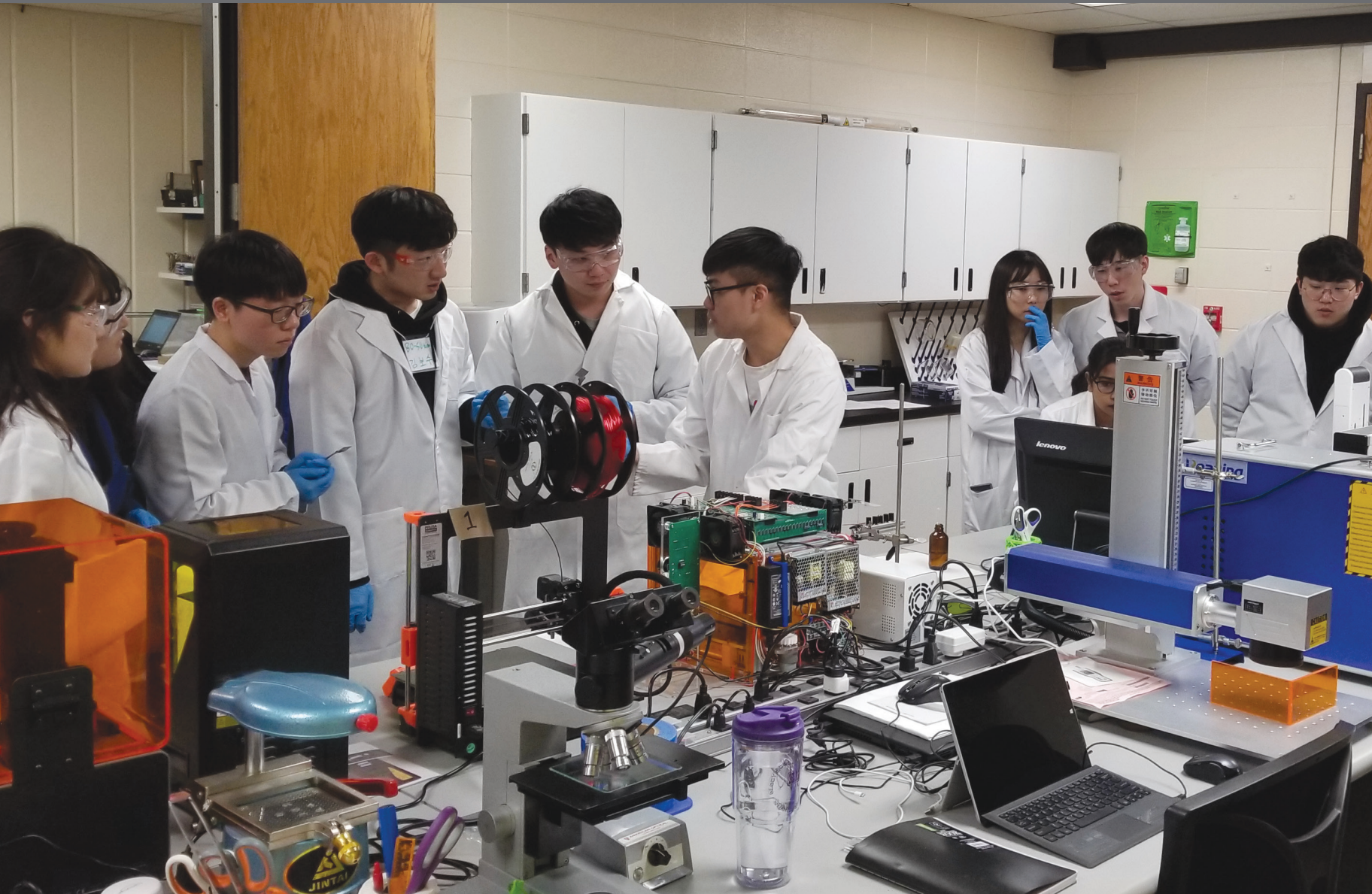


# ECE UPLINK

ELECTRICAL AND COMPUTER ENGINEERING

SUMMER 2020

CARL R. ICE COLLEGE OF ENGINEERING



**KANSAS STATE**  
UNIVERSITY

# FROM THE DEPARTMENT HEAD

Greetings from the ECE department at K-State! In the midst of these interesting times, I am excited to present the 2020 edition of Uplink, our annual print newsletter from the Mike Wiegers Department of Electrical and Computer Engineering. The naming of our department after alum Mike Wiegers was certainly a highlight of the year, culminating with an unveiling during our advisory council meeting on Oct. 25. The department is very grateful for the generosity of Mike and Lynn Wiegers in making this a reality. Even with all of the challenges we are currently facing, it was another great year of accomplishments for our faculty, students and staff. I hope you enjoy a representation of these in this newsletter.

