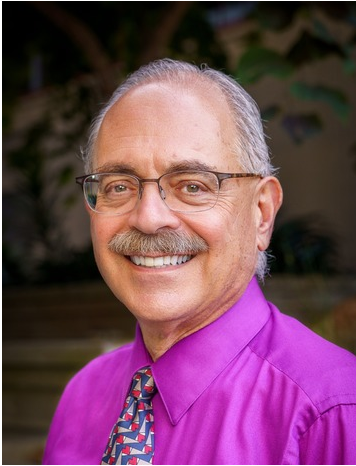


SPEC-tacular News



I have **SPEC-tacular** news to share! The world-class researchers in our [Sustainable Power and Energy Center](#) (SPEC) have inspired entrepreneur and philanthropist Aiso Yufeng Li (Jeff) and Dongdong Guo (Doreen) to make a very generous gift. Their philanthropy will accelerate the sustainable-energy research being done at SPEC and also strengthen our ability to empower UC San Diego Jacobs School of Engineering startups to bring their innovations to society. Li is the Founder and Chief Strategy Officer of the biotechnology company CorDx, a leader in the manufacturing of in vitro diagnostics with an important footprint here in San Diego. In recognition of this wonderful gift, we have named the research collaboratory in Franklin Antonio Hall that houses SPEC the “CorDx Yufeng Li Collaboratory.” Jeff and Doreen, please accept my most sincere thanks!!!

I also have **spectacular** news! I’m thrilled to announce that we just doubled the size of our [Accelerating Interdisciplinary Research Collaborations for Early-Career Faculty program](#). The big-picture goal of the program is to help early-career faculty build interdisciplinary research collaborations to the point that they are competitive for multi-year research funding. And the support for the early-career faculty comes in an unexpected way: we fund one graduate student from each of the two collaborating labs. That’s the magic: we give faculty a bit of breathing room and graduate students a unique project-building experience. By funding two students from different labs, we create new opportunities to build promising cross-disciplinary research collaborations. The big goal is to advance these teams to the point that they are competitive for external team-research funding.

SPEC-tacular and spectacular. That’s how I describe our collective efforts to accelerate engineering and computer science for the public good. That’s how we make bold possible here at the UC San Diego Jacobs School of Engineering and all across campus. Let’s do this, and do this together!

As always, I can be reached at DeanPisano@ucsd.edu

Sincerely,

Al

Albert ("Al") P. Pisano

Dean, UC San Diego Jacobs School of Engineering

Special Adviser to the Chancellor for Campus Strategic Initiatives



\$3 Million Gift from CorDx to Boost Sustainable Energy Innovation

Through his company CorDx, entrepreneur and philanthropist Aiso Yufeng Li (Jeff) and Dongdong Guo (Doreen) have pledged \$3 million to the UC San Diego Jacobs School of Engineering. The gift will support leading-edge research, education and collaborations in our Sustainable Power and Energy Center (SPEC). This research center serves as an interdisciplinary hub for advancing battery, solar cell and other sustainable energy technologies through a mix of fundamental research and applied-research projects in collaboration with industry partners. The gift will go toward upgrades to SPEC's research facilities and provide support for educational activities and – in collaboration with our Institute for the Global Entrepreneur – entrepreneurship efforts.

