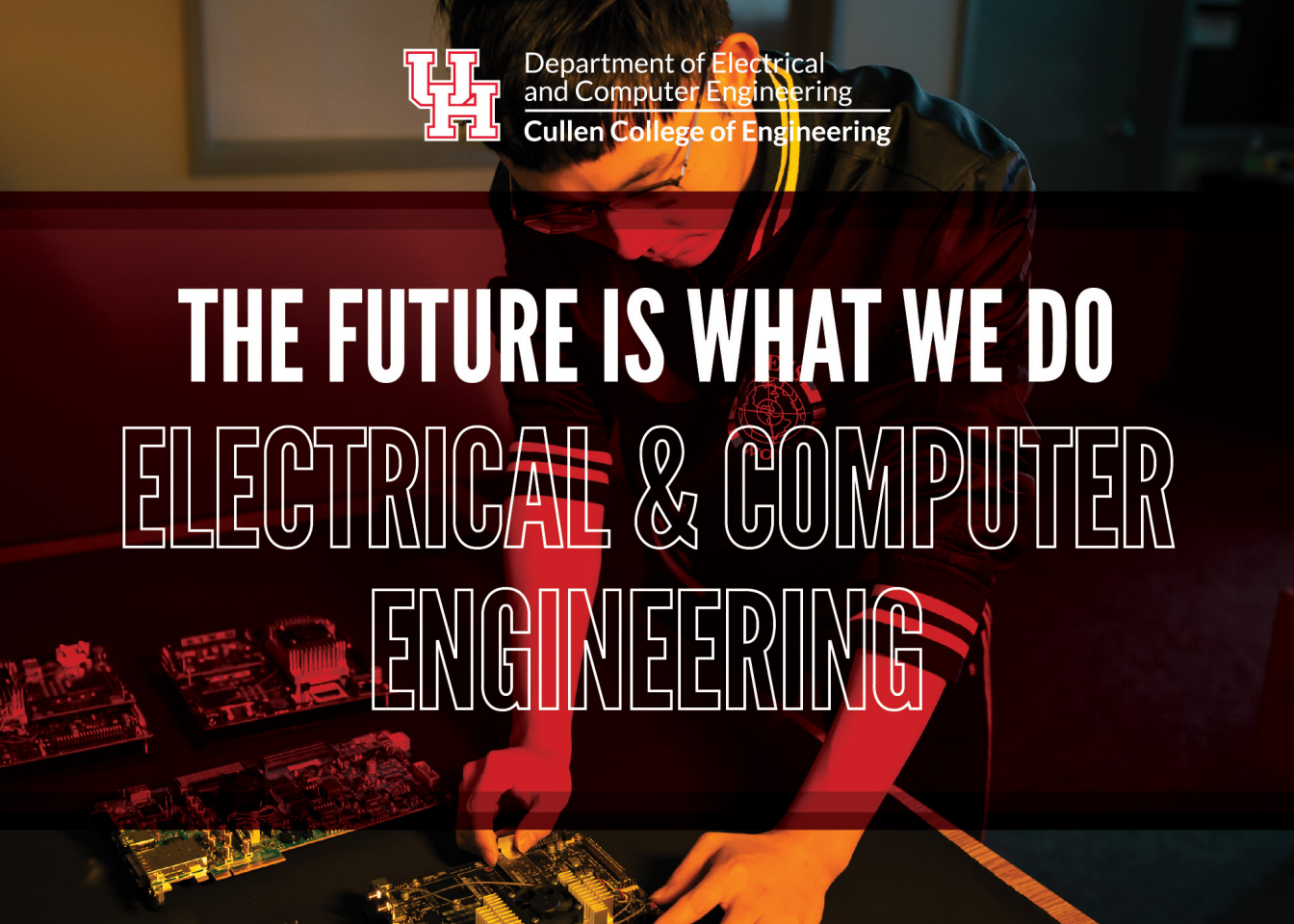
Department of Electrical
and Computer Engineering
Cullen College of Engineering
THE FUTURE IS WHAT WE DO
ELECTRICAL & COMPUTER
ENGINEERING

RECEIVES SOFTWARE DONATION FROM ZMT

Thanks to professional collaboration and a respect for quality research, the Electrical and Computer Engineering Department at the University of Houston's Cullen College of Engineering has received a gift of 50 software licenses, valued at $325,000 annually, from ZMT Zurich MedTech AG (ZMT).

The agreement was finalized between **Ji Chen**, Professor and Department Chair; and Michael Oberle, the Head of Global Business Development at Zurich43, a strategic research and R&D alliance of four organizations based in Zurich, Switzerland, that includes ZMT.

The software is ZMT's Sim4Life multi-physics simulation platform, featuring a range of high-resolution, functionalized anatomical models of the Virtual Population, which the company calls the gold standard in digital physiological human models.