As with most educational institutions across the country, K-State switched to 100% remote learning in the middle of the spring semester. It was an abrupt change for everyone, but we did our best and excellent student learning still took place. Even though we did not have our on-campus spring commencement ceremony, we still managed a virtual celebration for our graduates that you can view from our Facebook account at [facebook.com/KSUECE](https://facebook.com/KSUECE). There are many unknowns moving into the 2020-21 academic year, but K-State is committed to having a significant level of face-to-face learning. Almost all of our classes will become blended with both in-person and online experiences, while we are doing everything possible to ensure our on-campus teaching labs continue.

Two of our great faculty have retired to emeritus status. John Devore served as a faculty member since 1984 and was a foundation for our computer engineering program. William (Bill) Kuhn has been at K-State since 1996 and was our fundamental faculty member in communication circuits and electronics. Both will certainly be missed.

On the student side, one of the many exciting successes was having seniors Macey Elkinton and Sam Fruth win the college's Saint Patricia and Saint Patrick awards. They are just two of our many student leaders who have been providing outstanding service to our department, college and university. We are also

excited to have our third class of biomedical engineering students arrive this fall semester. The department is currently preparing plans to add an undergraduate teaching laboratory for the BME program that we anticipate will be under construction in 2021.

Research highlights in this issue include a solar power project sponsored by the Department of Energy and led by Bala Natarajan and his ECE colleagues. Another project is the Ebola transmission model work by Caterina Scoglio. She and her team have also been active in modeling the initial spread of COVID-19. In a joint teaching-research activity, Jungkwun Kim developed a workshop in early January for students and faculty from universities in South Korea to learn some of the newer technologies here at K-State.

We would love to hear of alumni accomplishments, so please let us know your recent news by sending a quick note to [alumninews@ece.ksu.edu](mailto:alumninews@ece.ksu.edu). As always, feel free to stop by the department the next time you are in Manhattan.

Go 'Cats!



Don M. Gruenbacher  
Department Head  
George J. and Alice D. Fiedler Distinguished Chair in  
Electrical and Computer Engineering



# ECE UPLINK

ELECTRICAL AND COMPUTER ENGINEERING      SUMMER 2020      CARL R. ICE COLLEGE OF ENGINEERING



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**ON THE COVER**  
STUDENTS FROM SOUTH KOREA EXPERIENCE AN ECE WINTER CAMP PRACTICUM: MICRONEEDLE FABRICATION.

**LEFT**  
ECE STUDENT, CIERRA COWLEY, TAKES ADVANTAGE OF PHOTO OP WITH WILLIE WILDCAT.

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# MIKE AND LYNN WIEGERS

## ■ TAKING PART IN THE LEGACY ■



Citing the long history of naming campus buildings after individuals and the newer trend of commercial facility naming, Mike Wieggers, EE '82, found it "logical and inevitable" that universities would begin naming other components such as departments, centers and colleges.

"When my wife, Lynn, and I witnessed the incredible gifts of Dr. Min Kao, Carl and Mary Ice, and others, we were inspired by their generosity," Wieggers said. "So when

given the opportunity to support the ECE department with a naming investment, we wanted to participate."

Thus came about the fourth named department in the Carl R. Ice College of Engineering — the Mike Wieggers Department of Electrical and Computer Engineering, whose official signage reveal was celebrated Oct. 25 in Engineering Hall.

"Industry and alumni contributions become more important to mitigate

tuition and fee increases as state funding for higher education decreases," Wieggers said. "This naming gift will help provide for what we think matters: a great engineering education that will benefit the citizens of Kansas via high-tech jobs."

Wieggers is vice president, consumer engineering, at Garmin International Inc. in Olathe, where he directs day-to-day operations of its worldwide consumer engineering group. Joining the company



in 1993 as lead engineer in marine product design, during his tenure he has served in a variety of technical and business leadership capacities in all Garmin consumer product segments.

"I remember my classes and particularly the ECE labs, which gave me hands-on experience that proved invaluable in the workplace," he said. "We hope our naming gift provides productive services and experiences for today's students as well."

The couple established the Wieggers Family Scholarship nearly a decade ago because of their desire to help K-State students, but their interest in philanthropy is something that has developed over time.

"Thoughts of providing scholarships, let alone naming the ECE department, were not in my imagination while attending K-State. Like many, I had dreams more focused on personal success than philanthropy," Wieggers said.

"But gifts like ours have benefited students, faculty and staff since KSU was founded in 1863," he said, "and we are very excited to be one of the names behind the story.

