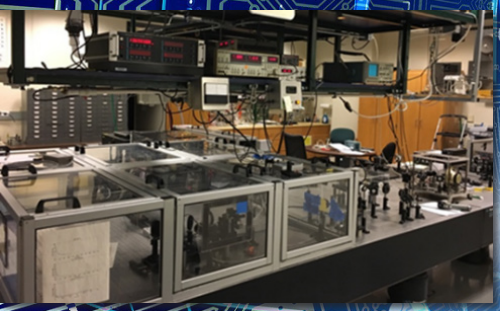
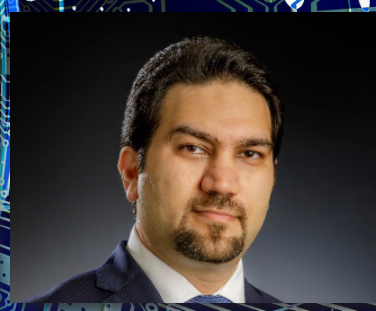
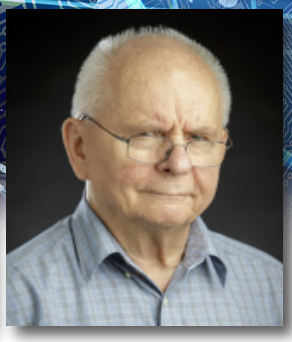
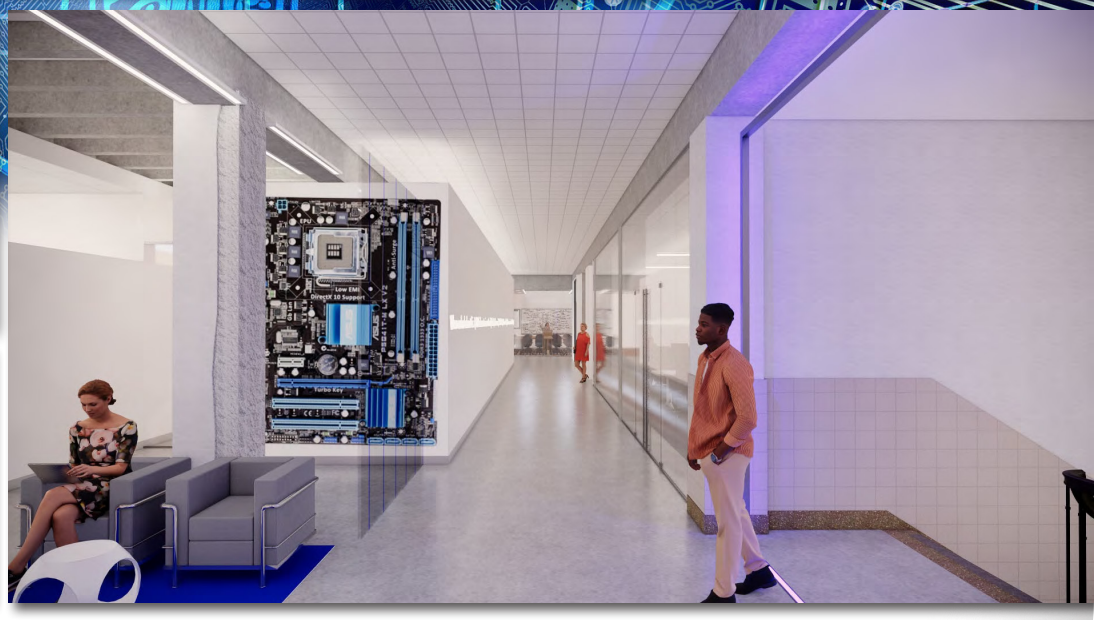
ECE NETWORKS 2020 | ELECTRICAL & COMPUTER ENGINEERING




Students & Faculty

Research Highlights

Engineering South Renovation

SCHOOL OF
ELECTRICAL AND COMPUTER ENGINEERING
College of Engineering, Architecture and Technology

LETTER FROM THE DEPARTMENT HEAD

To say that 2020 has been a most interesting year is certainly an understatement. OSU, like everyone else on the planet, had its operations severely disrupted this past year at the onslaught of the COVID-19 pandemic. Even so, with a can-do spirit along with a touch of grit, we adapted and pressed forward on our mission of teaching and research. We delivered our course content in the classroom and online, thus giving students the option to choose the delivery method that was best suited to their needs. Our faculty continued with their innovative research and secured many new grants. It was a proud time to be a member of the OSU community.

We did, however, have to scale back our non-essential activities and social functions in order to create and maintain a safe environment. This newsletter reflects that, as seen in the dearth of information that we usually share at this time each year. Hence, this newsletter is quite shorter than usual.

In the midst of the pandemic, ECE was searching for two new assistant professors. The pandemic did not stop us from once again hiring two outstanding assistant professors—Dr. Hamidreza Nazaripouya and Dr. Bingzhe Li. As shared herein, Dr. Nazaripouya has expertise in energy and power; Dr. Li has expertise in computer engineering. Both of them have outstanding credentials and will create tremendous value for our instructional and research programs. More than that, they will join a collaborating, thriving and enterprising faculty that will continuously elevate ECE for many years to come.

At the other end of the personnel spectrum, Drs. Keith Teague and Jerzy Krasinski announced their retirement plans in 2020. Dr. Krasinski retired in May 2020; Dr. Teague will retire in January 2021. The school strongly appreciates their combined service of over 65 years. Their impact will live on in our students and in their research publications. The ECE faculty, staff and students wish them the very best.

