bioinformatics, particu-

larly antibiotic resistance. As a child, Broschat loved math and science and has memories of helping her father fix the family car.

"I remember my father letting me work on the car, putting together the water pump and doing things with spark plugs," Broschat said.

EcoCAR3

(Continued from page 3)

members are from various engineering disciplines and schools. Operating like a small company, students work on car development, financing and communications.

"Students often have 3-4 very competitive job offers after participating in this," Darling said.

The goal of EcoCAR3 is to convert a gasoline powered Chevrolet Camaro into an advanced hybrid electric vehicle to reduce fuel consumption. The first year of the four-year competition is spent focusing on the designs of the car. All competing teams will receive a new Chevy Camaro from General Motors in December 2015. In addition to removing the stock powertrain and replacing it with a more fuel-efficient model, the students will implement their unique designs. The team will build on designs from the previous competition, with the goal of making the car lighter and faster.

"The design of the car is pretty awesome and it will make over 450 brake horsepower," said engineering lead Brian Magnuson, MSEE. "It will be fun to drive and handle well."

The students, who have all signed non-disclosure statements, can't yet talk too much about specific features. But they do mention plans for a predictive driving control strategy consisting of an onboard computer, updated daily while the car charges, which will gather road data, such as speed,



EE student James Goin works on car designs. The first year of the competition is focused on designs, which are presented to and approved by contest organizers. The final car must be road-ready and meet safety standards.

elevations and intersections. The data will be used to implement strategies to conserve energy.

EcoCAR3 is anticipated to be more difficult than the previous competition, said faculty advisor Brian Fabien, a professor in the Department of Mechanical Engineering. There is less space in the Chevy Camaro to implement new architectures and there are more teams competing. But as far as Fabien is concerned, the UW team is up for the challenge.

"The rest of the schools in the competition do not think we are disadvantaged," Fabien said. "They look at our performance."



Alum Brian Trautman, BSEE '01, pictured before and after sailing. After starting two companies, Trautman decided to sail the world on his boat, Delos.

“Without my education, I would’ve never been able to start my own companies, which eventually led to me being able to take this amazing voyage.”

Brian Trautman, BSEE '01

Smooth Sailing

From Entrepreneurial Engineer to World Sailor

Brian Trautman’s electrical engineering degree has afforded him many opportunities, such as working at Microsoft, founding two companies and meeting pirates while sailing.

“It’s safe to say that without my education, I would’ve never been able to start my own companies, which eventually led to me being able to take this amazing voyage,” said Trautman, BSEE '01, who has been sailing the world for six years.

Following graduation, Trautman founded two companies: Personify Design and Team Solutions. Working 70-hour weeks, he began to desire more work-life balance. After stumbling upon a book about crossing the ocean in one’s own boat, the dream was born. Trautman began reading cruising blogs and scaling back on spending.

After purchasing a 53’ second-hand sailboat named Delos, Trautman sold most of the possessions that filled his three-bedroom house and waited for the right timing. After the sudden eco-

nomie downturn, when his companies started to struggle, Trautman decided the timing was right. He set sail for New Zealand in August 2009.

“There is nothing quite like the feeling of sailing across an ocean and arriving at a tropical paradise,” Trautman said.

By the time Trautman arrived in New Zealand in October 2010, funding was dwindling but he still had a boat mortgage. He bought a laptop and went back to work remotely with his business partners, working part-time while on board. He has also been producing videos about the crew’s sailing adventures to support the voyage.

The Delos and crew of seven are able to be self-sufficient for months at a time. The boat has solar power capabilities, plus all the comforts of home such as books, music, clothes and souvenirs. The crew supplements the occasional food run with fish they catch, and they even have a still to make their own liquor on board.

Trautman’s engineering background

has proved invaluable when it comes to problem-solving onboard Delos, a fairly sophisticated boat with generators, compressors, solar power, electronics, navigation, radar, and VHF and SSB radios. Rather than pay someone to fix problems, Trautman does it himself.

“Often I’ve found myself falling back on some tidbit I learned to fix something,” Trautman said. “Tracing faults in wiring with an ohmmeter, taking apart electric motors and understanding control systems are something I regularly do.”

For Trautman, sailing is the epitome of being free, self-sufficient and adventurous. He has no plans to stop anytime soon.

“I always said I’ll sail until I run out of money or it stops being fun,” Trautman said. “I’ve already run out of money a few times and each year the voyage becomes more and more fun!”

Brian’s Blog: Follow Trautman’s sailing adventures at svdelos.com.

Young Alumni Philanthropy Spotlight: Jessica Yan

Even as a student Jessica Yan (BSEE '03, MSEE '11) knew she wanted to give back. She believes in the power of higher education because it exposes young people to many interesting opportunities.

"Studying at the UW has shaped my entire perspective—my foundation of learning and how it has shaped my world was learned from my time in EE," Jessica said.

Jessica chose to attend the University of Washington because she knew it was a good school and she loved living in Seattle, her hometown. When asked why she chose to study EE, she excitedly said, "Studying EE was the closest thing I could do to become a mad scientist!"

Jessica enjoys sharing her passion for EE

when she has had the opportunity to come to campus to speak to students. In particular she likes supporting women in engineering and merit-based scholarships.

"I love the idea of helping pay for a student's tuition," she said.

Jessica has spent much of her career in telecommunications, working at large carriers such as Verizon, T-Mobile and AT&T. She is currently a Senior Product Manager at Cequent, where she has worked for more than two years. Her focus is product management and development.

In Jessica's free time she enjoys playing the violin, reading technical blogs, eating and traveling. She resides in her new home in Seattle with her Frenchie, Pepper.