"Each named campus building or program represents a chronicle of success, generosity and a belief in the next generation," he said. "We are humbled to be part of that legacy."

by Mary Rankin

CLOCKWISE FROM LEFT, MIKE WIEGERS WITH DEPARTMENT HEAD, DON GRUENBACHER; THE WIEGERS' FAMILY AND FRIENDS ATTEND THE NAMING CEREMONY; MIKE WIEGERS RELATES STORIES OF HIS K-STATE EDUCATION AND LIFE AS AN ENGINEER; MIKE AND LYNN WIEGERS AT THE NAMED DEPARTMENT DISPLAY.



## ECE ALUM HONORED AS UP AND COMER IN THE UTILITIES INDUSTRY

Keegan Odle, ECE '03, Leawood, has been named one of *Fortnightly Magazine's* "Fortnightly Under Forty" for 2020. He is a director of substation projects for Burns & McDonnell.

The magazine is published by Public Utilities Fortnightly, a forum for stakeholders in utility regulation and policy. Membership includes those in public utility commissions; investor-owned utilities; and public power, co-ops and other industry groups who

debate the best course for the public interest of their clients.

Each year the membership nominates "rising stars" from its utility, commission or company who, while not yet 40 years of age, are deserving of being celebrated with the recognition of the "Fortnightly Under Forty."

This year's 64 awardees, the next generation of up-and-comers in the utilities industry, hail from 27 different industry organizations.



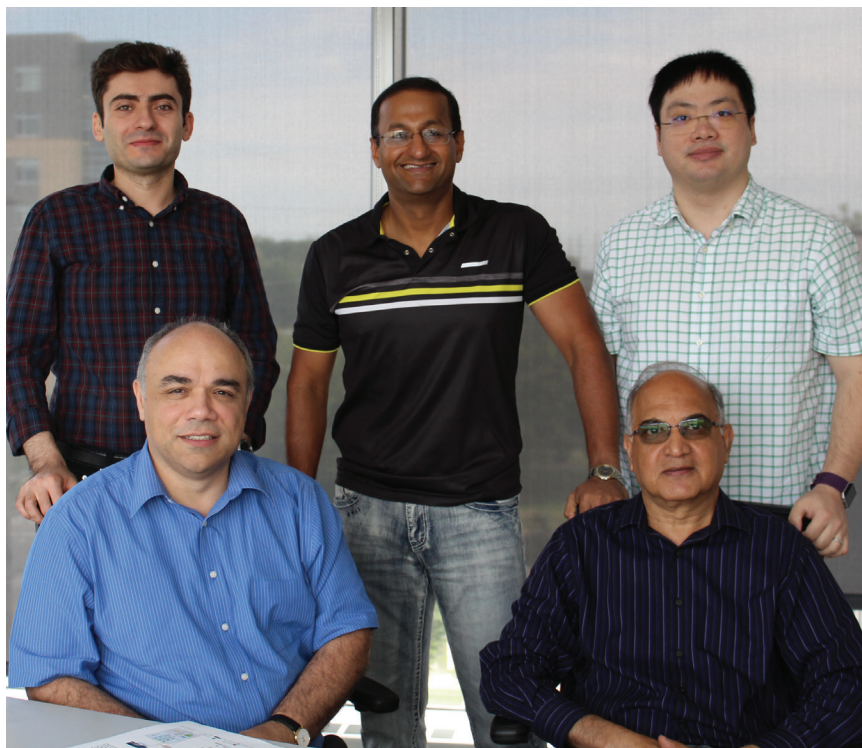
# RESEARCH TEAM AWARDED \$2.8M DOE GRANT

Kansas State University announced it has received a three-year, \$2.8 million research award from the U.S. Department of Energy Solar Energy Technologies Office to advance solar energy's role in strengthening the resilience of the U.S. electricity grid. This project, led by Bala Natarajan, the Clair N. Palmer and Sara M. Palmer professor in the Mike Wieggers Department of Electrical and Computer Engineering, will enhance utility operators' awareness of and resilience to cyberattacks.

The existing U.S. power grid was designed to deliver power to customers from a central generator. As more solar and other distributed energy resources are added to the grid, utility operators must develop new tools that will allow them to integrate diverse energy resources, detect and mitigate disturbances and provide strong protection against physical and cyber risks. However the need for data sharing between the photovoltaic system, operational tools and the electric grid has led to increased vulnerability to cyberattack.

Natarajan will lead a team to develop cyber-smart photovoltaic inverter technologies, system-level coordinated cyberattack detection methods, robust state estimation strategies, and unique modeling and control capabilities.

"Taken together, these technologies combine to enable measurements from solar inverters and grid sensors to be gathered and processed into actionable and visualized status updates for grid operators," Natarajan said. "These tools and algorithms will enable utilities to better manage and use data from



STANDING FROM LEFT, ECE FACULTY MEMBERS, MOHAMMAD SHADMAND, BALA NATARAJAN AND HONGYU WU; AND SEATED FROM LEFT, BEHROOZ MIRAFZAL AND ANIL PAHWA

distributed energy devices and enhance operations."

