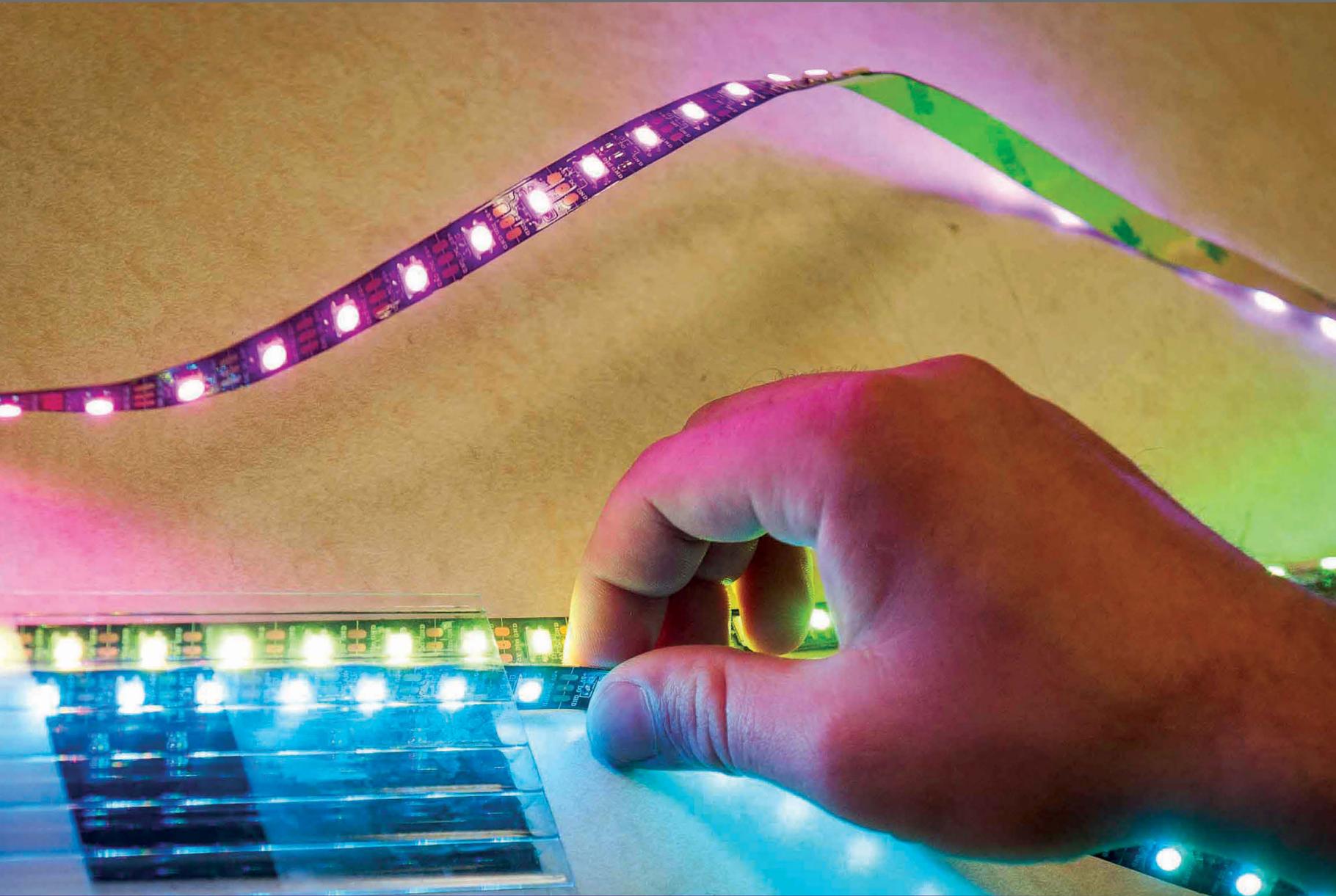


# ECE UPLINK

KANSAS STATE UNIVERSITY

SUMMER 2016

COLLEGE OF ENGINEERING



**KANSAS STATE**  
UNIVERSITY

College of Engineering  
Electrical and Computer Engineering

# FROM THE DEPARTMENT HEAD

Greetings from K-State electrical and computer engineering! We are happy to present our newsletter in this new format developed by the College of Engineering. As you look through the different articles and photos, you will see we've had a lot going on this past year. Of course the biggest activity was the move of our offices and most of our laboratories into our new space on the third and second floors of Engineering Hall before the start of the spring 2016 semester. We are enjoying the abundance of natural light and other amenities of these surroundings.

Other highlights from this past year include a successful search followed by two new faculty joining us in early August — Jungkwun Kim, who specializes in microelectronics and came to us from the University of Pennsylvania; and Hongyu Wu, who specializes in smart grid and came to us from the National Renewable Energy Laboratory. Another new addition to the ECE family will be Garrett Peterson, a 2014 graduate, who is returning to the department this August in the role of instructor and adviser. He will replace Andy Fund, who this spring became the assistant dean of student services for the College of Engineering. We are excited to have all three of them join us in our goal of being a top department in both research and education.

One of the activities going on each summer is the enrollment of incoming students during the month of June. We are happy to see another increase in new students choosing an ECE program. We will be increasing our efforts to retain these students during the crucial first

two years here at K-State. One of the important things for our students is the opportunity to become involved with an organization. In the department we have many opportunities, including competition teams such as the Wildcat Wind Power and robotics teams. Both had a successful year culminating in competitions this spring. Our largest organization, the Electronics Design Club, continues to provide outstanding hands-on learning opportunities outside the classroom, while our Eta Kappa Nu honorary was again named an outstanding chapter based on its activities and leadership.