Many of the professors within ECE had a banner year with respect to their research enterprises. During the summer of 2020, we logged about $2.7M in new research grants. Much of this activity was centered on ECE's assistant professors who won a highly competitive NASA EPSCoR grant and an NSF Major Research Instrumentation (MRI) Grant. Grants were also awarded from the Department of Defense, the Department of Energy via the University of Oklahoma, and the California Energy Commission. I am very proud of their hard work and perseverance. Most of these grants are highly competitive. Clearly, ECE professors can nationally compete with the best academics from the best schools, which further bolsters our reputation of excellence.

We also made progress this past year in finalizing the renovation design of Engineering South (ES). As you may be well aware, ES will be completely gutted and fully modernized while retaining its legacy facade and prominence on the OSU campus. The project is estimated to cost about $30M. Construction is slated to begin in May 2021 and be completed in July 2023. We are in the final phases of the design and pressing forward with raising funds to provide an outstanding facility for our students, faculty and staff. Several prominent alumni have stepped up to the plate to provide us with the needed financial support. I am truly honored and thankful for their generosity and support of ECE's future.

It may be awhile before ECE can host face-to-face visits, meetings and social functions on the OSU campus. But, I do hope we will see you soon on campus once this pandemic is seen in our collective rearview mirror. Until then, stay safe and healthy and, as always, Go Pokes!

Sincerely,
Jeffrey L. Young
ECE Professor and Head

P.S. Your financial gifts to support our programs, facilities and students are always deeply appreciated. Please see the back of this publication to learn more about giving opportunities.

ECE Graduate Student, Karl Strecker, Receives the Prestigious National Science Foundation (NSF) Graduate Research Fellowship

The School of Electrical and Computer Engineering is proud to announce that Mr. Karl Strecker received the prestigious National Science Foundation (NSF) Graduate Research Fellowship. The NSF Graduate Research Fellowship Program (GRFP) helps ensure the sustainability and vitality of science and engineering talent in the United States. The program recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees at accredited United States institutions.

Fellows receive a three-year annual stipend of $34,000 along with a $12,000 cost of education allowance for tuition and fees (paid to the institution). Moreover, opportunities for international research and professional development are available. Fellows have full freedom to conduct their own research at any accredited U.S. institution of graduate education they choose.

Mr. Strecker received his BSEE from OSU in spring 2018 and has chosen to continue his graduate studies in the ECE department under the guidance of Prof. John O'Hara, ECE assistant professor. He and Professor O'Hara are researching next generation, advanced communication technologies that utilize THz electromagnetic waves (**http://twister.okstate.edu/**). The school offers its wholehearted congratulations to Karl!

ECE/MAE Interdisciplinary Design Team Wins 1st Place

Three CEAT seniors were tasked with designing and building a robotic system for retrieving small objects from unknown locations within a single-story home. These students were Emily King (ECE, left), Hrudhay Jaladi (MAE, right), and Dylan Shadoan (ECE & MAE, middle). Dr. Guoliang Fan, an ECE professor, was the team's advisor. Their final presentation earned first place in Interdisciplinary Design for spring 2020. The purpose of their deliverable system was to assist users who cannot move about their homes easily or who often forget where they place personal items. Objects such as keys, wallets, medication, remote controls, and cell phones can be lost anywhere within a living space. However, through the integration of robotics and artificial intelligence, these items can be found and retrieved with simply a tap on a smartphone app. The team identified that such a system would need to navigate autonomously, create a digital map of its environment, remember locations of notable objects, grasp specified objects, and interface safely with the user.

Midway through the development process, the project needed to be altered to eliminate the need for in-person interaction due to the COVID-19 pandemic. By using the Robot Operating System (ROS) framework, the students were able to migrate their work to a fully virtual environment. They were able to model their robot and a simulated living space with high mechanical and visual detail. Their software will run on a real robot in the future. The resulting system was a success and showed the potential of this technology to improve the everyday lives of elderly and disabled persons. Through the design process the team gained valuable experience in interdisciplinary collaboration, time management, on-the-job learning, and adapting to unexpected changes and circumstances.

Projects and accomplishments like these continue to validate the strength and excellence of the ECE and MAE programs. ECE gives a big call out to Emily, Dylan and Hrudhay.

ECE Senior Maxwell Lewis Receives Prestigious IEEE PES Scholarship

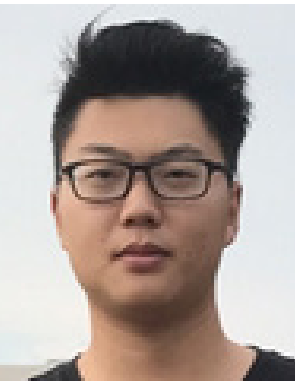
The IEEE Power and Energy Society (PES) named ECE student Maxwell Lewis a PES scholar. With such recognition, Mr. Lewis received a $2,000 check as part of the IEEE PES Scholarship Plus Initiative.

One hundred and thirty-five students were selected from 78 U.S., Puerto Rican and Canadian universities for the 2019-2020 academic year. This initiative recognizes undergraduate students who have declared a major in electrical and computer engineering, are high achievers with strong GPA's and distinctive extracurricular commitments, and are committed to exploring the power and energy field.

ECE is proud of Maxwell. Congratulations!

ECE PhD Students Receive the Best Student Paper Award

Nate Lannan



Le Zhou

Two ECE PhD students, Le Zhou and Nathan Lannan, received the Best Student Paper Award from the 20th annual IEEE International Conference on Bioinformatics and Bioengineering (BIBE). Their paper is entitled "A Hybrid Approach to Human Motion Enhancement under Kinematic and Anthropometric Constraints." Dr. Guoliang Fan, ECE professor, is their advisor and the principal investigator of the sponsored OCAST Health Research Project that aims at developing a versatile mobile motion capture (M-Mocap) platform for various clinical applications involving human gait analysis. Dr. Jerome Hausselle, MAE assistant professor, a collaborator of this project, and a co-author of the paper, will help the team validate and evaluate the M-Mocap system for musculoskeletal disorder assessment and diagnosis.

