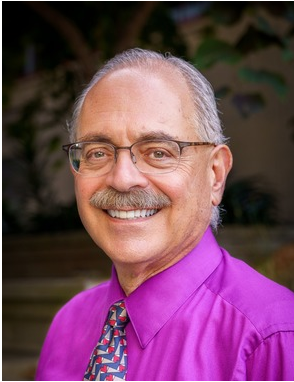


New Year's Message



My heart goes out to our colleagues, students and to everyone else affected by the horrific tragedy of the fires in Los Angeles County. When disasters strike, I am reminded on a visceral level of our profound responsibilities as engineers and computer scientists to protect and advance human well-being – both in terms of immediate responses and in the long term.

I had considered a longer Dean's message underscoring some of the ways that we are off to a fast start in 2025. But I think I'll keep it shorter instead. You can read the items below to get caught up, including the wonderful news about Irwin and Joan Jacobs being awarded the UC Presidential Medal. There is just one statistic that doesn't have an item below. We are in the process of finalizing our numbers from the last fiscal year, and our research expenditures rose to \$316M. That is up more than 23% year over year. Congratulations to everyone involved in this important work.

I am buoyed by the hope that the people and the projects reflected in this new research expenditures number will advance solutions to a range of pressing challenges facing society. In the past, I've talked a lot about the great potential – and track record – that engineering schools hold, in terms of developing platform technologies that can be pivoted as needed to help solve challenges. I hope that our Jacobs School of Engineering, and all engineering schools across California and the nation, will achieve important successes in this new year in this regard. And of course, pivoting platform technologies involves inspiring, educating and training people – and connecting with wide ranges of stakeholders.

Now, let's get to work!

Here at the Jacobs School, we are building on the work of 2024, some of which is [highlighted in this video](#).

Together, we make **bold** possible.

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

Sincerely,

Al

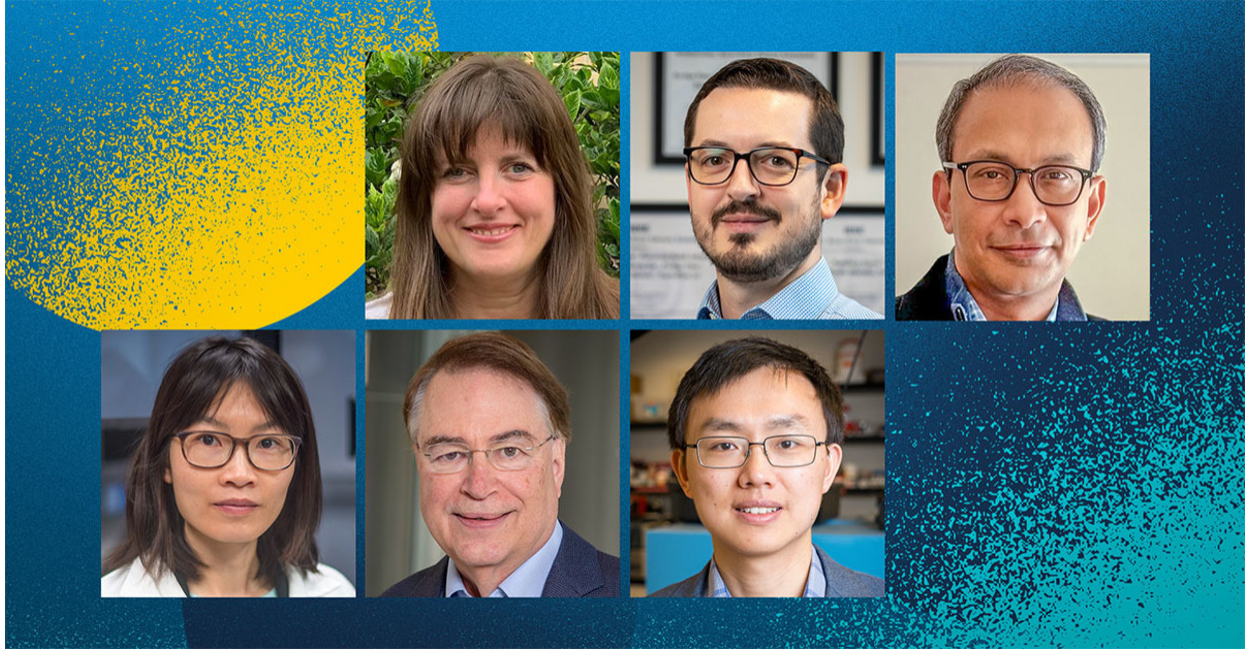
Albert ("Al") P. Pisano



Joan and Irwin Jacobs Honored with UC Presidential Medals

Our very own Irwin and Joan Jacobs will receive the UC Presidential Medal in March 2025. This is the University of California's highest honor. For nearly 60 years, Irwin and Joan Jacobs have brought their generosity, humanity, intellect, creativity and vision to the Jacobs School of Engineering and to critical efforts, people and initiatives all across our UC San Diego campus and far beyond. Irwin and Joan Jacobs have empowered us to build and strengthen foundations, on which we advance engineering and computer science education and research for the public good.