Finally, some of our greatest pleasure is in seeing the accomplishments of many of our alumni. Whether it be recognition at our College of Engineering Seaton Society celebration, or those of you being recognized by your employer or professional society, we love hearing about the accomplishments of our alums. Please let us know your recent news by sending a quick note to [alumninews@ece.ksu.edu](mailto:alumninews@ece.ksu.edu). And please consider joining us at our annual banquet, this year the evening of Friday, Oct. 21.

Go Cats!



Don M. Gruenbacher  
Department Head  
Electrical and Computer Engineering



## ECE UPLINK

### IN THIS ISSUE



EDUCATION



LEADERSHIP

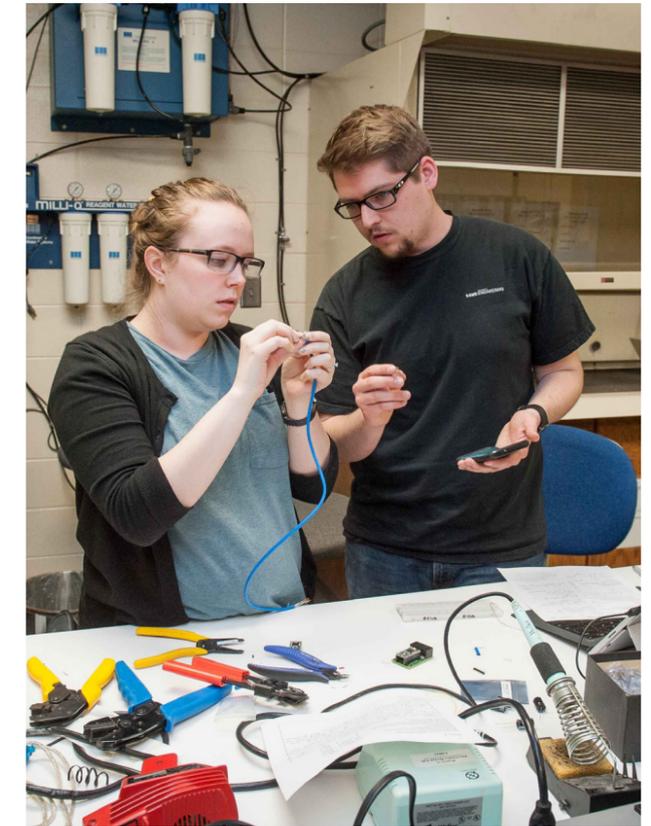


EXCELLENCE



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SENIORS RACHAEL KOLB AND DAVID SCHALL ASSEMBLE INTERACTIVE LED BOARD FOR ECE 590 SENIOR DESIGN.

## ECE UPLINK

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“The ease of deployment and portability of the sensor suite greatly increases the likelihood of this technology reaching the homes of children with special needs.”

— Bala Natarajan

## A GOOD NIGHT'S SLEEP: ENGINEERS DEVELOP TECHNOLOGY FOR SPECIAL NEEDS CHILDREN



**A** Kansas State University engineering team is developing a technology collection that can make a big difference in the lives of children with developmental disabilities.

The team's projects so far have addressed around-the-clock technology: bed-based sensors to track child breathing and heart rates; wearable sensors to track child behaviors; and designs that can improve the quality of life for paraeducators who work with these children.

Now the team has received a three-year \$400,000 National Science Foundation grant to expand these ideas and better establish a link between nighttime wellness and daytime learning and behavior. The project, “UNS: GARDE: Research to quantify the health and development of children with disabilities around the clock,” involves several Kansas State University engineering researchers who are combining their expertise.

“While relationships between sleep quality and daytime performance are well-characterized for neurotypical children, these relationships are not well known for severely disabled, autistic children, many of whom are nonverbal and have multiple co-existing disabilities,”



A KANSAS STATE UNIVERSITY ENGINEERING TEAM HAS RECEIVED A THREE-YEAR \$400,000 NATIONAL SCIENCE FOUNDATION GRANT TO TRACK THE WELLNESS OF SPECIAL NEEDS CHILDREN AT NIGHT AND RELATE THIS SLEEP DATA TO DAYTIME LEARNING AND BEHAVIOR.

said Steve Warren, associate professor of electrical and computer engineering and project leader. “Polysomnographs used for traditional sleep studies require electrodes, wires and equipment that are not suitable for these children. We seek alternative nighttime tools that, once hidden in a child's bed and bedroom, can provide effective surrogate data when compared to traditional polysomnographs.”

Other Kansas State University researchers involved include Punit Prakash, assistant professor of electrical and computer engineering; David Thompson, assistant professor of electrical and computer

engineering; Bala Natarajan, professor of electrical and computer engineering; Charles Carlson, doctoral student in electrical engineering, Hutchinson; Ahmad Suliman, doctoral student in electrical engineering, Afghanistan; Tianyu Lin, master's student in electrical engineering, China; and Alaleh Alivar, doctoral student in electrical engineering, Iran.

The project also involves several undergraduate students in electrical engineering: Austin White, senior, Kansas City, Kansas; Shangxian Wang, sophomore, China; and Taishan Li, senior, China.

The university research team is collaborating with Heartspring Inc., a Wichita-based nonprofit organization that is a therapeutic residential and day school program. Heartspring uses evidence-based and emerging best practices to serve students who often have multiple diagnoses, including autism spectrum disorders, cerebral palsy, speech and language impairments, and other developmental disabilities.

To read more about “A good night's sleep,” go to [blogs.k-state.edu/ece/](https://blogs.k-state.edu/ece/).