The project is one of 10 selected nationwide in the Advanced Systems Integration for Solar Technologies program to develop grid management tools and models that show how solar situational awareness will enhance power system resilience, especially at critical infrastructure sites.

Kansas State University strives to be an international leader in power and energy systems, and cybersecurity. This project is among the largest to date in the electrical and computer engineering department at the university and is the first project from the solar office to be awarded to a university in Kansas.

The research team includes co-investigators Hongyu Wu and Mohammad Shadmand, both assistant professors; Behrooz Mirafzal, associate professor; and Anil Pahwa, university distinguished professor, all from electrical and computer engineering at Kansas State University. Collaborating industries and organizations include Oracle America Inc., the National Renewable Energy Laboratory, Typhoon HIL Inc., Midwest Energy and Enphase Energy Inc.

About the Solar Energy Technologies Office: The U.S. Department of Energy Solar Energy Technologies Office supports early-stage research and development to improve the affordability, reliability and performance of solar technologies on the grid. Learn more at [energy.gov/solar-office](https://energy.gov/solar-office).

by Mary Rankin



# INAUGURAL WINTER CAMP FOR RESEARCH EXPERIENCE

Winter Camp for Research Experience, hosted by the Mike Wieggers Department of Electrical and Computer Engineering, was successfully held during the 2020 winter break for a group of South Korean students, faculty and staff. It provided topics on recent advances in wearable sensors and devices in a lecture format covering theory and applications to the practicum of device and circuit fabrications.

The program was initiated by ECE faculty member, Jungkwun 'JK' Kim, who submitted an educational proposal that was selected by sponsors from the Korea Institute for Advancement Technology and the Korea Display Industry Association.

The sponsors chose nine Korean students after reviewing their competitive applications from four research groups in four different universities: two each from Kwangwoon, Soongsil and Chung-Ang universities, and three from Hanyang University. All nine were in a master's degree program in their respective universities studying the promotion of research topics in wearable sensors and devices.

The six-day camp was scheduled for Jan. 5-10, 2020. Five faculty members in the ECE department and one in the department of interior design and fashion studies volunteered to provide various lectures and practicums in the wearable sensor and device category. Steve Warren and Charles Carlson, both ECE, introduced wearable sensors and signal processing techniques through lectures and practicums. Dwight

Day, ECE, shared his previous NASA project experiences regarding flexible electronics and energy harvesting. Yingying Wu, from the department of interior design and fashion studies, provided a unique lecture on wearable technologies in functional



PARTICIPATING WINTER CAMP STUDENTS, STAFF AND FACULTY DURING GARMIN VISIT

clothing design. Don Gruenbacher, ECE, lectured on the topic of software-defined networks in the development of architectures and protocols for secure and robust communications. Students also had the opportunity to experience the microfabrication for a wearable microneedle array offered by Kim. ECE department staff organized and helped with the South Korean guests' flight schedules, vehicles, accommodations and budget arrangements. Two ECE graduate students, Jun Ying Tan and Sabera Fahmida Shiba, also assisted with the practicums and outside activities.

The winter camp program included outside activities such as visiting the Hall of Space Museum and Stratoca salt cave in Hutchinson led by Day and Kim. A curator was assigned to the students who explained the different types of

spaceships including the story of Apollo 13, working principles and functions of spacesuits, and other attention-grabbing equipment such as the lunar module and lunar roving vehicle. The students also learned the about the successes and failures in the history of the U.S. aerospace industry. At the Startaca salt mine students walked through the area where the raw portion of salt rocks had first been deposited.

Another activity was visiting Garmin, led by Gruenbacher, Warren, Carlson and Kim. A design engineering manager at Garmin, Daniel Croft, hosted the visit and arranged a tour of engineering lab areas. Students

were able to see the modern state-of-art facilities at Garmin, including a general engineering lab, vibration tables, reliability lab and RF testing labs. Warren invited the Korean visitors and K-State hosts to his house for dinner giving all a chance to see his farm and horses and enjoy a back-yard-viewed sunset. The student group noted their enjoyment of this evening in later comments.

The evaluation of the entire Winter Camp for Research Experience resulted in excellent feedback. One student described the experience as follows: "The professors at Kansas State University took care of us closely and very kindly. Not only were the programs exciting, but the tours and home invitations were unforgettable!"