The series of BIBE Conferences, founded in 2000, is the longest-running IEEE conference of its kind. BIBE aims at building synergies among the complimentary disciplines of bioinformatics, bioengineering and biomedical. These synergies have delivered advances for understanding a wide range of complex issues and problems in the fields of medicine, bioengineering and biological systems, health environmental science, public healthcare, food, forensics, wearable and assistive devices, and more. Due to the current pandemic, the 2020 BIBE was held virtually from Oct. 26-28, 2020. CEAT and ECE have generously supported the two students' participation in the virtual conference.

ECE Welcomes Two New Faculty Members

The School of Electrical and Computer Engineering is excited to have hired two outstanding assistant professors: Dr. Bingzhe Li and Dr. Hamidreza Nazaripouya.

Dr. Bingzhe Li

Dr. Li's research interests have two major focuses. The first is on computer systems, including memory/storage systems, system architecture, distributed systems and storage system security. The other is on low-cost, energy-efficient, and high-performance architectural design in edge computing and Internet of Things (IoT) devices. Dr. Li's research has significant and practical value. His work on low-cost architectural designs has resulted in two provisional U.S. patents. He has had rich cooperative experiences with computer systems at companies including NetApp, Seagate, Intel, HPE, and IBM. Dr. Li received his Ph.D. degree from the Department of Electrical and Computer Engineering at the University of Minnesota in 2018. After that, he was a postdoctoral associate in the Department of Computer Science at the University of Minnesota.

Dr. Hamidreza Nazaripouya

Dr. Nazaripouya's research lies in the broad areas of power systems and power electronics. In particular, he is interested in enhancing the automation, stability and resilience of power systems by developing remote sensing platforms, advanced data analytic methods, and control systems for cyber-physical energy systems. Additionally, he has a keen interest in the integration of renewable energy resources, energy storage, power electronics, and smart grid technologies. His research on the integration and control of distributed renewable energy resources and battery storage systems has led to multiple publications and patents in the field. His patented technology resulted in an NSF grant with him as the entrepreneurial lead. Dr. Nazaripouya is an experienced power system engineer with an industry background. In particular, he has worked for Entergy Corporation, the owner and operator of power plants with approximately 30,000 MW of electric generating capacity. He has conducted several projects for utility companies throughout his career. He is currently the principal investigator (PI) of a million-dollar research project and the Co–PI of other active projects. Dr. Nazaripouya obtained his Ph.D. from the University of California, Los Angeles (UCLA). He received an M.Sc. degree in power systems from Louisiana State University (LSU) and an M.Sc. degree in power electronics from the Sharif University of Technology in Tehran, Iran, and a B.S. degree in electrical engineering from the University of Tehran, Iran. Dr. Nazaripouya has received several honors and awards, such as the IEEE SFV Section Rookie of the Year Award, IEEE IAS and PES Presentation Awards, and the University of California Dissertation-Year Fellowship Award.

Drs. Keith Teague and Jerzy Krasinski Retire After More Than Three Decades at OSU

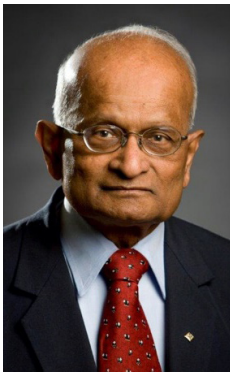
Dr. Keith Teague

Keith Teague came to OSU as an undergraduate student in electrical engineering in 1975 and earned his Ph.D. in 1984 specializing in digital signal processing under the guidance of Dr. Rao Yarlagadda. He considers himself very fortunate to have been able to work with Dr. Yarlagadda, a highly respected professor and educator, and an outstanding mentor who always had the highest regard for others. During the last year of his Ph.D. studies Dr. Teague joined the ECE faculty as an instructor teaching the undergraduate electronic devices class. This turned out to be a life changing event that greatly influenced the rest of his career, as he discovered, to his surprise that he loved teaching and working with students. In 1984, after graduating with a Ph.D. and while waiting for his wife Sherry to finish her M.S. degree in Accounting, he accepted a temporary position as a visiting assistant professor in ECE, followed by a permanent position as assistant professor in 1985, rather than following the traditional path into industry. Dr. Teague has a long record of funded research (e.g., Department of Defense) primarily in the areas of voice coding, real-time digital signal processing, and secure communication systems. In addition to making scientific contributions, these projects provided great opportunities for many of his students. Dr. Teague has always had a love and commitment for teaching and working with students, faculty, and staff, and he has always been sensitive to the diverse needs of the many people he met. This skill came in very handy when he became interim school head in 2002, before accepting the position on a permanent basis from 2004-2013. He sensed the strengths and weaknesses of people and knew how to interact with the faculty to make a team out of diverse individuals. When Dr. Teague became school head, he brought a degree of stability and collegiality that spanned his 10+ years of service. He always tried to be professional and respectful in his interactions with the general faculty. Serving as head was a challenge yet very fulfilling, but his real joy always came from the many outstanding students he had the opportunity to teach, mentor, and know. The feeling was mutual. Dr. Teague loves to travel. He led the CEAT Japan Study Abroad trip for about a dozen years, along with developing educational relationships in several countries including Vietnam, India, and China, and teaching in Vietnam. He's always felt a strong connection with his colleagues and students, and it was this that made him love his job. Dr. Teague has been a true asset to ECE. He will be missed.