# Engineering research project may allow future consumers to 'buy and sell' electricity

With falling prices and increased awareness in creating a sustainable future, higher numbers of consumers are choosing to install roof-top solar generation. To make effective use of this trend, utilities companies are contemplating real-time pricing of electricity, which is expected to usher in a new generation of active consumers engaged in buying and selling electricity. To aid in this outcome, Anil Pahwa, professor of electrical and computer engineering at Kansas State University, is leading a research team effort that focuses on development of an architecture that will require little change to the existing investment in power distribution systems. It allows for the dynamic, adaptive control required to integrate active consumers with current and future combinations of high-variability distributed power sources such as solar generators and storage batteries.

The project — which includes participating K-State faculty members Scott DeLoach and Dan Andresen, computer science; Bala Natarajan and Sanjoy Das, electrical and computer engineering; and Philip Gayle, economics — “CPS: Synergy: Architecture for Future Distribution Systems Including Active Consumers with Rooftop Solar Generation” is funded by a three-year, \$700,000 National Science Foundation grant. The team’s expected outcome will be a general, extensible, plug ‘n’ play-type, secure cyber architecture based on holonic multi-agent principles that provide a pathway to the emerging area of a transactive energy market in power distribution systems. “The resulting gains in operating efficiency, economics, reliability and security of power distribution systems, along with integration of green power will result in better overall welfare for society and the environment,” Pahwa said.

# CEO of Aspera Inc. speaks on birth and growth of high-speed transport platform for Eystone Lecture

Michelle Munson, chief executive officer for Aspera Inc., Berkeley, California, presented “How engineering (actually) changes the world — my experience as an inventor, entrepreneur and tech CEO” March 3, as part of the College of Engineering’s Eystone Lecture Series.

Munson, formerly of Junction City, is a 1996 graduate of Kansas State University in electrical engineering and physics, where she was a Goldwater scholar for achievement in science and mathematics. She was later a Fulbright scholar at Cambridge University where she received a postgraduate diploma in computer science.

She is the co-inventor of Aspera’s fasp™ transport technology, responsible for overseeing the company’s direction in collaboration with co-founder Serban Simu. Munson was a software engineer in research and start-up companies, including the IBM Almaden Research center, before founding Aspera in 2004.

Munson’s lecture highlighted how engineering brings fundamental solutions to scientific and societal “big problems,” focusing on the example of the birth and growth of Aspera’s high-speed transport platform. She addressed the origin of the company’s transport technology, the invention of the platform, financial enablement and evolution in an ecosystem of distributed cloud computing, and the explosion of data.

Munson was the 2006 K-State College of Engineering Alumni Fellow — the youngest recipient on record. She has been named Media and Broadcast Technologist of the Year for 2016, and has also received national achievement awards from Glamour magazine and USA Today. Munson is a frequent speaker on technologies and trends around big data transport, cloud infrastructure and mobility.

The Eystone Lecture Series, established in 2000, is funded by an endowment of the late Fred and Mona Eystone. Fred Eystone, a 1941 K-State graduate in electrical engineering, was a member of the College of Engineering Advisory Council and a Distinguished Service Award recipient.



You are cordially invited to the ECE Annual Banquet, Friday, Oct. 21, 2016, at the K-State Alumni Center. For more details or to RSVP, send e-mail to [rsvp@ece.ksu.edu](mailto:rsvp@ece.ksu.edu)



## ECE ALUMNUS JOINS KANSAS STATE UNIVERSITY COLLEGE OF ENGINEERING HALL OF FAME



NEW HORIZONS CRAFT

The Kansas State University College of Engineering Hall of Fame inducted two new members on April 2, one being ECE alumnus Glen Fountain.

Induction to the hall is the highest honor bestowed on its alumni by the college. Honorees are recognized for their professional success and accomplishment, involvement with and support of the College of Engineering, dedication to Kansas State University, and professional and public service.

Glen Fountain, Laurel, Maryland, is a 1965 and 1966 graduate of Kansas State University with his bachelor's and master's degrees, respectively, in electrical engineering. He is project manager for the New Horizons mission to Pluto, leading the engineering team during the initial concept work and recruiting many of the key engineering staff that later developed the mission. He led the completion of the spacecraft development and worked with NASA to see that all other activities necessary to meet the January 2006 launch date were completed. Since launch, he has been overseeing flight operations and is guiding the tasks that will carry the project through the eight years of flight from Jupiter to Pluto. Fountain was a member of the program committee for the Maryland Space Grant Consortium, which is part of the NASA Space Grant Fellowship Program. From 1996 to 2008, he was an instructor in the Johns Hopkins University Engineering School's master's degree program in technical management. Fountain is a member of the advisory board for the electrical and computer engineering department.

## Two alumni honored with Professional Progress Award

The Kansas State University College of Engineering honored 11 alumni, including two from ECE, for professional career accomplishment during the first 20 years following their graduation at ceremonies April 2. Recipients of the college's Professional Progress Award are nominated by their respective department heads and confirmed by Darren Dawson, dean of engineering.



Joel Andrews, Olathe, Kansas, is a 1997 and 1999 graduate of Kansas State University with his bachelor's and master's degrees, respectively, in electrical engineering. He also holds a doctorate in electrical engineering from the Georgia Institute of Technology, 2009. He is a team leader

for Garmin International aviation radar products, acting as both project and technical lead. He has designed much of the mm-wave circuitry on multiple designs from blank sheet through production. Andrews is the author of more than a dozen technical papers in the field of electrical engineering and recently received his first patent. He is the main Garmin recruiter for electrical engineers at K-State, and takes pride in hiring and mentoring new graduates and interns alike. He has served on the department of electrical and computer engineering advisory board at K-State for the past four years.