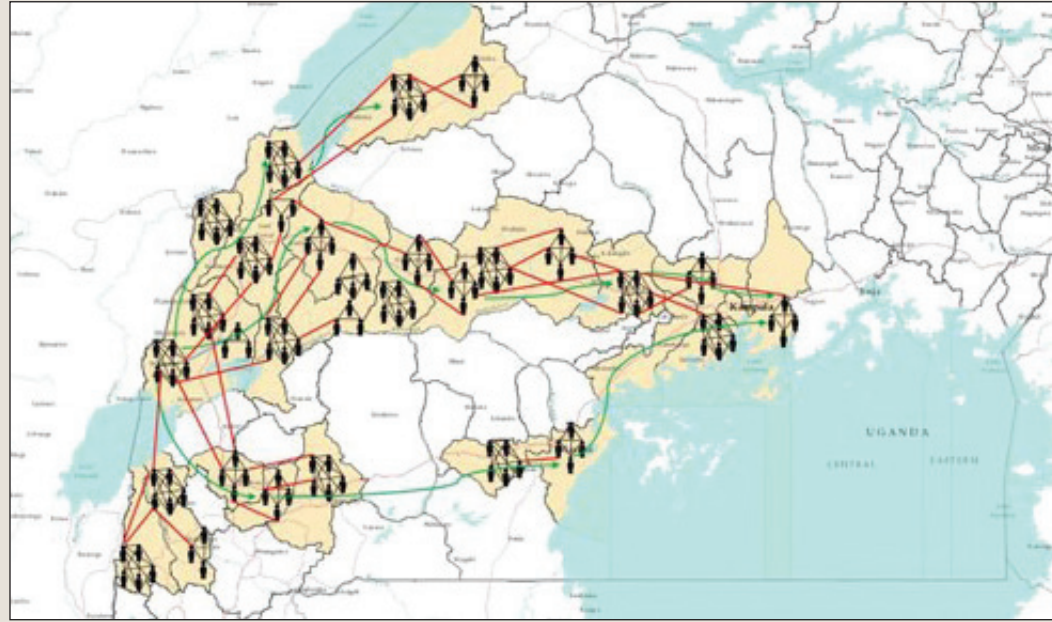
The Korea Display Industry Association plans to make a similar program a yearly event in the future.



# NEW TRANSMISSION MODEL FOR EBOLA PREDICTED UGANDA CASES



SCOGLIO



KANSAS STATE UNIVERSITY RESEARCHERS HAVE DEVELOPED A MULTILAYER TEMPORAL NETWORK MODEL FOR HOW EBOLA COULD SPREAD IN UGANDA SO HEALTH PROFESSIONALS CAN DEVELOP A RISK ASSESSMENT. THEY IDENTIFIED 23 DISTRICTS AT RISK MARKED IN BEIGE. THE HUMAN FIGURES REPRESENT NETWORKS OF CONSTANT CONTACTS LINKED BY BLACK LINES AND TEMPORARY CONTACTS LINKED BY RED LINES. THE GREEN ARROWS REPRESENT THE DIRECTION OF HUMAN MOVEMENT.

by Stephanie Jacques

A new risk assessment model for the transmission of Ebola accurately predicted its spread into the Republic of Uganda, according to developers Caterina Scoglio, professor, and Mahbulul Riad, doctoral student, both in the Mike Wiegers Department of Electrical and Computer Engineering.

Along with Musa Sekamatte and Issa Makumbi at Uganda Ministry of Health, and Felix Ocom with the World Health Organization in Uganda, they published “Risk assessment of Ebola virus disease spreading in Uganda using a two-layer temporal network” in the Scientific Reports with Nature publishing group in November 2019.

The paper describes a new model to better predict how diseases such as Ebola spread. It combines data of people’s constant contacts — such as family members and co-workers — with their temporary contacts — such as people in a market or encountered during travel. According to Scoglio, the model should be used as

a risk assessment tool to prepare and distribute resources, but it was accurate in predicting how the spring outbreak of Ebola in the Democratic Republic of Congo would move into Uganda.

“This is a very new type of model,” Scoglio said. “Since we consider movement data in addition to constant contacts, we saw that not only are the districts directly bordering Congo at risk but districts on the path to some important Ugandan destinations also are at risk.”

In 2018 Scoglio and her collaborators worked with Ugandan officials to collect movement data to model disease progression and find areas most at risk. According to the model, the Kasese district was the highest risk area for an infected person to enter the country. The researchers used the model to create a 150-day simulation of possible disease progression in Uganda and produced a map of 23 Ugandan districts at risk.

The specific scenario used in the simulation was similar to how actual events in Uganda started. According to the Uganda Health Ministry’s June 18 release, there were three confirmed cases of Ebola in travelers to Uganda — all from one family that entered the country at the Kasese district border. Again in August, another confirmed case came through the Kasese district from Congo. According to Scoglio, Ugandan officials were prepared for this and were able to stop further spread into the country.