Dr. Jerzy Krasinski

Dr. Jerzy Krasinski joined OSU in June 1990 as a full professor in the area of Optics and Lasers. Dr. Dick Powell of the Physics Department had started a laser center at OSU and actively recruited Dr. Krasinski. The center worked on many projects including several projects for Minnesota Manufacturing and Mining, Inc. (3M). With 3M funding, novel methods for dealing with industrial photography were devised. The effort proved to be a great financial benefit to the Oklahoma industry. The group created a clean room where they could conduct cutting edge research. They developed methods that achieved results that exceeded the performance of industry-grade, multi-million dollar machines and equipment found in industry. Dr. Jin Joo Song of the Physics Department also joined the group and with strong assistance from Dr. Krasinski, the Photonic Center was created. The Center proved to be a great source of outstanding laser advances and the creation of new research talent. Due to the state-of-the-art research that was conducted, Dr. Krasinski was offered a very prestigious position in California. Fortunately, for OSU, California was not a good fit for his wife, who is a physician. He loved his position at OSU and enjoyed the students, so he decided to remain here. In addition to his academic accomplishments, Jerzy Krasinski has a pilot license and in his free time built his own airplane. He used the airplane to take himself and his wife to tour the United States. In addition to the airplane, he built a phase-contrast microscope from scratch. He is commonly referred to as a quintessential engineer with vast expertise in hardware applications. He is enjoying his retirement in Stillwater and we all wish him well.

Solutions to Reliable and Resilient Integration of Photovoltaic Installations and Distributed Energy Resources

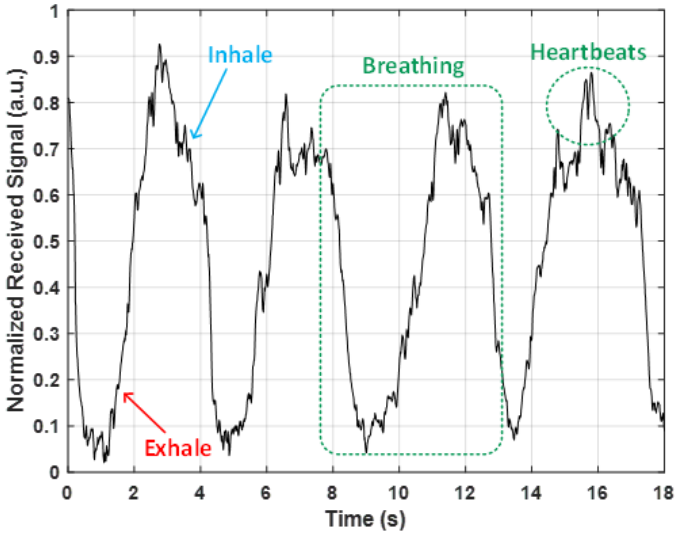


Dr. Rama Ramakumar (left) and Dr. Nishantha Ekneligoda (right) recently received a $65K, three-year collaborative research grant, which is funded as a subcontract from the University of Oklahoma. The subcontract is part of a larger grant from the Solar Energy Technologies Office (SETO) of the U.S. Department of Energy (USDOE). The objective of this project is to develop a theoretical foundation, establish a prototype test bed, and conduct a field demonstration of new technologies for distribution, grid protection and restoration with solar photovoltaic (PV) inverter-based energy resources (IBRs). The particular focus of this effort will be on system fault conditions. Drs. Ramakumar and Ekneligoda will develop practical protection and restoration solutions to support large-scale integration of solar PVs. Other participating organizations include North Dakota State University, the University of California, Irvine, the National Renewable Energy Laboratory (NREL), Schweitzer Engineering Laboratories (SEL), and Oklahoma Gas and Electric Company (OGE). ■

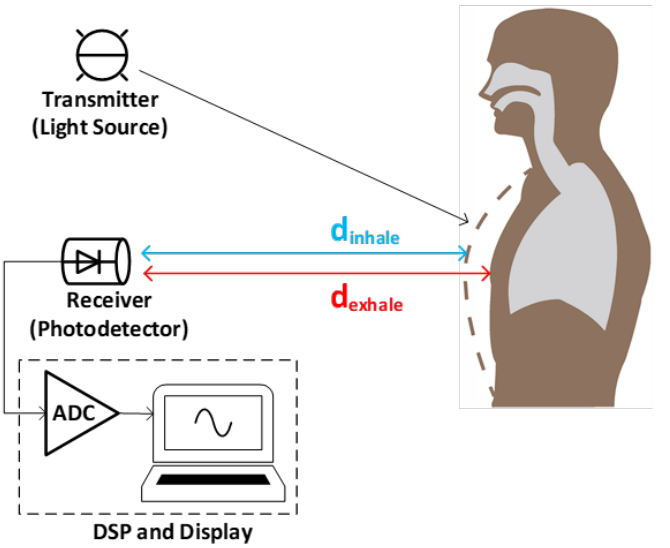
Non-contact Vitals Monitoring through Light Wave Sensing: Life-saving Data from Light

Dr. Sabit Ekin (left) and Dr. John O'Hara (right) have recently received a National Science Foundation (NSF) grant of $140,000 to work on light-wave-sensing of human vitals monitoring technology. This is part of their ongoing effort to develop new wireless (non-contact) respiration and heart rate monitoring technology.

In many health care settings, there is a need to discreetly monitor the respiration and heart rates of humans. The applications for monitoring these vitals include warning fatigued drivers or pilots, and providing active feedback for virtual reality or gaming. Additional applications include anxiety monitoring, security screening, and health monitoring for sleep apnea, tachypnea, tachycardia, and bradycardia. T In concept, the intensity of light reflected from a subject follows the subtle body movements associated with breathing and heartbeat, enabling extraction of the rates. The method offers high privacy with zero risks of radio interference, but its theoretical effectiveness and accuracy are not yet clear. Their project seeks to understand the fundamental limits of the technique, which will determine how well it can perform in real-world situations. Apart from the technological interest, the project will enable unique educational opportunities for next-generation engineers and scientists, including class modules as well as training and outreach. ■



Raw measurements of reflected light signal showing respiration and heart rates.