Michelle Munson, Berkeley, California, is a 1996 graduate of Kansas State University in electrical engineering and physics, where she was a Goldwater Scholar for achievement in science and mathematics, and later a Fulbright Scholar at Cambridge University where she received a postgraduate diploma in computer science. The chief executive officer of Aspera, Inc., she co-invented Aspera's fasp™ transport technology and is responsible for overseeing the company's direction in collaboration with co-founder Serban Simu. Munson was a software engineer in research and start-up companies including the IBM Almaden Research center before founding Aspera in 2004. She was the 2006 K-State College of Engineering Alumni Fellow — the youngest recipient on record. She has been named Media and Broadcast Technologist of the Year for 2016, and has also received national achievement awards from Glamour Magazine and USA Today. Munson is a frequent speaker on technologies and trends around big data transport, cloud infrastructure and mobility.



## Picker returns for reunion

William Picker, who completed his B.S. in 1964 and M.S. in 1966, both electrical engineering, and his wife, Heide, Boulder, Colorado, attended the graduate school reunion April 8 - 9, in Manhattan.

Picker worked his entire career for IBM in Boulder. His wife emigrated to the U.S. from Germany, where he had served in the U.S. Army.

## WHAT HAVE YOU BEEN UP TO?

We would like to feature alumni news in future issues of ECE Uplink. Please send an email to [alumninews@ece.ksu.edu](mailto:alumninews@ece.ksu.edu) with your latest news and accomplishments.



# COLLEGE OF ENGINEERING NAMES ASSISTANT DEAN FOR STUDENT SERVICES



Andy Fund, academic advisor, instructor and research assistant for the electrical and computer engineering department at K-State, became assistant dean for student services in the College of Engineering effective May 1.

Fund joined the department in 2010 following a career as a design engineer with Garmin International in Olathe. He holds both a bachelor's and master's degree in electrical engineering from K-State, 2005 and 2015, respectively.

"Along with a deep passion to work with and help students, Andy brings a great mix of academic and industrial experience to this position," said Gary Clark, senior associate dean for the College of Engineering.

Fund replaces former assistant dean for student services, Larry Satzler, who died unexpectedly in December 2015.

## Alumni Mentor Program

The Kansas State University College of Engineering Alumni Mentor Program is aimed at connecting current COE students with alumni. Students will be matched with a mentor based on background, experience and interest. The program is a nine-month series (September – May) designed specifically for COE students with sophomore standing or above.

The Alumni Mentor Program provides students with the opportunity to learn from highly successful and experienced professionals in their field of study. Mentors can help mentees in the following ways:

- Share technical expertise
- Discuss industry trends
- Introduce students to colleagues to help build professional networks
- Share knowledge and understanding
- Facilitate career development through guidance and advice
- Give advice on professional communication, dress and demeanor

With an alumni mentor, students will have opportunities for interactions with industry professionals to aid in career and professional development.

Mentors must be alumni of Kansas State University. We are looking for successful individuals with the following qualifications:

- Professional experience in engineering or other related endeavors
- Interest in and ability to nurture a student's professional development
- Access to a network of professional individuals from whom the mentor can draw on as resources to assist the student
- Recommendation from a Kansas State faculty or alumnus

Students must meet the following criteria in order to apply to be matched with an alumni mentor:

- Be enrolled in a degree program within the College of Engineering
- Be at least sophomore standing (30 credits) or greater
- Be prepared to engage in a professional relationship, one in which you will be responsible for maintaining regular communication and willing to listen, learn, and take initiative

**For more information and applications, please go to [engg.ksu.edu/alumni-mentor](http://engg.ksu.edu/alumni-mentor).**

## Scholarships memorialize loved ones

Jeanette Otto enjoyed a 30-year career with the U.S. Immigration and Naturalization Service, living and working in Juarez, Mexico, during the rise of cartel drug trafficking. Her storied career had its beginnings at Kansas State University, where she earned an education degree in 1965, and her mother and father earned their degrees decades earlier. K-State is also where Jeanette met her first husband, the late Robert Fosmire, who earned a degree in electrical engineering.

Naturally, when planning her legacy of philanthropic giving through her estate, K-State came to mind. Otto created one scholarship in the College of Agriculture to honor her father, Earl Clark Coulter, and a second scholarship in the department of electrical and computer engineering to honor her late husband.

"K-State was such an important part of the life of my first husband, Bob, and I," she said. "He died in a car accident very young and I thought this would be the best way to memorialize his life."

Otto said she has enjoyed communicating with students over the years who received help from her scholarships.

"It's been delightful to hear from them and to know it's helping them," she said.

**To learn more about making a similar impact through your philanthropic plan, please visit [inspire.k-state.edu/engineering](http://inspire.k-state.edu/engineering) or e-mail [engineering@found.ksu.edu](mailto:engineering@found.ksu.edu).**



### How you can invest in K-State Engineering

Otto has steadily funded her scholarships each year and will provide permanent funding by including K-State in her will. The scholarships are a unique way to honor loved ones while providing for the future of K-State students. Such gifts are vital to the success of Innovation and Inspiration, the \$1 billion campaign to advance K-State.

## KANSAS STATE UNIVERSITY ELECTRICAL ENGINEERING ADVANCEMENT FUND

Here is my check or credit card authorization for a gift of:

- \$1,000
- \$250
- \$50
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If you or someone in your household works for a matching gift company, contact your human resources department to see if your gift qualifies for a company match. For more information, contact our matching gift coordinator by calling 800-432-1578 or visit [www.found.ksu.edu/match](http://www.found.ksu.edu/match).

### Thank you for your generous support!

Please return this card to: KSU Foundation, P.O. Box 9200, Shawnee Mission, KS 66201-1800.

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## Rys wins Distinguished Faculty Award

Andrew Rys, ECE professor, is the recipient of the Eta Kappa Nu, ECE honor society, 2016 ECE Distinguished Faculty Award. All ECE students were given the opportunity to vote on professors in the department with Rys receiving the most votes. He was presented with the award at the HKN and IEEE Spring Feast.