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Six New IEEE Fellows!

Jacobs School professors Nuria Gonzalez-Prelcic, Patrick Mercier, Shayan Mookherjea, Tse Nga (Tina) Ng, Larry Smarr and Sheng Xu have all been named 2025 IEEE Fellows. The Institute of Electrical and Electronics Engineers (IEEE) is the world’s leading professional association for advancing technology for humanity – and it’s remarkable to have six new IEEE Fellows in a single year! The recognition highlights the researchers’ outstanding contributions across diverse areas including wireless communications, energy-efficient systems, optoelectronic technologies, flexible organic electronics, supercomputing, and deep tissue monitoring wearables.

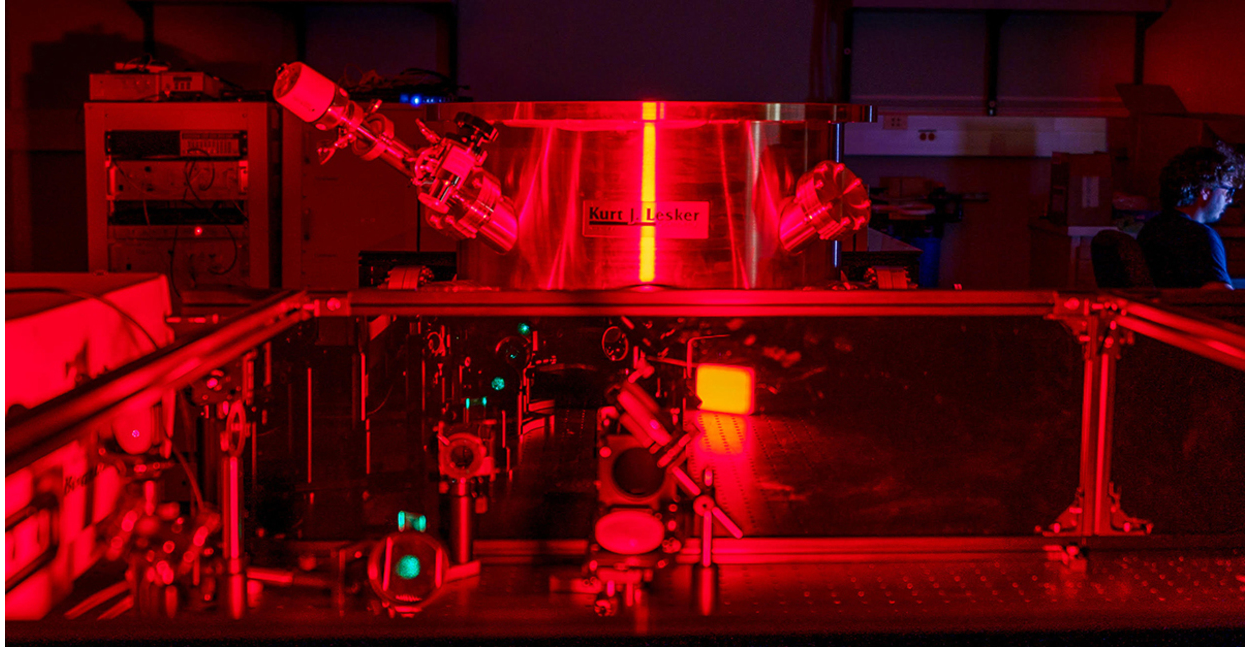
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How Close Are We to Practical Fusion Energy?

Bob Conn – fusion pioneer, Jacobs School Dean Emeritus, President and CEO Emeritus of the Kavli Foundation, and more – will share his outlook for the future of fusion energy at a public lecture at UC San Diego. Until about a decade ago, Conn considered practical fusion energy to be a very long way off. Today, his outlook has changed and he will give his assessment of the state of the field, and describe advances in the physics, engineering, and private investments by VCs that have shifted his outlook. To get his full take, attend the Penner Distinguished Lecture at 3 p.m. in the CMRR Jack Wolf Auditorium on Feb. 25, or on Zoom.