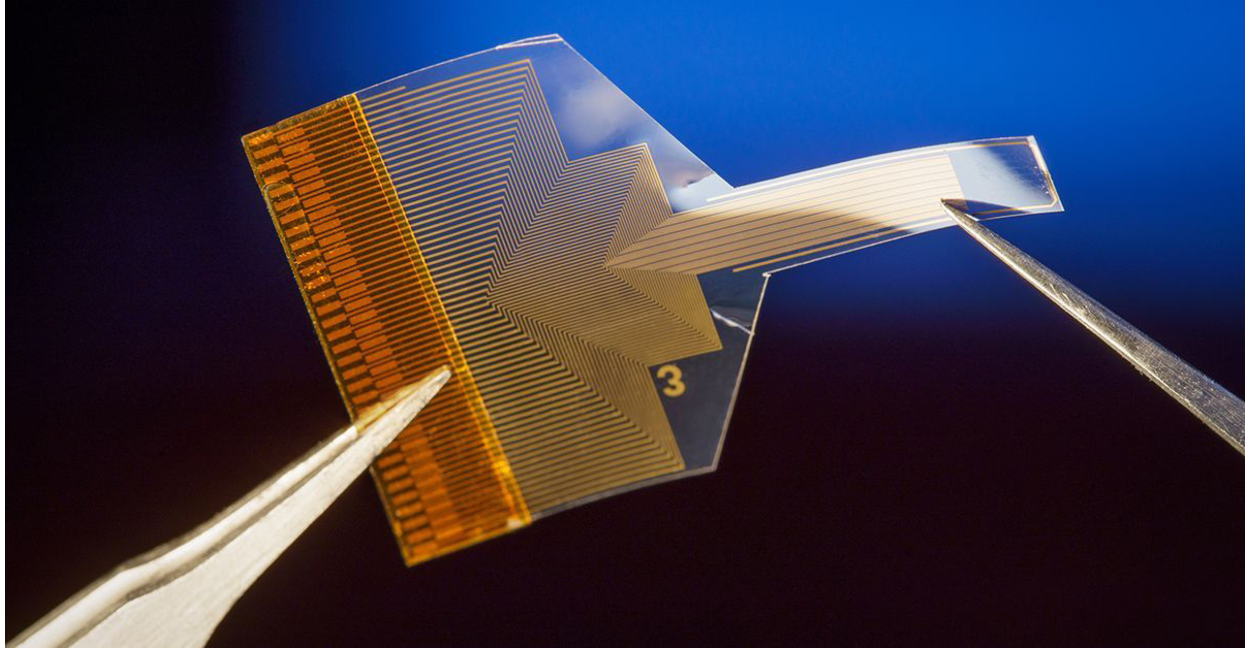
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Microbiome Pioneer Elected to the National Academy of Engineering

Rob Knight, a UC San Diego professor and international leader in the study of the roles microbes play in human health, disease and the functioning of ecosystems, has been elected to the National Academy of Engineering – the highest professional recognition afforded to engineers and computer scientists. Knight has dedicated his career to the study of microbiomes – the microorganisms that live in the environment and the human body. His research is relevant for a wide range of practical applications, and his affiliations on campus reflect the deep interdisciplinary nature of his work. Knight is a professor in the Department of Pediatrics in the UC San Diego School of Medicine; and a professor in the Shu Chien-Gene Lay Department of Bioengineering and the Department of Computer Science and Engineering at the UC San Diego Jacobs School of Engineering, where he is also the founding director of the UC San Diego Center for Microbiome Innovation.

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Transparent Brain Implant Reads Deep Neural Activity From the Surface

Electrical engineers developed a neural implant that provides information about activity deep inside the brain while sitting on its surface. The implant is made up of a thin, transparent and flexible polymer strip that is packed with a dense array of graphene electrodes. The technology, tested in transgenic mice, brings the researchers a step closer to building a minimally invasive brain-computer interface that provides high-resolution data about deep neural activity by using recordings from the brain surface.

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Noninvasive Test for Embryo Quality Could Streamline Fertility Treatment

Bioengineers and physician scientists at UC San Diego have discovered a noninvasive approach that can be used to better predict the quality of lab-grown embryos, potentially streamlining IVF

treatment. The overall live birth rate after IVF treatment is only 20-40% in females younger than 40 in the United States. One of the reasons for this low success rate is that it's very difficult for doctors to determine which lab-grown embryos are most likely to result in a successful pregnancy. This new method of predicting the quality of lab-grown embryos works by detecting small particles of genetic material, called exRNAs, that are left behind in the liquid media young embryos are grown in.

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Uncovering a Link Between Temperature, Depression

People with depression have higher body temperatures, a finding that supports nascent research suggesting a mental health benefit to lowering the temperatures of those with the disorder. The discovery was made by a team of bioengineers at UC San Diego and psychiatrists at UC San Francisco, based on data from more than 20,000 international participants. The findings shed light on how a novel depression treatment method might work: a small body of existing, causal studies has found that using hot tubs or saunas can reduce depression, possibly by triggering the body to self-cool through sweating. [KPBS news coverage](#).