Student comments students about Professor Rys included the following:

“He pushed me to learn the topic. He made a challenging course fun.”

“Dr. Rys gains respect from all of his students, and he holds himself in a professional manner both inside and out of the classroom.”

“A great professor because he makes you think on your own, but he’s also there to help when you need it. I learned and retained a great deal from him.”

*Congratulations can be sent to Andrew Rys at [andrrys@ksu.edu](mailto:andrrys@ksu.edu)*



RYS

## Two new faculty to join the department in fall 2016

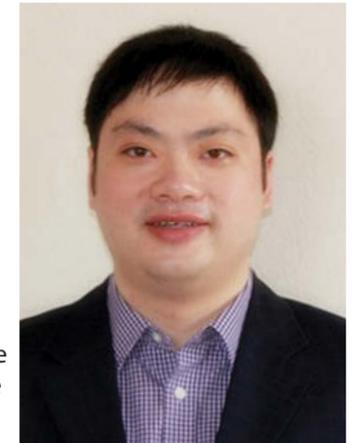


KIM

Combining research acumen from the worlds of electrical and mechanical engineering, **Jungkwun Kim** is an active researcher in the field of micro-electromechanical systems, or MEMS, and nanofabrication technology. His research allows the creation of structures, sensors and actuators that exploit the unique potential of the small scale. He has various research experiences based on externally funded research programs including NSF, NIH, DARPA, ARPA-E and KIAT.

Kim received his Ph.D. in electrical engineering from the State University of New York at Buffalo in 2011, followed by a post-doctoral fellow at the Georgia Institute of Technology 2011 - 2013. Currently, he is a research faculty member at the University of Pennsylvania. He has published approximately 50 journal articles and conference proceedings

**Hongyu Wu** received his Ph.D. in systems engineering from Xi’an Jiaotong University, China. He is currently a research engineer in the Power Systems Engineering Center at the National Renewable Energy Laboratory, or NREL. Prior to joining NREL, he was a post-doctoral researcher at the Robert W. Galvin Center for Electricity Initiative at Illinois Institute of Technology in Chicago. His research interests include modeling and optimization of large-scale power systems, integration of renewable energy and demand-side management in the smart grid, power systems operation and control, electricity market analysis and risk management, and energy management systems. Wu is a senior member of IEEE and received a Best Conference Paper Award at the IEEE Power & Energy Society General Meeting. He holds three software copyrights and has had more than 30 publications in these areas.



WU



GRUENBACHER

## Two engineering professors make top 25 list

Don Gruenbacher and Medhat M. Morcos, ECE faculty members, have been recognized as two of the 25 top professors of electrical engineering at [OnlineEngineeringPrograms.com](http://OnlineEngineeringPrograms.com).

The blog recognizes outstanding educators in specific areas of study, noting their contributions to academia in general, as well as online education in particular.

Criteria for selection include the following:

- Actively teaching at their institution — all of the top 25 currently teach at their affiliated institutions.
- Publications — all of these mechanical engineering professionals have authored or co-authored publications, either in journals, books or other mediums.
- Outside affiliations — these professors have been actively involved over the course of their tenure with other organizations, either private or government-affiliated.
- Level of education — all of these professionals have earned a doctoral degree in the field of mechanical engineering, highlighting both their dedication and passion, as well as their skill and expertise.

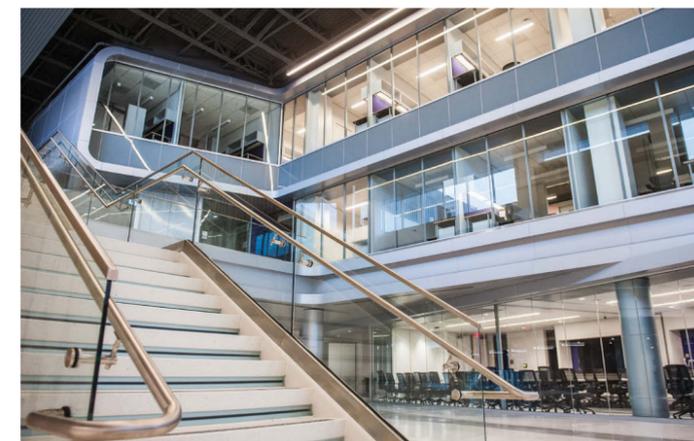
Gruenbacher is an associate professor and the head of the electrical and computer engineering department, where he also holds the George and Alice Fielder chair. He is a co-author of the recent publication “Size-based flow management prototype for dynamic dmz,” and his research focus is networks protocols and network security.

Morcos is a professor and university distinguished scholar in the electrical and computer engineering department. He is a faculty adviser for the Delta Upsilon fraternity, an associate editor of Electric Power Components and Systems, and is a founding member of the graduate exchange program between the National Polytechnic Institute of Lorraine, K-State and France.



MORCOS

## OPENING OF ENGINEERING HALL



The College of Engineering at Kansas State University officially marked the opening of Engineering Hall with a ribbon-cutting ceremony on April 1.

The event took place at the southeast outdoor plaza area of the Engineering Complex, with a reception and self-guided tours following.

“As the largest engineering program in the state, we could not be more proud to officially open Engineering Hall, where we will educate the next generation of engineers,” said Darren Dawson, dean of the College of Engineering.

Engineering Hall has created approximately 108,000 square feet of instructional, research and office space in support of interdisciplinary learning and collaboration in the college. It houses the departments of computer science, and electrical and computer engineering.