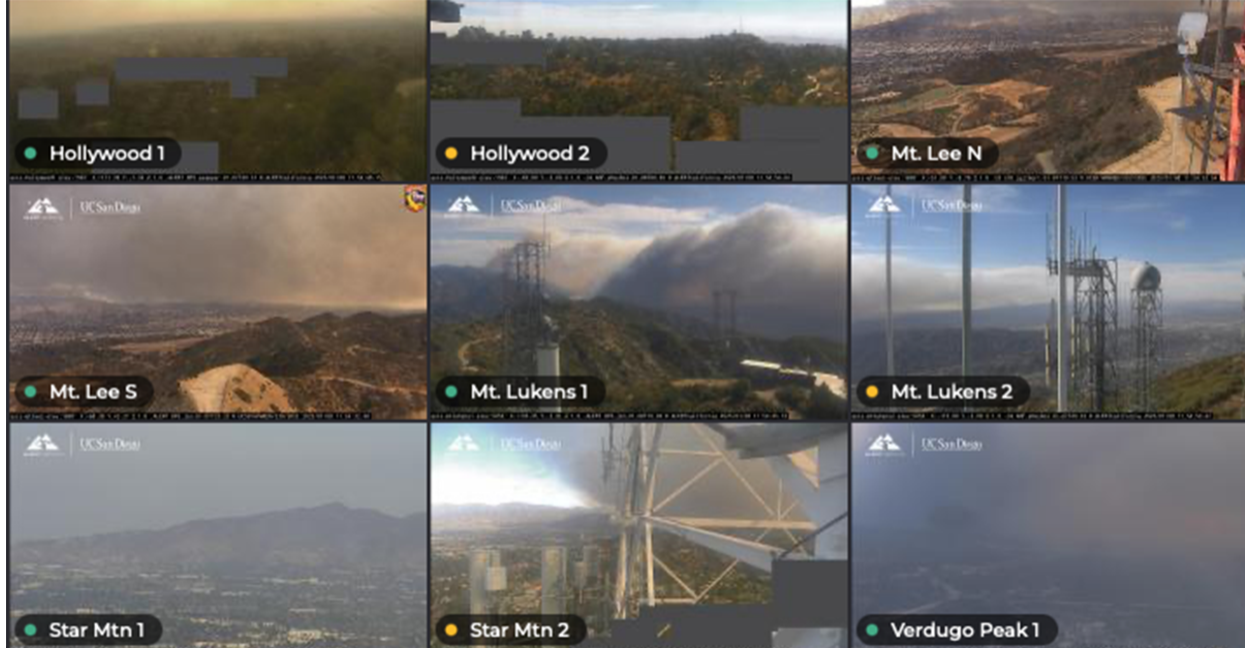
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Fusion Engineering in the Spotlight

In a recent opinion piece in *The Conversation*, Professor Farhat Beg, co-director of the Jacobs School's [Fusion Engineering Institute](#), and Professor George Tynan detail the engineering challenges facing fusion energy. Specifically, they focus on what needs to happen for fusion energy to become a safe, affordable source of clean power, from better lasers to new materials. They are optimistic, as are investors bringing a windfall of private funding to the field. In short, it is engineering time.

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AI-powered Camera and Sensor Network Helps Monitor Wildfires

UC San Diego's ALERTCalifornia public safety program currently manages more than 1,140 cameras across the state. Emergency managers as well as the public are utilizing these cameras day and night to monitor the ongoing fires in Los Angeles and the surrounding region. Using the cameras and their associated AI tool, first responders with the California Department of Forestry and Fire Protection (CAL FIRE), and other federal, state, and local government agencies can rapidly confirm fire ignition, quickly scale fire resources, support evacuations through enhanced situational awareness, and monitor fires through containment. You can see live camera views 24/7 at cameras.alertcalifornia.org.

View More



Inventor of Secure and Efficient Computer Systems Honored

Electrical engineering professor Farinaz Koushanfar was inducted into the National Academy of Inventors for her work on design and optimization of secure and efficient computer systems. Her research has transformed the fields of hardware-based security, safe and secure AI, design automation and IP protection, as well as cryptographically secure privacy-preserving computing. She is recognized for inventing the first set of methods for actively and uniquely locking, tracking and controlling chips post-fabrication and in-field; a novel partitioned deep learning architecture; and more. Koushanfar co-directs the [UC San Diego Center for Machine-Intelligence, Computing & Security](#).