Light wave sending-based vitals monitoring (chest motion in inhale and exhale positions)

Hybrid Lunar Communication Architecture (LunarCom): Connecting the Earth and Moon

A team of ECE faculty members (from top to bottom, Drs. Sabit Ekin, John O'Hara, Wooyeol Choi and Ickhyun Song), collaborating with researchers from the Oklahoma Space Grant Consortium, OSU Unmanned Systems Research Institute, the University of Oklahoma, the University of Tulsa, and NASA Goddard Space Flight Center, have secured a $1,132,492 grant from NASA to develop next generation, space-based communication systems.

Titled "Robust and High-Data-Rate Hybrid RF/Optical Communications for Lunar Missions," this research effort will tackle problems with current radio frequency (RF) communication systems, namely low data rate transmission and network reliability, by utilizing a hybrid approach that incorporates both RF and optical communication systems within a smart networking framework. Theoretical and experimental solutions will be devised to integrate the RF and optical communication systems with an encompassing network architecture that leverages both Earth orbiting satellites (e.g., SpaceX Starlink) and NASA's next generation activities, such as the Artemis lunar platforms, which is part of NASA's strategy to return to the moon.

After studying the critical requirements of NASA's communications systems, the team proposed the best of two communication worlds—RF and optical—to develop a new communication architectural paradigm that enables NASA's space network to support the large volume of scientific data that will be transmitted in future lunar missions.

A new LunarCom Architecture for NASA's lunar missions will combine the reliability of RF links with the high capacity and low cost of optical links for communication between Earth stations and Moon explorers.

The primary thrust of this project will be conducted by ECE's TWISTER (Transformative Wireless Innovative Science and Technology and Engineering Research) Laboratory. TWISTER has core expertise in areas of electromagnetic waves, communication theory, communication devices, and signal processing. The proposed project will capitalize and grow ECE's world-class experimentation, fabrication and measurement capabilities of microwave, millimeter-wave, terahertz and optical devices, components and systems. This NASA EPSCoR grant is fully aligned with the strategic investments that ECE has made in DC-to-Light science, technology and engineering.

There are only nine states, including Oklahoma, that remain without a CubeSat initiative. A CubeSat is a type of miniaturized satellite for space research. It is comprised of 10 cm × 10 cm × 10 cm cubic units. NASA's CubeSat Launch Initiative was created in 2010. The program provides CubeSat launch opportunities to educational institutions, non-profit organizations, and NASA Centers. It is a low-cost pathway to conduct research in the areas of science, exploration, education, and technology development. With an investment from ECE, the research team plans to initiate the first CubeSat/SmallSat program in Oklahoma to generate STEM interest and participation. ■

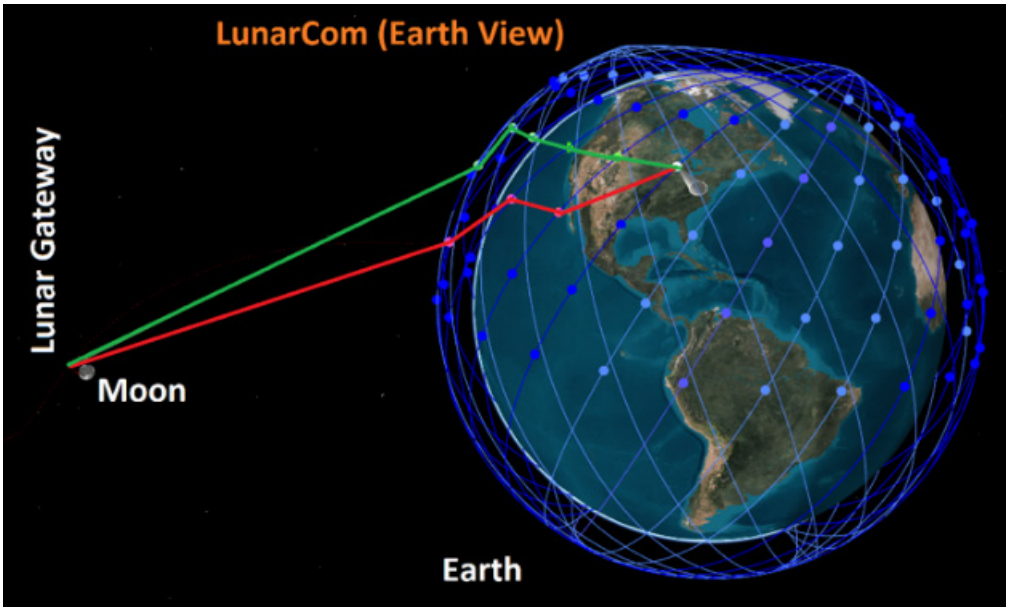


Illustration of envisioned LunarCom architecture (Earth view)

MRI: Acquisition of a Wideband Continuous-Wave Characterization Platform equipping OSU for Next-Generation Terahertz Research Leadership