# Students recognized at Engineering Leadership Banquet

## ECE undergraduate awards

Each year ECE students, faculty and staff nominate outstanding undergraduate students based on GPA, leadership and service to the department. The students are recognized at the department's annual banquet and receive a monetary award.

The following are recipients for the 2015 - 2016 academic year:

### Outstanding Freshmen (\$100 each)

CpE: William Lies  
EE: Seth Simonton

### Outstanding Sophomores (\$200 each)

CpE: Mark Spicer  
EE: Shangxian Wang

### Outstanding Juniors (\$300 each)

CpE: Alex Hamilton  
EE: Derek Lingo

### Outstanding Seniors (\$400 each)

#### Outstanding Academic Achievement:

Fall 2015: Dengfu Ao

Spring 2016: Ethan Pauls and Jiazhang Song

Outstanding Leadership: Doug Anjard

Outstanding Service: Tanzila Ahmed

Outstanding Research: David Schall

# ENGINEERING OPEN HOUSE

The following ECE students were recognized at the annual College of Engineering Open House:

**Freshman/sophomore display:** third place, William Lies, chromatic mixer

**Limited display:** third place, William Lies, music visualizer

**Open class:** first place, Sam Rozell, fusor

**Children's display:** third place, Doug Anjard, Dustin Chew and Logan VanHorn, interactive sandbox

**Overall outstanding department:** third place, ECE chairs Derek Lingo, Danielle Suppes and Louis Rebeck

**St. Patrick:** David Schall

**St. Patricia finalist:** Tanzila Ahmed

**Knights of St. Patrick awardees:** Tanzila Ahmed, Michael Banowetz, Valerie Binns, Rachael Kolb and David Schall

**Steel Ring members:** Whitney Cox and Lawryn Edmonds



UNDERGRAD STUDENTS PRESENT AWARD-WINNING DISPLAYS AT OPEN HOUSE.

# Graduate students win scholarships

Scholarships were on the line as 140 graduate students presented their research and scholarly work in the annual graduate student research forum, K-State Graduate Research, Arts and Discovery, or GRAD Forum, formally known as K-State Research Forum, March 30 in the Engineering Complex.

Winners received scholarships of \$500 for first place, \$250 for second place and \$125 for third place.

2016 K-State GRAD Forum winners from ECE were as follows:

### Engineering/Math/Physical Sciences Oral 1

- First place — Jacob Lamb, doctoral student in electrical engineering
- Second place — Jan Sebek, doctoral student in electrical engineering

### Engineering/Math/Physical Sciences Poster 2

- Second place — Akanksha Singh, doctoral student in electrical engineering

## Robert I-Jen and Sophia Shui-Kan Jung Graduate Scholarship in Engineering for Returning Students

- Haotian Wu, Ph.D. student
- Kan Chen, Ph.D. student

# Undergraduate student wins Research Experience Award

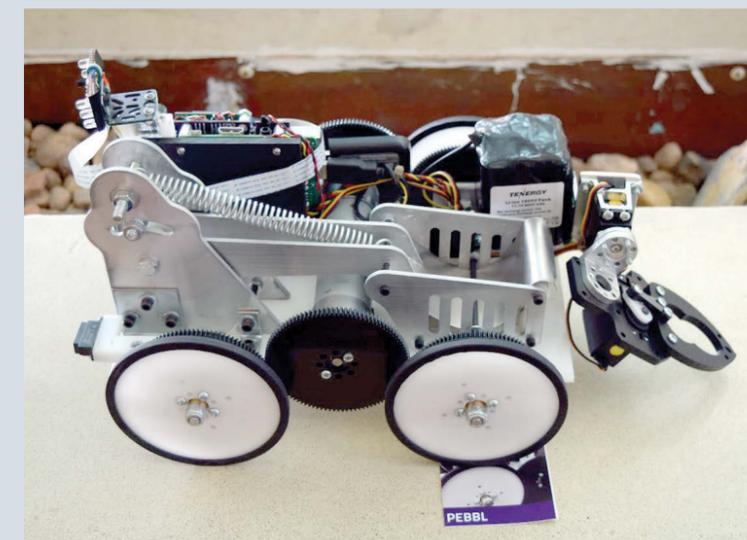
Whitney Cox, ECE senior, has been awarded an Undergraduate Research Experience Award from the Engineering Research and Graduate Programs Office for the 2016 - 2017 academic school year. Cox's research adviser is Punit Prakash and the title of her research project will be "Evaluation of directional microwave ablation antennas in an in vivo animal model."

# Update from robotics competition team

The Kansas State University Robotics Competition Team, or KSURCT, reports two strong years of accomplishment.

In 2015, the club entered a new competition — the Mercury Robotics Competition at Oklahoma State University. Previously, KSURCT had been a Micromouse competition team, but changed to Mercury as more members could become involved on a larger-scale robot. While unable to attend last year's competition due to last minute technical difficulties, members learned much about building a larger robot and planned to succeed the following year.

In 2016, the club members decided to again compete in the Mercury Robotics Competition and do better than last year. The team brought in fresh faces, along with electrical engineering, mechanical engineering and computer engineering leads to work on the hardware, physical robot and software. Together, members were able to construct a robot from the ground up. The robot, PEBBL — Pi-Embedded Bean Bag Launcher — was entered in the competition in Stillwater and was able to perform very well; however, along with 50 percent of the teams, the K-State group was unable to complete the course and identified challenges to overcome in the next years. Over the summer, team members will be generalizing the software to make it independent of robot design.



THE 2016 KSURCT ENTRY, PEBBL



## Growth underway for Electronics Design Club

The Electronics Design Club, or E-Club, prides itself on the ability to take information learned in the classroom and apply it to real world situations. Members are encouraged to dive into projects they are passionate about. E-Club has strong faculty, alumni and senior member involvement, allowing students at any level of knowledge are able to get involved.