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Buildings with Clean Air AND Low-power Use

Electrical engineering professor Yuanyuan Shi is being celebrated for her work to develop AI-driven building control systems designed to optimize indoor air quality while reducing energy consumption. For her advances in this area of AI and control models for sustainable energy systems, Shi has been named a 2024 AI2050 Early Career Fellow by Schmidt Sciences. She is one of a cohort of just 20. Her work tackles both the fact that buildings account for one-third of total carbon emissions and that indoor air quality in buildings has a profound impact on human health and well-being.

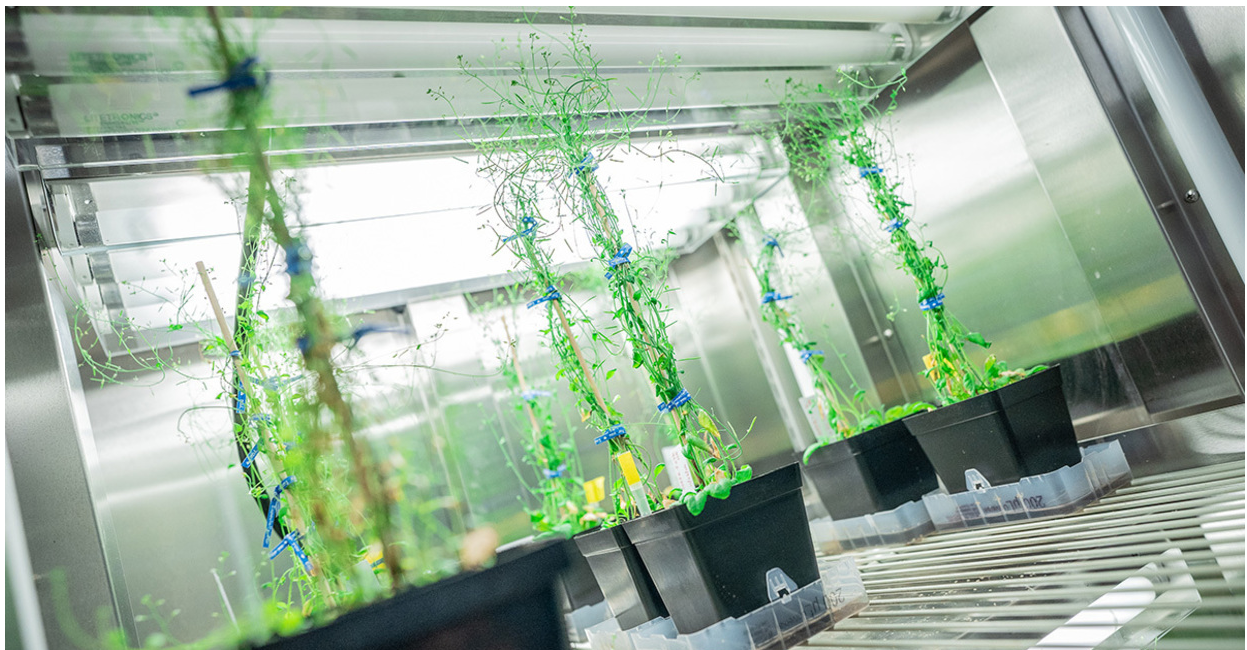
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Presidential Honors for Three Jacobs School Researchers

Jacobs School faculty John Hwang, Duygu Kuzum and Rose Yu each received a President Early Career Award for Scientists and Engineers – the highest honor from the US government to early career scientists and engineers. Hwang, an aerospace engineer, was recognized for his leadership on a project involving 11 research teams to create computational design tools that will help US companies develop more efficient air taxi designs – faster. Kuzum, an electrical engineer, was recognized for her work on energy-efficient neuromorphic computing and devices at the nano scale, and her work to better understand circuit-level computation in the brain. Yu, a computer scientist, was recognized for research on bringing together AI and physics for better deep learning models.

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Breakthrough for Studying Plant Hormones

A new tool, published in Science, could make it easier to study scarce and mysterious molecules produced by plants. Researchers developed microbial cell factories – using E. coli and yeast – to produce a special class of plant hormones, known as strigolactones, at unprecedented levels. By amplifying production of strigolactones, which occur in extremely low amounts in plants, researchers now have the ability to study these elusive plant molecules in much greater depth than before. The work could help improve sustainable agricultural practices by offering deeper insights into how plants make and use their natural hormones to adapt and survive. The work is co-led by chemical and nano engineering professor Yanran Li.

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