Department of Electrical and Computer Engineering

KANSAS STATE UNIVERSITY

Fall 2014

Alumni News

Professional Progress Awards

Professional Progress Awards honor career accomplishments during the first 20 years following graduation. ECE is very proud to have two alumni recognized with this honor.

Navin Nagiah

Navin Nagiah, San Jose, California 1995 graduate of Kansas State University in electrical engineering. He is president and CEO of DNN and has two decades of experience guiding enterprise technology companies to global success. Nagiah has been instrumental in helping DNN acquire more than 2,500 customers who use its software for creating and managing online content, building and nurturing customer communities, and increasing market engagement. Before joining DNN, he served as president and CEO of Cignex, an open-source enterprise content management software company, and was the founder, president and CEO of Xisource, a San Francisco-based enterprise software company. Before Xisource, he was one of the founding employees of Internet Securities Inc., where he set up the company's operations in India, China, Hong Kong and Southeast Asia, and was the managing director for Asia at the time of the company's acquisition by Euromoney.

Stuart Gillen

Stuart Gillen, Austin, Texas, 1997 graduate of Kansas State University in electrical engineering, who also has a Master of Business Administration from the university and a Vibration Level III Certification from the Vibration Institute of America. For the past 15 years, Gillen has worked for National Instruments in Austin. He is currently the principal marketing manager for the company's condition monitoring platform. His other roles with National Instruments include support, product management and senior group manager of a team responsible for a $25 million hardware and software product line. Gillen was named lead recruiting sponsor for Kansas State University at National Instruments and has recruited more than 50 full-time and intern employees from the university. He has been a member of the electrical and computer engineering department's advisory council at Kansas State for more than five years.

Kirkwood Scholarship

Loren Kirkwood
BS EE, 1930

When Steve Kirkwood was young, he had no idea his father's engineering work would influence the development of color television. In fact, as vice president of the consumer electronics division for RCA, Loren Kirkwood held 36 patents in radio and television.

Loren Kirkwood was a senior member of the Institute of Electrical and Electronics Engineers and served as engineering policy council chairman for the Electronics Industries Association's Consumer Electronics Group. He directed all technical activities for demonstrations and field tests of RCA's new receivers, and was deeply involved the development of the CTC 100, the first color television, which sold in 1954 for $1,000. He worked for RCA until age 74, a few years before his death in 1987.

"He accomplished quite a bit," said Steve Kirkwood, who recently established the Loren Kirkwood Memorial Scholarship for electrical engineering students in his father's honor. "I thought it would be good for the university and the family to recognize him."

As a 1930 K-State electrical engineering graduate and member of Lambda Chi Alpha fraternity, Loren Kirkwood set an example followed by both his sons – Steve, '65, and Robert, '62, both College of Business Administration graduates.

For a more permanent gift to honor his family at K-State, Steve also used a distribution from his IRA account to endow the Stephen, Robert and Loren Kirkwood Memorial Scholarships for engineering and business students.

"We hope to give students some help," he said. "With the economics of college and how difficult it can be, it doesn't allow a lot of time for work. We hope the school can identify a worthy student who will do something significant to demonstrate K-State's expertise."

Advisory Council

The department places great value in its alumni and other partners from industry and government as it strives to improve the quality of its undergraduate and graduate programs. The ECE Advisory Council provides guidance to the department for both the educational and research aspects.

Department faculty maintain extensive links to alumni and other industry personnel. These contacts keep the program offerings current, providing the best possible match between our graduates and their employers' needs. A formal Advisory Council meets periodically to guarantee that these goals are met.

Upper row, from left: *Bill Dowling '79, Gabe Hernandez '95, Leslie Gordon '01, Don Gruenbacher '89, '91, '94*

Bottom row, from left: *Ben McBride '03, '07, Bob Beims '81, Matt Spexarth '06, Terry Weaver '73, Don Gemaehlich '83, '84*

Not pictured: Mackenzie Martin '03, Glen Fountain '65, '66, Joel Andrews '97, '99, Jesse Schriner '92, Mark Brown '82

Student Spotlight

Unmanned aerial systems team takes fourth at international competition

The Kansas State University Unmanned Aerial Systems Team made the right maneuvers to land a top five finish at the recent 12th annual Association of Unmanned Vehicle Systems International's student competition. This year's event was June 18-21 at the Patuxent River Naval Air Station near Lexington Park, Maryland.

The competition featured 48 teams from around the world, including from the U.S., Canada, India, Israel, Romania and Turkey.