“The risk assessment maps can be used to allocate and distribute limited resources,” Scoglio said. “Uganda has about 4,000 doses of the new Ebola vaccine. They are vaccinating health workers, communicating about how to prevent spreading diseases and advising people to limit travel in high-risk areas. We have much respect and admiration for how Uganda has organized the preparedness and now the response.”

The researchers used the simulation of Ebola in Uganda to test their model because the heavy traffic coming into the country from the Democratic Republic of Congo for health care, trading and refuge. Ebola is highly contagious through physical contact with an infected person and his or her bodily fluids.

Scoglio said even though the real events in Uganda have aligned with the simulated model, the scenario should only be used to mitigate the risk.

“One very important point for the public to understand is the concept of risk and probability with these maps,” Scoglio said. “It should not be interpreted that these red regions will be affected because that will cause panic in the population, but rather these are a guide for allocation of limited resources in regions that could be potentially affected if no mitigations are implemented.”

This model may open a new era in infectious disease management, Scoglio said. She gives credit to Aram Vajdi, doctoral student in electrical and computer engineering at Kansas State University, for developing the framework for the theoretical model based on a multilayer temporal network and the Gillespie algorithm. Scoglio also praised Riad, who applied the data collected from Uganda and how Ebola was transmitted to create the risk assessment.

According to Scoglio, network models used for highly infectious disease risk assessment must be able to anticipate changes in human-to-human contacts — unlike many other models based mainly on constant contacts and constant movement flows. Using these models can help increase the effectiveness of preventive measures by targeting the most critical regions while decreasing the risk of spreading Ebola and other infectious diseases.

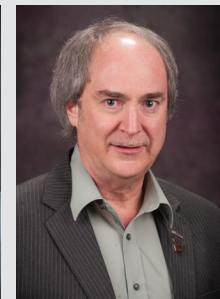
## ECE FACULTY AWARDS



DWIGHT DAY, ASSOCIATE PROFESSOR, DAVID AND LYNDY DAWSON CORNERSTONE TEACHING SCHOLAR



WILLIAM HAGEMAN, ASSISTANT PROFESSOR, DANIEL AND JUDI BURK CORNERSTONE TEACHING SCHOLAR



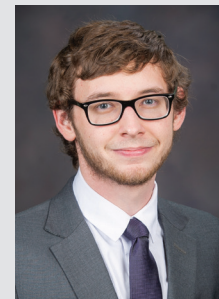
BILL KUHN, PROFESSOR, ROBERT R. AND LILA L. SNELL EXCELLENCE IN UNDERGRADUATE TEACHING AWARD



BALA NATARAJAN, PROFESSOR, FRANKENHOFF OUTSTANDING RESEARCH AWARD



ANIL PAHWA, PROFESSOR, ENGINEERING DISTINGUISHED RESEARCHER AWARD



GARRETT PETERSON, INSTRUCTOR, 2020 CLAIR A. MAUCH STEEL RING ADVISOR OF THE YEAR



STEVE WARREN, PROFESSOR, ROBERT AND BECCA REICHENBERGER CORNERSTONE TEACHING SCHOLAR



## ECE RETIREMENTS

# JOHN DEVORE

John Devore, professor in the Mike Wieggers Department of Electrical and Computer Engineering, has retired after 50 years of service to Kansas State University.

Devore received the B.S. in physics in 1971, M.S. in computer science in 1973 and Ph.D. in engineering in 1984, all from Kansas State University. He was instrumental in the formation of and in developing the curriculum for the department's second degree program, the B.S. in computer engineering. As that program grew, the department was renamed as the department of electrical and computer engineering.

During his academic career, Devore taught courses in both computer hardware and software, image processing, computer graphics and instrumentation. He was the 2016 recipient of the Robert R. and Lila L. Snell Excellence in Undergraduate Teaching Award. His research included image processing, applied instrumentation and digital design education.

His work at K-State has involved a variety of positions. He began by teaching a computer programming course for the department of statistics in the summer semester in 1970 and accepted a full-time programming position at the university computing center that fall. Over the next 12 years he served in a series of capacities there which included systems programmer, head of consulting services and head of programming services. From 1982-84 he taught courses in the department of electrical engineering while finishing his Ph.D. In the fall of 1984 he accepted a tenure-track position in that department at the rank of assistant professor. He was promoted to associate professor in 1991 and professor in 1998.

One of his research projects for KDOT resulted in an automated road-smoothness analysis system that became the standard in many states and the federal highway system. The software was incorporated into the major commercial road-smoothness testing systems produced by several companies and led to extensive consulting for the road-smoothness testing industry and government agencies.



He consulted for many companies and government agencies in Kansas and throughout the U.S. This work involved writing software, serving as an independent software verification authority and creating digital electronics designs.