"From the beginning of our collaboration more than 15 years ago, we have been impressed by the technical expertise and innovation of ECE Department at the University of Houston, as well as the high level of education provided at the Cullen College of Engineering," Oberle said.

"During our long collaboration, we have built a close relationship with Professor Chen and his colleagues and UH NSF Center for EMC Research in the field of MRI compatibility and safety evaluations of medical implants. More recently, this has expanded to new fields of research, such as modeling of neurostimulation and neural engineering, where Sim4Life has become the leading modeling and simulation solution."

Chen said that Sim4Life is an advanced simulation platform supporting biomedical research, antenna design, microwave engineering andsignal integrity analysis. It enables precise modeling of electromagnetic interactions in biological and electronic systems, enhancing both research and learning. In biomedical applications, Sim4Life aids in studying electromagnetic exposure and device performance.

"Integrating Sim4Life into our research and classroom education will strengthen hands-on learning, foster innovation, and advance our capabilities in biomedical systems, RF design, and high-frequency electronics," Chen said.

Ji Chen
Professor and Department Chair

YAO AGAIN NAMED TO PRESTIGIOUS HIGHLY CITED LIST

Two University of Houston scientists have once again been recognized among the world's elite researchers for their significant scientific influence and highly cited contributions to energy research.

Professors **Zhifeng Ren**, Department of Physics, and **Yan Yao**, Department of Electrical and Computer Engineering, were honored by Clarivate's Highly Cited Researchers program for the broad and lasting impact of their work from 2014-24. Both are core members of the Texas Center for Superconductivity at the University of Houston (TcSUH), the nation's leading center for superconductivity and energy research.

Ren and Yao — who have now received this recognition eight and two times, respectively — are part of a distinguished group of 10 UH researchers who collectively have earned this recognition nearly 40 times since 2014, placing them in the top 1 percent of cited scientists worldwide.

"I congratulate Professors Zhifeng Ren and Yan Yao for earning recognition as Highly Cited Researchers," said Claudia Neuhauser, UH vice president of research. "This distinction reflects the excellence of their research and the impressive impact of their work in areas of national interest."

Understanding the Recognition

Each year, the Highly Cited Researchers program identifies global researchers and social scientists whose published work is most frequently cited by peers — 7,131 individuals this year. Frequent citations signal that a researcher's findings are shaping their field and driving future discoveries.

Clarivate's Institute for Scientific Information identified this year's honorees using data from the Web of Science, a leading publisher-independent citation database. The platform also calculates an h-index, which is a single number that shows how many of a scientist's papers were widely used or cited by others.

Both scientists are widely recognized leaders in their fields, contributing transformative work at UH and beyond.

Yan Yao
Professor, Department of Electrical and Computer Engineering

CANEPA EARNS SCIALOG FUNDING

Research Corporation for Science Advancement, the Arnold and Mabel Beckman Foundation and the Frederick Gardner Cottrell Foundation have funded seven team proposals for collaborative projects pairing advances in automation and AI to key questions in fundamental research in the second year of the Scialog: Automating Chemical Laboratories initiative.

The 18 individual awards of $60,000 in direct costs will go to 16 researchers, including **Pieremanuele Canepa**, Robert A. Welch Assistant Professor in the Electrical and Computer Engineering Department at the University of Houston's Cullen College of Engineering.

Canepa is part of the team investigating "Autonomous Discovery of Single-phase High-Entropy Transition Metal Chalcogenides." The other members are Zakaria Al Balushi, of the Materials Science and Engineering Department at the University of California, Berkeley; and Shijing Sun, of the Mechanical Engineering Department at the University of Washington.

RCSA Senior Program Director Andrew Feig, who leads the initiative, stressed that foundations are willing to take risks that federal agencies typically won't, and Scialog is specifically designed to support innovative, boundary-pushing research that might fail but could also lead to transformative outcomes.

"If 100 percent of the proposals work exactly as described, we were not risky enough," he said. "We want to reach far enough to transform the world."

Pieremanuele Canepa
Robert A. Welch Assistant Professor

ZHAO EARNS POWE JUNIOR FACULTY ENHANCEMENT AWARD

Lihong Zhao, an assistant professor in the Electrical and Computer Engineering Department of the Cullen College of Engineering, is the latest to earn a Ralph E. Powe Junior Faculty Enhancement Award from the Oak Ridge Associated Universities (ORAU).

ORAU is a consortium of more than 160 Ph.D. granting institutions, with its origins dating back to the 1940s and the energy research laboratories of the national laboratory bearing its name. The award is named after Powe, an ORAU councilor from Mississippi State that passed away in 1996.