Group projects and kits are encouraged and provided to teach new skills to beginners. E-Club also funds projects, provides lab space and maintains equipment to help students reach their full potential. The club's alumni have gone on to graduate school and to work for companies such as Sandia National Labs, Garmin, Hallmark and Honeywell.

The club hosts lectures on technical and professional topics, as well as helps members prepare resumes before attending career fairs. Many of its projects combine topics covered in ECE classes with exciting new technology. Previous projects include reactive LEDs on a longboard, plasma speakers, LED painting, sword-fighting robotic arms and personal 3D printers.

This year E-club was fortunate to grow its ranks again, gaining many new freshman and sophomore students. The group participated in Engineering Open House, displaying projects such as a chromatic drink mixer, graphic equalizer, a Jacob's ladder and an audio amplifier. Senior members provided displays such as an interactive 3-D topographical sandbox and a plasma generator.

Next year E-Club hopes to grow even more as it strives to encourage students to learn outside of the classroom and grow their passion for engineering.



SAM ROZELL, JUNIOR, PREPARES SUBMERGED INERTIAL ELECTRONIC CONFINEMENT FUSION REACTOR TO PRESENT TO E-CLUB STUDENTS.

## ETA KAPPA NU activities

As the honorary society of electrical and computer engineering, Eta Kappa Nu proudly recognizes the scholastic achievements of students and faculty in the department. The Beta Kappa chapter of Eta Kappa Nu at Kansas State University is open for membership to juniors in the top quarter of their class, seniors in the top third of their class, graduate students and faculty.

Members are involved in giving back to the department and community through tutoring and other service activities. Tutoring is offered for electrical and computer engineering courses throughout the semester for undergraduate students, and the Paslay singing tower in the Sunset Cemetery is also maintained by Eta Kappa Nu members as a public service to the Manhattan community.

This year Eta Kappa Nu was excited to induct 10 new undergraduate students and one faculty member. Members were able to help tutor students, especially when the introductory course for computer engineering went through large changes in the fall semester. They also upgraded the Paslay tower sound equipment with a new computer.

The 2016 Eta Kappa Nu Distinguished Faculty Award, as determined by students in the department, was presented to Professor Andrew Rys. The award was given at the spring feast, held by Eta Kappa Nu and IEEE.

Next year, Eta Kappa Nu hopes to grow further, and expand on the interaction of students and faculty. It also hope to increase its membership and involvement at the graduate-student level to help connect the department's undergraduate and graduate students.



STUDENTS ENJOY FALL 2015 HKN CHILI FEED DURING FINALS WEEK.

## ECE GRADUATES

### M.S. and Ph.D. graduates

#### December 2015

Sadnan Akhter  
Chao He  
Shannon Ray Honeycutt  
Kumarsinh Mahendrasinh Jhala  
Didier M. Kabasele  
Shicong Liu  
Shiwei Luan  
Brogan Tyler McWilliams  
Souvick Mukherjee  
Aaron Christopher Shaffer  
Ahmed Faizan Sheikh  
Monica Teresa Taba  
Chenyu Zhang



S.M. Shafiul Alam – Natarajan (Ph.D.)  
*Multi-Agent Estimation and Control of Cyber-Physical Systems*

Fariba Fateh – Gruenbacher and White (Ph.D.)  
*Nonlinear Control Schemes for Extremum Power Seeking and Torsional Vibration Mitigation in Variable-Speed Wind Turbine Systems*

Emilio Carlos Piesciorovsky – Pahwa and Schulz (Ph.D.)  
*Relay in the Loop Techniques for Adaptive Overcurrent Protection in Distribution Systems*

Handuwala Dewage Weerasinghe – Miller (Ph.D.)  
*Planning Optimal Load Distribution and Maximum Renewable Energy from Wind Power on a Radial Distribution System*

### B.S. graduates

#### December 2015

Justin Shawn Allen, Valley Center  
Abdulkhaliq S. Alshaikhali, Alhafouf City, Saudi Arabia  
Dengfu Ao, Hobbot, China

John Robert Colbern, Overland Park  
Stephen Joseph Debes, Hays  
Ethan Mark Grother, Americus  
Morgan Hoffman, Leawood  
Kenton Walker Kocher, Glasco  
Michael John Linder, Lenexa  
Noah James Livingston, Meriden  
Steven Christopher Mason, Overland Park  
Christopher Dee McIntosh, Kansas City  
Tanner Allen New, Goddard  
Brian Christopher O'Leary, St. Marys  
Nelson Joseph Padgett, Wichita  
Scott Andrew Paramore, McPherson  
Virashree Hrushikesh Patel, Manhattan  
Brian Gregory Petr, Wichita  
German Sanchez, Ulysses  
Xavier Sloan, Lenexa  
Mark Alan Stallbaumer, Axtell  
Boyang Sun, Changehun, China  
Cebastian Tyler Thibodo, Kansas City  
Joseph Ward Tillman, Columbus  
Jordan Marie Weber, Silver Lake

### M.S. and Ph.D. graduates

#### May 2016

Ali Mofleh Alshogheathri  
Bradley Michael Culver  
Rahul Reddy Devarapally  
Tyler Dill  
Chao He  
Ying Huang  
Kambiz Ameen Karimi  
Dale Scutti



Kan Chen – Natarajan (Ph.D.)  
*Physical Layer Security Schemes in Cooperative MIMO Networks — Key Generation and Reliability Evaluation*

Chang Liu – Natarajan (Ph.D.)  
*Energy Aware Management of 5G Networks*

Ahmadreza Malekpour – Pahwa (Ph.D.)  
*Smart Grid Operational Strategies for Power Distribution Systems with Large Penetration of Distributed Energy Resources*