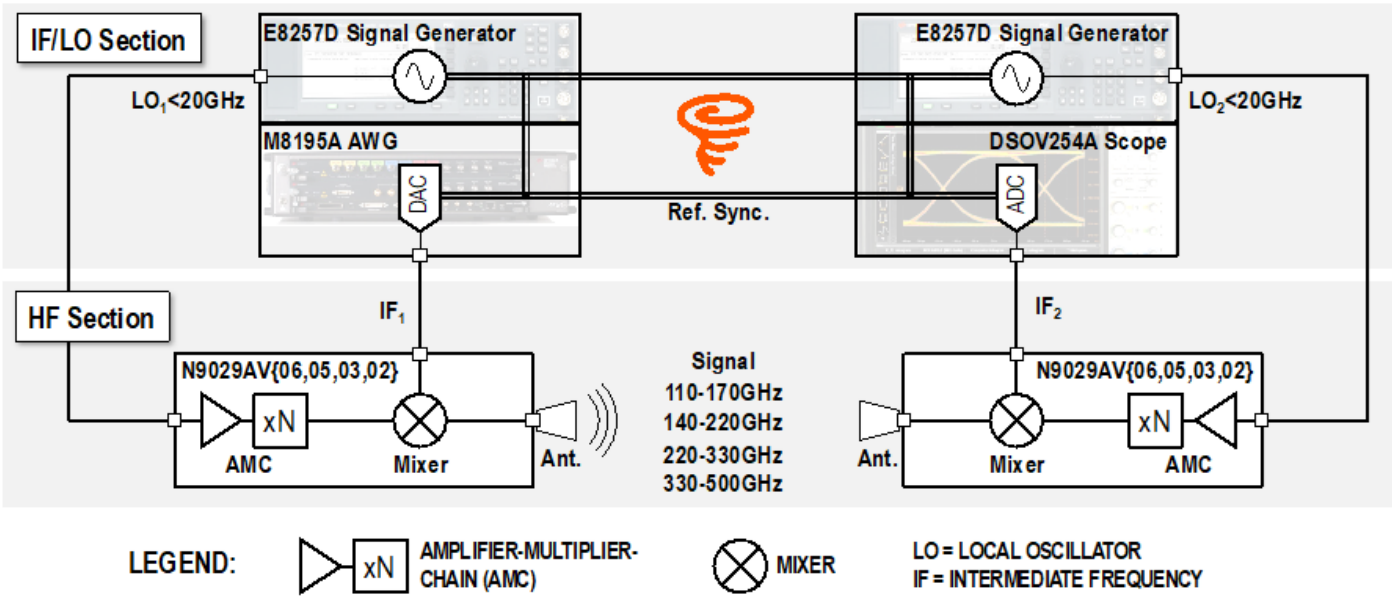

A team of ECE professors (from left to right, Drs. O'Hara, Ekin, Zhang and Choi) along with Physics assistant professor Dr. Emrah Turgut, have been awarded a prestigious $603,000 National Science Foundation (NSF) Major Research Instrumentation (MRI) grant to acquire a new, state-of-the-art, terahertz (THz) continuous-wave characterization system. This grant, in addition to the generous match by the OSU Vice President for Research, enabled the team to purchase this $759,912 instrument for new and topical THz research.

The device will be integrated into the Ultrafast Terahertz Optoelectronic Lab (UTOL), which already has an impressive suite of terahertz tools. Adding the MRI instrument to UTOL will make it one of the best-equipped terahertz labs in the world. This acquisition opens the door to a huge breadth of new frequency-domain research methods, which are rapidly growing in importance.

Some of the first research to be undertaken with the instrument will address 6G wireless communication, terahertz chemical/biological sensing, ad-hoc high-speed wireless networking with unmanned vehicles, affordable CMOS-based terahertz electronics, and fundamental studies of chiral magnetic and antiferromagnetic materials for faster and more efficient computer memory. All of this is happening right here at OSU, but the impact of this acquisition will be felt well beyond the OSU-Stillwater campus. In accordance with NSF's vision, this one-of-a-kind instrument in Oklahoma will also be made available to external collaborators from other universities and industry.

The team's proposal also included the participation of Northwestern Oklahoma State University (NWOSU) and Northern Oklahoma College (NOC, a Native American-serving, non-tribal institution). Undergraduate involvement will be fostered through the NSF-Research Experiences for Undergraduates (REU) program.

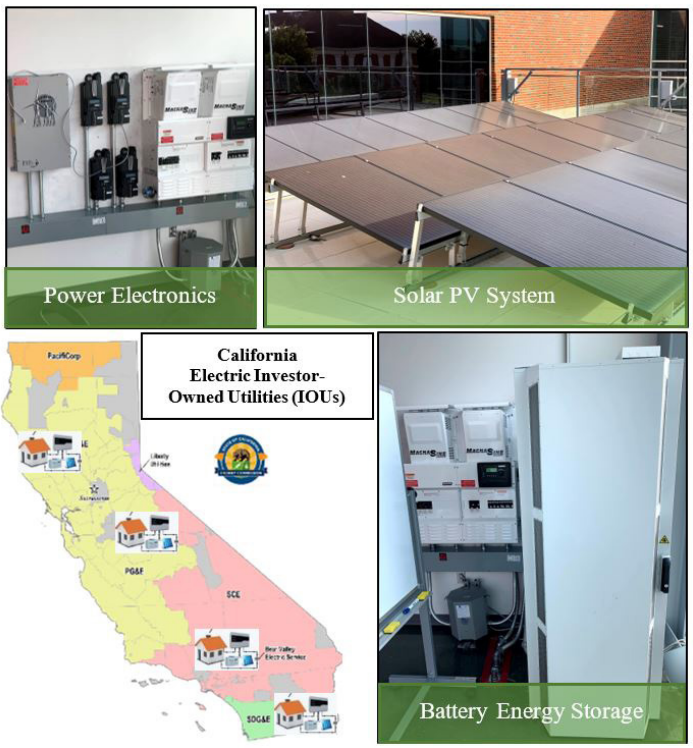
The instrument will be purchased, installed, and maintained by ECE professors. Other senior project personnel include Dr. Ickhyun Song (from ECE) and professors from OSU-MAE, OU, and University of Tulsa. Key collaborators from NWOSU (Prof. Steven Maier), and NOC (Prof. Frankie Wood-Black) will leverage the instrument for STEM and minority outreach.