Devore's service to the university included chairing a committee making major revisions to traffic and parking regulations, serving for two terms on the board of directors of the K-State Credit Union and serving four terms on the university faculty senate. He is a long-time member of both the IEEE and ASEE professional societies.

# WILLIAM KUHN



Professor William Kuhn has retired after 24 years of service to Kansas State University. He taught courses at both the undergraduate and graduate levels in the Mike Wieggers Department of Electrical and Computer Engineering since 1996 covering linear systems, electronics, integrated circuits, communications theory, and radio and microwave/antenna hardware design laboratory experiences.

During his time at K-State, Kuhn's goal was to give teaching his highest priority, focusing in lab and lecture courses alike on empowering students by relating theory to practice. This

orientation was induced from an early age as he acquired amateur radio and commercial FCC licenses while still in junior high school, worked summers in the TV repair business and held employment with a marine navigation company during summers in his undergraduate program years.

His formal advanced education began at Virginia Tech where he received a bachelor's degree in electrical engineering in 1979. From there he moved to California for his first professional job at Ford Aerospace. In 1982 he returned to school and earned a master's degree in electrical engineering from Georgia Tech in 1983 and subsequently worked at the Georgia Tech Research Institute for 10 years. Following that he returned to Virginia Tech, earned his doctorate and afterwards joined the K-State faculty.

Kuhn's Google Scholar h-index is 21 and his research publications have accumulated more than 1,900 citations since 1990. His main research contributions have included coding the XSPICE mixed-mode simulator, writing early computer code for Computer Music pitch detection used for vocal training, developing component technologies for wireless products, and conceiving and prototyping circuit/system designs applicable to future manned and unmanned NASA missions.

He is a senior member of the IEEE and a life member of the Microwave Theory and Techniques Society. Research and teaching awards include the Bradley Research Fellowship at Virginia Tech from 1993-95; the K-State College of Engineering James L. Hollis Award for Excellence in Undergraduate Teaching in 2001; HKN Distinguished Faculty awards in 2002, 2003, 2007, 2013 and 2014; a NASA group achievement award in 2009; and the Myers-Alford Memorial Teaching Award in 2015.

While at K-State Kuhn served as major professor for more than 30 graduate students, while teaching courses to 50-100 undergraduate/graduate students per year. In 2015 he began a five-year phased-retirement program, remaining fully engaged in both the teaching and research missions of the university each semester.



# CONGRATULATIONS 2019-2020 GRADUATES



 Hassan Al Jaffar	 Mustafa Al Jumaan	 Mohammad Alibrahim	 Mohmmad Almuslem	 Faisal Alqahtani	 Wasaif Alshareef	 Mohammed Alshurafa	 Aseel Alsolami	 Salem Alsulami	 Fahad Alzahrani	 Kala Anderson	 Nathaniel Anderson	 Boyu Bai	 Kevin Beahm	 Adam Becker	 Steven Binau
 Saraya Bragg	 Devin Brezgiel	 Meagan Brucker	 Zoe Cosgrove	 Cierra Cowley	<p>Electrical &amp; Computer Engineering          Kansas State          University          Class of 2019-2020</p>					 Kaleb Cox	 Zackary Darpinian	 Jonathan Deneault	 Michael Devoe	 Sam Dreiling	
 Macey Elkinton	 Dylan Ferguson	 Sam Fruth	 Tianchen Fu	 Cristian Garcia						 J. Isaiah Garrett	 Jacob Ginder	 Ana Grother	 Eero Halbleib	 Jacob Hardenburger	 Weston Harder
 Omar Hernandez	 Grant Hilliard	 Christopher Hines	 Matthew Hoffman	 Michael Hund	 Stephen Jordan	 Nicholas Kaltmayer	 Aaron Kamke	 Trevor Keith	 Tyler Kodanaz	 Wyatt Kroth	 Colin Lasater	 Xuebo Liu	 Chord Livingston	 Brandon Lor	 Ashton Love
 Alexander Marney	 Bailey Martin	 Mariah Matthews	 Elijah McAdam	 Dajon McGill	 Elijah McLain	 Kaleb Mekonnen	 Thomas Miller	 Jonathan Morris	 Jacobe Nguyen	 Austyn Nick	 Caden Niemschck	 Brevann Nun	 Aswini Patro	 Erin Payne	 John Pittala
 Cullen Povilonis	 Philip Randall	 Dakota Reynolds	 Tyler Richey	 Ryan Schamberger	 Trey Schmidt	 Dacey Simpson	 John Slattery	 Zachary Sleppy	 Jacob Spannagel	 Dylan Staatz	 William Stolz	 Josiah Stonebraker	 Colton Strickler	 James Wensel	 Diquing Wu

# STUDENT NEWS

## UNDERGRADUATE STUDENT RECOGNITION

**Macey Elkinton** — Saint Patricia

**Sam Fruth** — Saint Patrick

**Parker Lange and Becca Debes**  
— Steel Ring Honor Society  
inductees



ELKINTON



FRUTH

## GRADUATE STUDENT NEWS

**Amin Yousefzadeh Fard**, left, and **Mitchell Easley** received the Best Paper Award at the IEEE Homeland Security Conference for their work on cybersecurity analytics of power distribution systems.