The award is meant to support early-career faculty within three years of their appointment, and it comes with $5,000 in seed money. This funding is contingent on a $5,000 match by the University of Houston. Zhao received the award for his proposal on the fundamental understanding of solid-sate batteries.

“I’m honored to receive the Ralph E. Powe Junior Faculty Enhancement Award,” Zhao said. “This recognition not only encourages me to push the boundaries of my research but also reflects the strong support system I’ve had from my colleagues, department, and students at the University of Houston.”

Zhao’s proposal is “Visualizing Strain Evolution at Metal–Electrolyte Interface in Solid-State Batteries.” In a provided summary, he notes that while all-solid lithium metal batteries offer high theoretical specific energy, they are limited by poor interfacial stability due to the significant volume changes (strain) of lithium metal anode during stripping and plating.

“While high stack pressures are known to improve stability, there is no quantitative strain characterization on metal anode during electrochemical process while simultaneous undergoing deformation under external pressure,” he wrote.

Zhao’s study employs operando scanning electron microscopy (SEM), combined with digital image correlation (DIC), to analyze strain evolution at metal–electrolyte interface in the μm scale. It will provide fundamental insights into the electro-mechanical evolution of metal anodes and the origins of electrolyte cracking.

Lihong Zhao
Assistant Professor

REDDY NAMED FELLOW OF THE SOCIETY FOR APPLIED SPECTROSCOPY

Rohith Reddy, Ph.D., an Associate Professor in the Electrical and Computer Engineering Department at the Cullen College of Engvineering and a CPRIT Scholar in Cancer Research, has been named a Fellow of the Society for Applied Spectroscopy (SAS).

Fellow status is awarded in recognition of his significant contributions to the Society and to the field of Spectroscopy as a whole. Reddy is part of this year's five-member class, and he was honored at the October 2025 SciX conference in Kentucky.

"I'm truly honored to be named a Fellow of the Society for Applied Spectroscopy," Reddy said. "Looking at the list of Fellows over the past few decades, many of whom I have admired throughout my career, it is humbling to be included among them. This recognition means a great deal to me, and I'm grateful to be part of such an inspiring community of scientists."

Reddy currently serves on the Applied Spectroscopy Editorial Advisory Board and the SAS Publications Committee. He is a lifetime member of both the SAS and the Coblentz Society and will serve as the next President of the Coblentz Society, starting in 2026. He previously served on the Coblentz Society Board, where he led initiatives to support early-career spectroscopists, and on the SAS Nominations and Meggers Award Committees. He also served as editor of a special issue of Applied Spectroscopy focused on vibrational spectroscopy for disease monitoring.

Reddy received his Ph.D. from the University of Illinois at Urbana-Champaign and completed his postdoctoral fellowship under Dr. Gary Tearney at Harvard Medical School. His research centers on vibrational spectroscopy and spectroscopic imaging for biomedical applications , with innovations that have advanced the diagnosis and understanding of prostate, breast, bone marrow and gynecologic cancers, as well as kidney disorders and Alzheimer's disease.

Rohith Reddy
Associate Professor

GRAD ALTHURTHI RECEIVES IEEE OUTSTANDING PAPER AWARD

Sai Bhargava Althurthi, a recent Ph.D. graduate from the Cullen College of Engineering's Department of Electrical & Computer Engineering, has been recognized with the IEEE Outstanding Paper Award for the IEEE Journal of Emerging and Selected Topics in Industrial Electronics for his recent paper, "A Novel Ultrawide Output Range DC–DC Converter for EV Fast Charging."

The current electric vehicle (EV) market offers vehicles with batteries of differing voltage levels, and such diversity is expected to continue expanding going forward. Althurthi's research seeks to develop a common charger to accommodate differing vehicles at public fast-charging stations.

"When people visit a fast-charging station, we need a common charging solution for all kinds of vehicles. I have proposed a converter that can serve the future needs of increasing EVs of higher voltages, as well as continuing to support existing high number of lower-voltage 400 volt EVs," he said.

"Compared to the existing isolated DC-DC topologies of EV chargers, I have proposed an optimized architecture with multi-mode LLC design and unequal secondary windings for preserving better performance over wide output voltage range. An output range from 100 volt to 1100 volt is designed and tested, which is a huge range suitable for the future demands of electric vehicles, and within that huge range I didn't want to lose performance. To have even performance over wide voltage, I have proposed a reconfigurable multi-mode implementation in this LLC converter."

Sai Bhargava Althurthi
Ph.D. graduate

The University of Houston
Cullen College of Engineering

The University of Houston Cullen College of Engineering addresses key challenges in energy, healthcare, infrastructure, and the environment by conducting cutting-edge research and graduating hundreds of world class engineers each year. With research expenditures topping $40 million and increasing each year, we continue to follow our tradition of excellence in spearheading research that has a real, direct impact in the Houston region and beyond.

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