Block diagram of continuous wave terahertz characterization instrument

Advanced Operation of the Solar-Plus-Storage System in Distribution Systems: Improving Electric Grid Reliability, Efficiency, and Resilience

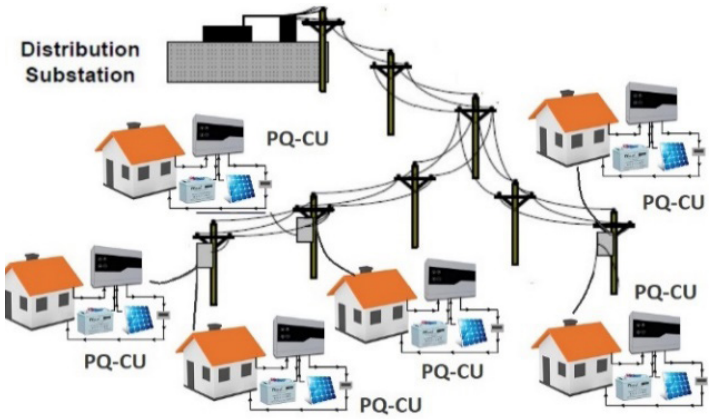
While at University of California, Riverside, Dr. Hamidreza Nazaripouya received a $1,300,000 grant from California Energy Commission (CEC) to demonstrate the advanced operation of a residential, solar-plus-storage system. The system covers 15 different residential sites that reside in a minimum of three different climate zones across California. Approximately $400,000 will be transferred to ECE to fund students and laboratory infrastructure.



Integration of solar PV, battery storage, and power electronic converters at residential sites in California

The current power grid faces a future for which it was not designed. This includes dealing with a rapidly aging infrastructure that threatens grid resilience and reliability due to the additional burden placed on the grid by the adoption of high power-consumption loads, such as electric vehicles (EVs), and high variability in power supply due to the integration of renewable energy resources (RES). Although the intermittent nature of RES is a challenge for grid operation, paring RES (e.g. solar photovoltaics) with energy storage brings new opportunities to manage the grid. RES, energy storage, and power electronics are assets that can address future power system challenges by providing grid services, traditionally reserved for conventional generation resources such as peaking units. Proper coordination and operation of behind-the-meter (BTM) assets allow for demand side management and grid services. The net result is an improvement in electric grid reliability, efficiency, resilience, and sustainability.

This project will develop and implement a test site and demonstration program for optimal operation of autonomous, plug-and-play, BTM solar-plus-battery units to perform demand side management (e.g. load shifting, peak shaving, and maximizing solar self-utilization) and grid services. Each unit, called PQ-CU, is based on solid-state-technology, supported by a small-scale solar cell and battery, as well as an advanced control mechanism, allowing dynamic operation of the unit in the distribution systems. This novel technology will be implemented and commissioned in low-income, disadvantaged, and Native American tribal communities located in High Fire-Threat District (HFTD) under California Electric Investor-Owned Utilities (IOU) service territories.



Cyber secure network of PQ-CU at behind-the-meter

Radiation Effects Characterization System for Terahertz Applications

Dr. Ickhyun Song (left) and Dr. John O'Hara (right) received a $116,751 Defense University Research Instrumentation Program (DURIP) grant from the Air Force Office of Scientific Research (AFOSR). They are collaborating on the development of instrumentation that is capable of characterizing radiation effects for millimeter-wave/terahertz materials and devices. Operating electronics in a space environment creates inevitable degradations in reliability and performance of the space-based systems due to intense radiation effects. Among various radiation-induced mechanisms, single-event effects occur when a high-energy particle strikes a sensitive area of the electronics, thus generating excess charge carriers within the device that threaten high-precision, real-time, mission-critical operations. Due to these single-event effects, these systems could be impacted by transients, data loss, degraded signal-to-noise ratios, latch-up, and function failure.

The goal of their project is to measure single-event effects of high-frequency materials and devices. While various space applications that potentially utilize terahertz technologies are on the rise—such as small satellites, satellite clusters, and space missions—it has been challenging to accurately characterize the response from small devices of micrometer-level dimensions or less. In this project, a time-domain terahertz signal is generated and detected, using a special setup based on optics and laser components (Fig. 1). Similarly, a frequency-domain terahertz signal from a vector network analyzer and an extender module can be used. On top of the terahertz system, a separate optical parametric amplifier is added to emit photons towards the target material and devices, depositing the required energy. By adjusting the focus, location and depth of these photons, dependencies of single-event effects can be investigated.