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Transforming Clinical Recording of Deep Brain Activity

Electrical engineers at UC San Diego led development of a new approach to manufacturing electrodes that enables minimally invasive, high-resolution recording as deep as 4 inches inside the human brain. These sensors are capable of recording activity deep within the brain from large populations of individual neurons – with a resolution of as few as one or two neurons – in humans as well as a range of animal models. This technology is a first step towards wireless monitoring of patients with treatment-resistant epilepsy for extended periods of time. The design, manufacture, experimental testing and analysis of results from this system was performed by a cross-disciplinary team of engineers, surgeons, and medical researchers from UC San Diego; Harvard Medical School and Massachusetts General Hospital; and Oregon Health and Science University. [Learn more in this video.](#)

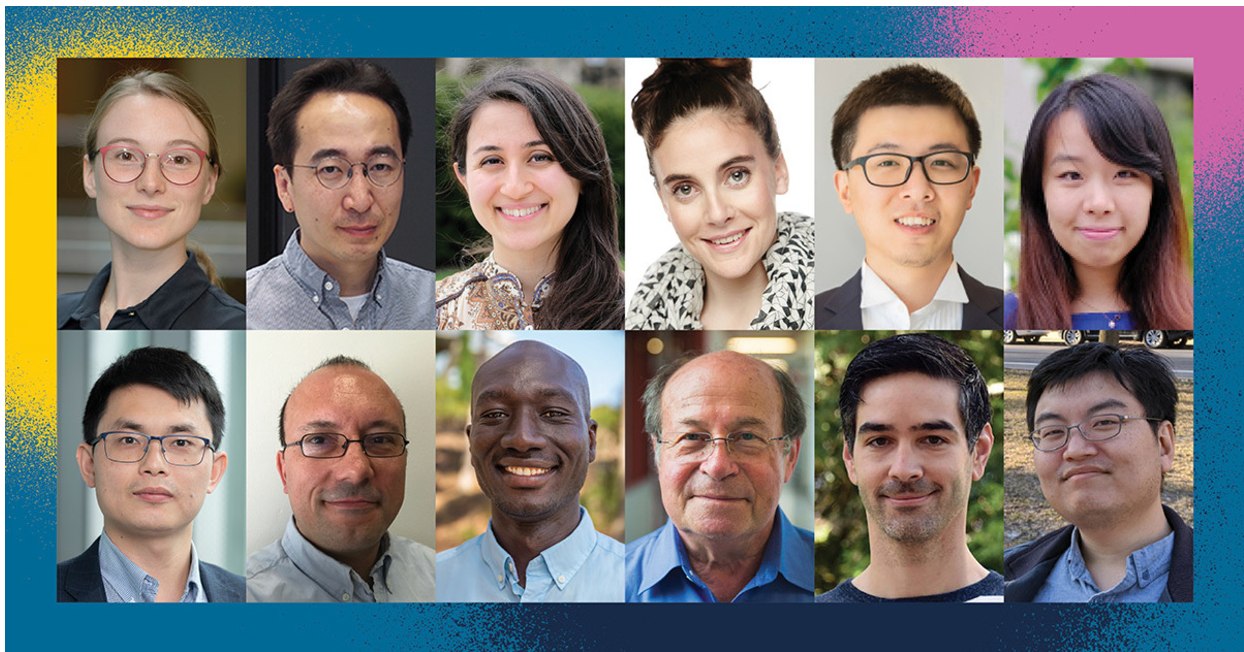
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Researchers Find Links Between the Microbiome and Skin Aging

It's not just chronological age and UV exposure that determine how wrinkled your face is. For the first time, researchers at our Center for Microbiome Innovation and L'Oréal Research and Innovation have isolated microbial features associated with signs of skin aging, and how well skin fares as it ages. For example, the researchers found that the more diverse the microbiome on your face is, the fewer crow's feet wrinkles you have as you age. Conversely, the less diverse the skin microbiome on your face, the drier the skin. This opens a new field of research that could lay the foundations for personalized, targeted modification of the skin microbiome to slow signs of aging.

[Read More](#)



Early-Career Faculty Acceleration Program Doubles in Size

The Jacobs School of Engineering has doubled the size of its Accelerating Interdisciplinary Research Collaborations for Early-Career Faculty program, which launched last year. The program helps early-career faculty build interdisciplinary research collaborations to the point that they are competitive for multi-year research funding. The funding enables graduate students from two different labs to begin new research collaborations. This year, six teams won funding for an array of research topics, including advancing the safety, trustworthiness, privacy and robustness of machine learning and AI systems.

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RESEARCH EXPO 2024

WEDNESDAY, APRIL 17

Research Expo Registration is Now Open

Save the date and plan to join us for the Jacobs School of Engineering's 42nd annual Research Expo symposium on Wednesday, April 17. Research Expo is a unique opportunity to see the latest research advances and technology developments all across the Jacobs School, meet world-class graduate students, recruit top engineering and computer science talent, and connect with people from all across San Diego's intersecting innovation ecosystems. Students interested in presenting their research can [find more information here](#).

[Register to Attend Research Expo](#)

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