### B.S. graduates

#### May 2016

Tanzila Ahmed, Barisal, Bangladesh  
Yousef SH Y SH Alshamlan, Kuwait City, Kuwait  
Michael A. Banowetz, Edna  
Anthony Lawrence Buccero, Overland Park  
Brian Jay Buchta, Overland Park  
Josiah Carey, Whitewater  
Ryan Lewis Chambers, Pretty Prairie  
Melissa Renee Coats, Allen  
Adam Christopher Ehler, Hutchinson  
Peter Samuel Fairchild, Chanute  
Ryan Feuerborn, Olathe  
Sarah Gittemeier, Overland Park  
Richard Thomas Habeeb, Wichita  
Austin Nicholas Haverkamp, Seneca  
Darren Wilson Hayse, Mullinville  
Skyler Wyman Cole James, St. Joseph, Missouri  
John Matthew Jones, Salina  
Joseph Grady Jones, Edmond, Oklahoma  
Rachael Noell Kolb, Overland Park  
Thomas Joseph Kramer, Topeka  
Conner Evan Krause, Overland Park  
Armando Marquez, Dodge City  
Daniel Austin Marts, Chanute  
Derrick Keith Matthews, Council Grove  
Rahul Paul, Manhattan  
Ethan Mark Pauls, Manhattan  
David Levi Plenert, McPherson  
Louis Gabriel Rebeck, Basehor  
Connor Blake Rogge, Olathe  
Stephanie Rae Roynon, Manhattan  
David Arlin Schall, Overland Park  
Jacob Grey Sobering, Albuquerque, New Mexico  
Jiazhang Song, Pingdingshan, China  
Andrew Thomas Stevens, Overland Park  
Carlos Nathaniel Tupaz II, Wichita  
Heath Allen Vincent, Norton  
Austin Wesley White, Kansas City  
Taylor Whittaker, Lindsborg  
David Wayne Wilson, Ottawa  
Jiaxiang Xu Sr., Shanghai, China  
Kadin Michael Zimmerman, Concordia



# Wind power team prepares for competition

The Wildcat Wind Power team is designing a five-blade, horizontal axis wind turbine to compete with at the Collegiate Wind Competition 2016. They are optimizing the turbine to fit two main criteria: low cut-in wind speed and a high coefficient of power at high wind speeds. With these in mind, they hope to introduce innovative design elements to yield a turbine that will perform well in all of the aspects of the testing contest.

The team will be 3-D printing many parts of its turbine using an in-house 3-D printer. They will also have the opportunity to test the turbine in a wind tunnel — currently under construction — that was designed by the team for the purpose of this competition. Having both these resources close by will allow Wildcat Wind Power to produce a highly efficient turbine.

The team's greatest strength is its diversity of backgrounds and skill sets. It is comprised of eight mechanical engineering students, 12 electrical engineering students and three students in the College of Business. Of these, nine are returning members. Wildcat Wind Power consists mostly of junior- and senior-level students, but also has multiple underclassmen, as well as guidance from a returning graduate student. With the collaboration among these diverse group members, they hope to create a competitive turbine that performs exceptionally well at the Collegiate Wind Competition 2016.

One of Wildcat Wind Power's largest challenges is a total redesign of many of the turbine components used by the 2015 team. Also, as a volunteer group, the team needs to balance the schedules of several groups so they can come together to complete the final design.

One of the most important things teams can take away from the Collegiate Wind Competition is the interdisciplinary experience gained from completing a project from start to finish with other engineers. Teams also gain invaluable hands-on design experience and insight to the organization of projects in professional careers. Through networking with professionals in the industry, team members form connections that will be beneficial to their professional careers.

Members also hope to apply classroom knowledge to actual design work. They have an opportunity to work with individuals outside their disciplines and bring perspectives together on a project. These are invaluable opportunities to have before entering the professional workplace. An outcome from this experience is that team members will improve practical skills such as circuit design and layout, soldering and exposure to design software.



Team roster: Tanzila Ahmed, Lawryn Edmonds, Jacob Meyer, Michael Banowetz, David Plenert, Timothy Sample, Stephen Debes, Connor Krause, Andrew Johnson, Sshangxian Wang, Mark Ronning, Armando Marquez, Alex Thibault, Broden Bowell, Lee Evans, Justin Currence, Aaron Akin, Justin Mann, Ben Schmanke, Grant Ferland, Alex Ackley, Jared Baker, Tyler Schmitz, Fang Wan and Matt Weisbrod



# HONOR ROLL OF GIVING

July 1, 2015 – June 30, 2016

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### \$50,000+

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Sam and Martha Logan  
Lou and Jenn Von Thaer

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Mark and Brenda Brown  
Randy and Jacquie Coonrod  
Ruth Coonrod\*  
Lionel and Debra D'Luna  
Diane Dalton  
Jeff Dougan  
Glen and Sharon Fountain  
Don Gemaehlich  
Leslie and Justin Gordon  
Kay Hummels  
Steve and Mary Jane Kirkwood  
Don Lenhert  
Jane Ley  
Ben-Huang and Ing Lin

Jeanette Otto  
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Richard Voigt  
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John Tripp  
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Brick Verser

\* = deceased

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*We sincerely thank you all for your generosity and support.*

## 2016 ECE Advisory Council

Members of the electrical and computer engineering advisory council met in April 2016.

Bob Beims	Mark Brown
Daniel Burk	William Dowling
Dan Croft	Mackenzie Martin
Greg Deiter	Ben McBride
Glen Fountain	Navin Nagiah
Don Gemaehlich	Matta Spexarth
Leslie Gordon	Terry Weaver
Gabe Hernandez	Don Gruenbacher



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