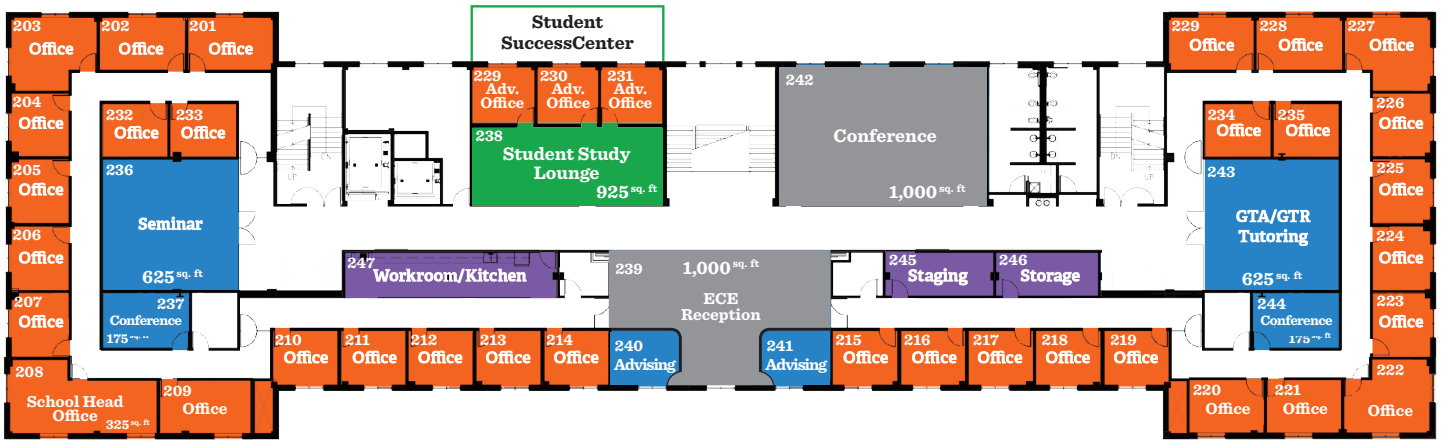
The DURIP grant will produce positive synergy with other research and education activities within and outside of Oklahoma State University. This project will not only enable state-of-the-art, radiation-effect studies, but also promote collaboration with national laboratories and agencies. In addition, it will provide introductory materials to students through Undergraduate Research Scholar program and support OSU's other research projects including the NASA CubeSat initiative. ■

Concept for a deep-space transport spacecraft (Image courtesy of Boeing)

Terahertz System at Ultrafast THz Optoelectronic Laboratory at OSU (Image courtesy of Dr. O'Hara)

ENGINEERING SOUTH

Engineering South Renovation: A Request to Name Spaces



Naming Opportunities

Office Spaces

School Head Office | $25,000
Corner Offices | $20,000
Office | $10,000

Meeting Spaces

Reception | NAMED
Large Conference Room | NAMED
Seminar Room | $100,000
GTA/GTR Tutoring | $100,000
Small Conference Room | $25,000
Advising | $25,000

Areas

Student Success Center | $100,000

The School of Electrical and Computer Engineering (ECE) is looking forward to having a new home for its students, faculty, and staff in July 2023. That new home will be the fully renovated Engineering South (ES) Building, a $30M project being supported by OSU, affiliates, and alumni. The renovation design is being led by the award-winning architect Rand Elliot and Associates, and construction will be managed by CMSWillowbrook. We challenged Rand Elliot to create a home-away-from-home environment that will inspire collaboration, contemplation and community. He has delivered. The designs that we have seen so far are truly inspiring.

Engineering South, built in 1937, is an OSU building of historical significance that has housed ECE since its formation in the College of Engineering, Architecture and Technology (CEAT). For that reason, the building façade will not be altered other than to replace all windows with energy efficient ones. The interior, however, will be fully gutted and renovated from the first floor to the fourth floor. The first floor will house CEAT Student Services and will be the front door of CEAT. At the top of the central, grand staircase will be the front door and reception of ECE, which will be named after Jack H. Graham, a close friend and supporter of ECE. Inside the reception area will be two advising offices, one of which is being named as the Chuck Barnette Office in honor of the father of ECE alumnus Jim Barnette. Across the hallway will be the Cal Vogt Conference room. Mr. Vogt has also been a loyal supporter of ECE and CEAT for several decades, including a major gift in the past to establish the Cal Vogt Endowed Professor of Electrical and Computer Engineering. Thank you to Mr. Graham, Mr. Vogt and Mr. Barnette! Your gifts will make a lasting impact on the culture, mission and students of ECE.

Another key signature space on the second floor is the Student Success Center, which will have space for studying, student meetings and IEEE sponsored activities. Additionally, two smaller conference rooms, sometimes referred to as huddle spaces, have been designed for small group meetings. At the two ends of the major corridor will be seminar rooms and/or office space for our research and teaching assistants. Most of the faculty and staff offices line the perimeter of the floor.

Many spaces and offices have yet to be named. Would you please consider naming a space? Please reach out to us to discuss the various naming opportunities and giving process and options. For more information, contact Bryce Killingsworth, Director of Development, at **bkillingsworth@osugiving.com** or 405.385.5623. Gifts can also be directly received via the web:

- Go to ece.okstate.edu
- Click the "Give" button
- Select the "ECE Next Generation Fund" and complete the secure, online form
- Include instructions regarding use of your gift in the "comments" field

Your support of this project is ever so much appreciated. Your gift will have a positive impact on the students, faculty and staff of ECE for many decades to come. Thank you in advance.

School of Electrical and Computer Engineering | Contribution Form
College of Engineering, Architecture and Technology

Yes, I want to support the OSU School of Electrical and Computer Engineering.
Enclosed is my gift in the amount of $ _____

☐ My employer matches gifts. I have enclosed an additional form.

Method of Payment ☐ Check. Make check payable to: OSU Foundation (School of Electrical & Computer Engineering)

☐ Credit card. Complete the following:

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School of Electrical and Computer Engineering
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Oklahoma State University
202 Engineering South
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The School of Electrical and Computer Engineering appreciates the generous donations given by its constituents to support ECE's educational infrastructure and to fund ECE student scholarships. Each donated dollar amount for student scholarships—large or small—can make a big difference in assisting ECE students with their educational goals and career aspirations. Other contributions are used to purchase state-of-the-art equipment and computers for student experiences in laboratories, which are the cornerstone of engineering education. We cannot stress enough the importance of the various cash gifts that we receive to the success, growth and health of our programs. Furthermore, we are committed to being good stewards of all monies entrusted to us. Should you wish to invest in our school and need more information, please do not hesitate to contact us.

Jeffery Young,
ECE Professor and Head

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