Earning fourth place at the competition was the Kansas State team. To compete, teams design, build and fly an aerial vehicle that can autonomously takeoff; execute certain intelligence, surveillance and reconnaissance tasks during a flight mission; and land. Teams must also submit a journal article describing their design approach and make an oral readiness presentation describing how they plan to meet the flight mission requirements and precautions to ensure safety.

Competition team members included:

Ethan Koch, junior in computer engineering, Baileyville; Blake Smethers, sophomore in computer engineering, Olathe; Matthew Roselli, May 2014 bachelor's graduate in computer engineering, Overland Park; Kyle McGahee, senior in computer engineering, Shawnee; Kyle McGahee, senior in computer engineering, Shawnee; and Steven Blits, junior in computer engineering, Lebo.

For the flight mission, each team's aircraft payload includes an autopilot, cameras, radios and computers. A ground station receives and further processes information gathered by the aircraft's onboard systems and provides the operators with displays that they use to monitor operation as well as derive and deliver information to the competition judges on how well the aircraft is doing on the intelligence, surveillance and reconnaissance tasks that must be completed during flight.

Each team's unmanned aircraft must autonomously find targets, identifying their color, shape, character, and geodetic location and orientation. Teams also have to decipher a message spelled out by the characters on the targets.

Electronics Design Club

The Kansas State University Electronics Design Club has experienced immense growth this year. With so many young members, the club has focused on developing design skills so that the students can design new projects.

The club has sponsored five guest presentations by ECE faculty this year for all engineering students. Tim Sobering presented on the "Basics of Electronics" and on op amps. Dwight Day spoke about his design work with SSI and gave the lecture "The Hidden Secrets of Matlab". David Soldan gave a lecture about amateur radio in conjunction with an Amateur Radio Testing session at K-State.

Experienced club members developed several electronics kits for the club to assemble, use and learn from. The first kit is an easy-to-build 555 timer circuit that blinks LEDs. A simple bipolar power supply kit was developed to teach power supply design. A small audio amplifier kit was made to give students an introduction to amplifiers. Finally, a simple LED matrix kit was used as an introduction to microcontrollers. Each of these kits feature a custom printed circuit board and all of the parts required to build the project.

The club showed 15 projects at the K-State Engineering Open House, encompassing two rooms in the department. In one room, the club showed LED projects in a darkened room, including an interactive 12x12 RGB LED table. In the second room, the club showed projects ranging from 3-D printers to quadcopters. These projects helped show the public what electrical and computer engineering is all about.

EDC, in conjunction with K-State's IEEE chapter, gave away 150 box kits to the public at open house. The club hopes to increase interest in engineering through these kits.

The club looks forward to taking on new projects and developing new kits next year.

Electrical and computer engineering honor society among the best in the nation

— By David L. Soldan

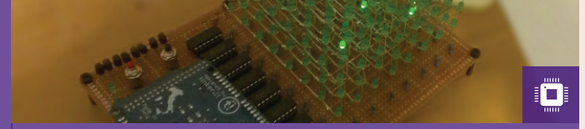
For the fourth year in a row, the Kansas State University electrical and computer engineering honor society is among the nation's best.

"What makes this chapter so excellent is the outstanding leadership of its officers and the enthusiastic participation of its members in all activities," said David Soldan, professor of electrical engineering and the chapter's faculty adviser. "Much of the credit for this honor goes to Sarah Carr, the 2012-2013 president-elect, for writing the report required for the award, as well as officers from previous years who helped raise the level of chapter activities."

The chapter's activities include tutoring, developing a curriculum display about the department of electrical and computer engineering for the All-University Open House, annually awarding the Eta Kappa Nu Distinguished Faculty Award, providing tutoring for electrical and computer engineering classes two nights a week, maintaining the Paslay Singing Tower in Sunset Cemetery and more.

Eta Kappa Nu is for juniors in electrical and computer engineering who are in the top quarter of their class or seniors in the top third of their class. Members must also have successfully passed the course Circuit Theory 1.

The award was presented at a special dinner March 24 in Napa, California as part of the Electrical and Computer Engineering Department Heads Association annual meeting. Don Gruenbacher, electrical and computer engineering department head, represented Kansas State University at the award ceremony.



Wind turbine competition offers students chance to compete, network

Electrical and Computer Engineering's Wildcat Wind team participated in the U.S. Department of Energy's Collegiate Wind Competition. The competition, in Las Vegas in early May, challenged 10 universities across the country to design and construct a lightweight, transportable wind turbine that can power small electronic devices such as a cellphone, tablet or laptop computer. The university teams were made up of engineering students — mechanical, biological systems and electrical on the Wildcat team — as well as business students to help with the competition's required marketing plan.