## UNDERGRADUATE STUDENT AWARDS

### Outstanding Student Awards

*Outstanding Senior Leadership* – **Isaiah Garrett**

*Outstanding Senior Service* – **Trey Schmidt**

*Outstanding Senior Research* – **Xuebo Liu**

*Outstanding Junior in Computer Engineering* – **Parker Lange**

*Outstanding Junior in Electrical Engineering* – **Amy Howard**

*Outstanding Sophomore in Computer Engineering* – **Caden Churchman**

*Outstanding Sophomore in Electrical Engineering* – **Hayden Dillavou**

*Outstanding Sophomore in Biomedical Engineering* – **Kelsey Warren**

*Outstanding Freshman in Computer Engineering* – **Ben Madrigal**

*Outstanding Freshman in Electrical Engineering* – **Aurora Gray**

*Outstanding Freshman in Biomedical Engineering* – **Drake Butler**

### Academic Achievement Awardees

**Jonathan Deneault**

**Isaiah Garrett**

**Grant Hilliard**

**Trey Schmidt**

**Dylan Staatz**

**Kala (Keusler) Anderson**

**Saraya Bragg**

**Eero Halbleib**

**Mariah Matthews**

**John Slattery**

**Philip Randall**

# SPRING 2020 COMMENCEMENT GOES VIRTUAL

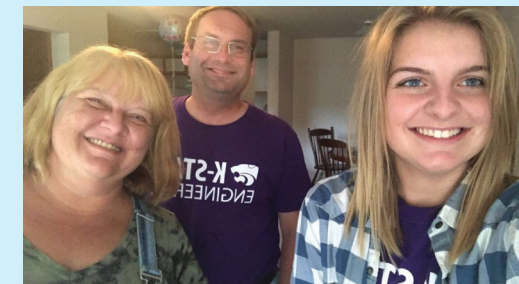
While ECE seniors were unable to experience the usual K-State commencement ceremony this year due to the COVID-19 pandemic, faculty and staff still thought the group deserved to be celebrated.

Don Gruenbacher, ECE department head, reached out to the seniors to see if they would be interested in a virtual experience and received an overwhelmingly positive response. Students Meagan Brucker, Sam Fruth and Macey Elkinton volunteered to be on a graduation committee with other staff and faculty members.

The committee decided on a May 16 Facebook Live event for graduates and their families to watch and participate with comments, even if quarantined and separated by distance. Gruenbacher delivered an introduction and announced the

senior award recipients. This was followed by a PowerPoint slide for each graduate that contained his or her senior composite picture and personalized information such as best ECE class, favorite ECE professor, future plans, favorite quarantine activity, most memorable college experience and what you would tell your freshman self. Students could also select their favorite professor to read their slide information. The memories montage below shows some of the photos submitted by students for this display. Watch the virtual ceremony at [facebook.com/KSUECE](https://facebook.com/KSUECE).

"We want to wish the ECE graduating class of 2020 the best of luck in their future endeavors," Gruenbacher said, "and we hope they'll keep in touch and visit us whenever they get a chance."



## KANSAS STATE UNIVERSITY

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- Contact me/us about gifts that pay lifetime income.
- I/We have provided for K-State in my/our will.

### Matching gift information

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 785-775-2000 or visit [ksufoundation.org/match](https://ksufoundation.org/match).

### Thank you for your generous support!

Please return this card to: KSU Foundation, P.O. Box 9200, Shawnee Mission, KS 66201-1800.  
 I23400

Interested in supporting the Mike Wieggers Department of Electrical and Computer Engineering?

Learn more at [give.evertrue.com/ksu/ece](https://give.evertrue.com/ksu/ece).



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

## WHAT HAVE YOU BEEN UP TO?

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



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## 2019-2020 ELECTRICAL AND COMPUTER ENGINEERING ADVISORY COUNCIL



Department faculty maintain extensive links to alumni and other industry personnel, keeping program offerings current to provide the best possible match between our graduates and employers' needs. The ECE advisory council meets periodically to guarantee these goals are met.

Bob Beims  
Mark Brown  
Dan Burk  
Dan Croft  
Greg Deiter  
William Dowling  
Glen Fountain  
Don Gemaehlich  
Leslie R.E. Gordon

Don Gruenbacher  
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