Alum Jessica Yan, BSEE '03, MSEE '11.

EE ON THE ROAD

Bay Area, April 2015

Every year, UW EE staff and faculty hit the road to visit alums throughout the U.S. and abroad. The following alums in the Bay Area and Taiwan celebrated UW EE pride with us this spring.



Dean Mohr, BSEE '72, with EE Chair Radha Poovendran, from left.



Jeanne Hsu, '79 BA/BS Chemistry, daughter of the late Professor Chih-Chi Hsu.



Don Chinn, BSEE '63.



Angellica Huynh, '88 BA/BS Math, MSEE '99, EE Chair Radha Poovendran and Sam Huynh, BSEE '94, MSEE '96, from left.



Kelly Williams, EE Advancement, Quynh Ngo Tang, BS '88 Business, and Jack Tang, BSEE '87, MSEE '94, from left.



Richard Hong, BSEE '82, and EE Chair Radha Poovendran, from left.



EE Chair Radha Poovendran, Ed Chen, BSEE '89, MSEE '92, and Godfrey D'Souza, MSEE '89, from left.

ALUMNI UPDATES



Hans Otten, BSEE '09

Hans Otten works for Tektronix and is now the Strategic Account Manager for the Military/Government Business Segment in Maryland, with a focus on the Space and Defense sector. He works closely with engineers and scientists to provide engineering field support for his customers in obtaining training, service and technology updates. The products he supports include spectrum analyzers, oscilloscopes, signal generators, logic analyzers, and optical transmitters and receivers. Prior to working in the test and measurement industry, Hans served as an officer in the U.S. Navy as a SCUBA diver and technical writer. Hans is also a graduate of the U.S. Naval Academy (2000) where he earned a Bachelor's degree in English Literature and is a member of Sigma Tau Delta.



Tom Green, BSEE '08

Tom Green is employed at FEI in Hillsboro, Oregon, as an R&D product development engineering manager. His work is focused on delivering high-performance microscopy workflow solutions for customers in the electronics, natural resources, materials science, life sciences and industrial manufacturing businesses. According to Tom, "microprocessor-based research and lab projects under Dr. Linda Bushnell and Dr. James Peckol provided me with strong hands-on troubleshooting skills, understanding of modular system design and the ability to break down complex systems into discrete inputs and outputs that translate directly into skills I use every day. Today, I am glad to be past the days of programming microprocessors in the lab with a bowl of Top Ramen at 2am; however, I am grateful for that acquired perseverance when the going gets tough."

Got News?

Have a rewarding career? Using your UW EE skills to pursue exciting projects? Win an award? We'd like to hear from you! Please send news, updates and photos to bfisher@ee.washington.edu.

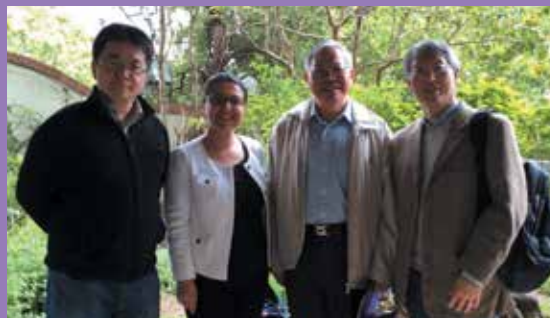
Taiwan, April 2015



Matt O'Donnell, former Dean of UW College of Engineering; Simon Sze, MSEE '60, National Endowed Chair Professor, NCTU; Mahnaz Sherzoi, UW EE Advancement Director; Jenq-Neng Hwang, UW EE Associate Chair of Research; Che-Ho Wei, PhD EE '76, Vice President and Professor, NCTU; Kung-Yee Liang, PhD Biomathematics '82, President of UW Taiwan Alumni Association; and Yung-Kuang Kao-Liang, wife of Dr. Liang, UW PhD Comparative Literature '82, from right.



Chairman and CEO of Winbond Electronics, Arthur Chiao, MSEE '80, hosted a dinner for engineering alums residing in Taiwan.



Hsu-Feng Hsiao, PhD EE '05, Associate Professor at Electronics Engineering and Institute of Electronics at National Chiao-Tung University; UW EE Advancement Director Mahnaz Sherzoi; Professor Che-Ho Wei, PhD EE '76; and UW EE Associate Chair of Research, Professor Jenq-Neng Hwang, from left.



UW EE Associate Chair of Research, Professor Jenq-Neng Hwang; Deputy General Manager of Wireless Connectivity & Networking Business Unit, Paul Lin, UW PhD candidate; and UW EE Advancement Director Mahnaz Sherzoi, from left.



EEK!

UW EE's annual research journal, featuring cutting-edge research by faculty and students, is available online! Visit ee.washington.edu/news/eeek.



UW EE Alumni Mixer

Combining business with pleasure? Done! More than 30 alumni attended a UW EE Alumni Mixer hosted by Yasmin Karimli (BSEE '93, MSEE '95) on March 12 at T-Mobile. Attendees enjoyed a reception, an opportunity to catch up with other alumni and faculty and toured the T-Mobile Device Testing Labs.

Stay tuned for upcoming alumni mixers in the coming year!

Radha Poovendran
Professor & Chair

Jenq-Neng Hwang
Associate Chair for Research

R. Bruce Darling
Associate Chair for Education

Lih Lin
Associate Chair for Advancement

Brooke Fisher
Public Information Specialist

Contributors
Mahnaz Sherzoi, Kelly Williams

Send address corrections to:
alumni_relations@ee.washington.edu