"This exciting, educational and challenging experience provided a new interactive way for college students to develop fresh ideas," said Ruth Douglas Miller, associate professor of electrical engineering and the adviser to the Kansas State University team.

While the university's team didn't win the competition, Miller said the team did stand out with its marketing plan. Each team had to develop an efficient marketing plan to sell to different companies. Kansas State's team decided to focus on power generation during coastal disasters and emergencies, as well as providing lighting on boardwalks and piers without using grid power.

Constructing a product that can power electronic devices is a difficult task to accomplish. Miller said the Kansas State University team came up with a vertical axis design.

"Instead of spinning like a fan, it spins like an egg beater. Though this design was not able to capture much power, it was fun to look at," she said.

Competing wasn't the only experience the students will remember about the competition, Miller said.

"Being a part of the wind turbine competition also gave the students networking and job opportunities," she said. Several companies involved in energy efficiency and renewable energy were at the competition to look for students interested in jobs in the field.

Students are already looking forward to the next competition.

Faculty Spotlight

Jefferson Science Fellowship Award

Anil Pahwa

Anil Pahwa, Logan-Fetterhoof chair professor of electrical and computer engineering, will spend the 2014-2015 school year at the U.S. Department of State in Washington, D.C., as a Jefferson Science Fellow. He will serve as a scientific adviser and help with national foreign policy.

Tenured academic scientists and engineers from U.S. higher education institutions are eligible for Jefferson Science Fellowships. The program is administered by the National Academies and supported through partnerships with the science, technology and engineering academic community; professional scientific societies; the U.S. Department of State and the U.S. Agency for International Development, or USAID.

"I hope to contribute to the national foreign policy related to my expertise in the field of electric power and energy," Pahwa said. "About 20 percent of the world's population doesn't have access to electricity, which includes 70 percent of the population of sub-Saharan Africa. My goal is to advance policies and plans that can reverse this trend and improve lives of people around the world."

NSF Career Award

Behrooz Mirafzal

Behrooz Mirafzal, assistant professor of electrical and computer engineering, has been awarded a National Science Foundation Faculty Early Career Development, or CAREER, Award for his proposal, "Toward Grid-Interactive Converters with Diagnostic, Remedial, and Lifetime Prognostic Features for the Next Generation of Power Grids."

He was awarded $400,000 to continue his research on renovating grid-interactive DC to AC solid-state converters into smart devices. According to Mirafzal, the short lifespan and maintenance cost of the grid-tied converters is an obstacle to increasing energy production from renewable sources such as wind and solar power.

Mirafzal is developing the converters to have an early detection or self-healing mechanism, which is a long-term research plan of the U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability.

Dean's Award of Excellence

Caterina Scoglio and Bala Natarajan

Caterina Scoglio and Bala Natarajan received the Dean's Award of Excellence for the 2013-2014 academic year. They will be recognized at the fall convocation in September. This is an exciting new award recognizing outstanding contributions of faculty in teaching, research and/or service. Recipients are chosen from those nominated for the existing College of Engineering awards given each academic year.

ETA KAPPA NU Distinguished Faculty Award

Will Hageman

Will Hageman received the 2013-2014 ETA KAPPA NU Distinguished Faculty Award.

NSF MRI Grant

Punit Prakash

Punit Prakash, assistant professor, is the co-PI on a National Science Foundation Major Research Instrumentation award "MRI: Development." Other KSU faculty on the grant include Bossmann, Stefan (Chemistry), Prakash; Punit, Troyer, Deryl L. (Anatomy and Physiology); and Narayanan, Sanjeevkumar (Diagnostic Medicine/Pathobiology), National Science Foundation, $1,201,568, "MRI: Development of an Integrated Image-guided Thermal Therapy Platform."

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You are cordially invited to the ECE Annual Banquet

Friday, September 26

For more details or to RSVP send e-mail to: ***rsvp@ece.ksu.edu***

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Kyle and Jennifer Tidball

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Schweitzer Engineering Laboratories
Sega Inc.
Westar Energy

Staff Update

Steve Booth – received the 2014 College of Engineering Classified Employee of the Year Award for his great service and dedication to the college.

ECE welcomes department additions:

Michelle Keating,
Project Coordinator

Rachel Robillard,
Administrative Specialist

David Thompson,
Assistant Professor

Punit Prakash,
Assistant Professor

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