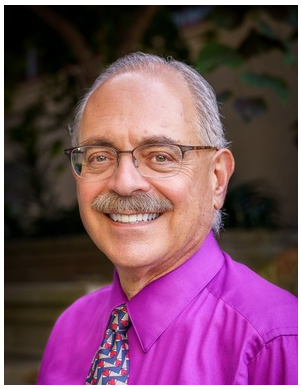
UC San Diego
JACOBS SCHOOL OF ENGINEERING

NEWS
January 2026

People and Places



In 2025, we did a lot to improve lives and strengthen the nation's global competitiveness; and we'll do even more in 2026. It is the people and places of our UC San Diego Jacobs School of Engineering that drive these positive impacts on society.

In fact, we are defined by people and places. We are defined by our faculty, students, researchers, innovators, staff and external partners of every stripe — and by the unique educational, research and entrepreneurship facilities where we do our work.

The interplay of people and places empowers us to anticipate future needs — like the need to reduce the electrical consumption of a rapidly growing AI industry. Computer science professor Tajana Simunic Rosing, for example, directs the PRISM Center, which is an academic-industry-government research collaboration developing energy efficient computing for data centers and more. Our DERConnect research platform is a confluence of people and places that is addressing electrical strains on the grid right now.

The critical need for a solution to the liver transplant shortage is being met by chemical and nano engineering professor Shaochen Chen, who is leading a $25.8 million ARPA-H effort to develop developing fully functional, patient-specific livers using 3D bioprinting.

You can also see the confluence of people and places in many of the accomplishments highlighted in this 2025 video — a video which really just scratches the surface of our positive impacts.

As we dive into 2026, I remain focused on strengthening the interplay between people and places across the Jacobs School, UC San Diego, the region and the nation.

In a future column, I'll be talking about a new data center that gives our computer science students and other early-career researchers unique, hands-on experiences at the intersection of bleeding-edge AI algorithms, high-performance computing and real-world problems that must be solved.

I'll be sharing our efforts to build greater support for the people and places that converge across our strategic research efforts including our new center focused on inventing and scaling the future of biomanufacturing.

As an engineering dean, I expect the uncertainty we experienced in 2025 to continue in 2026. This kind of uncertainty makes it even more important that we stand together as engineers and computer scientists across academia, industry and the public sector to demonstrate more clearly than ever our real-world positive impacts.

We must continue to articulate the importance of investing in both the people and the places that empower world-class schools of engineering and computer science to improve lives, strengthen the economy and drive national security.

In closing, as we lock in to the challenges and opportunities of 2026, I am inspired to step back and thank everyone inside and outside the Jacobs School. Thank you for your excellence and hard work. The people and places of the Jacobs School of Engineering are a national treasure. Thank you.

I wish you and your loved ones health and happiness in 2026. As always, I can be reached at DeanPisano@ucsd.edu

Sincerely,

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Albert ("Al") P. Pisano
Dean, UC San Diego Jacobs School of Engineering
Special Adviser to the Chancellor for Campus Strategic Initiatives

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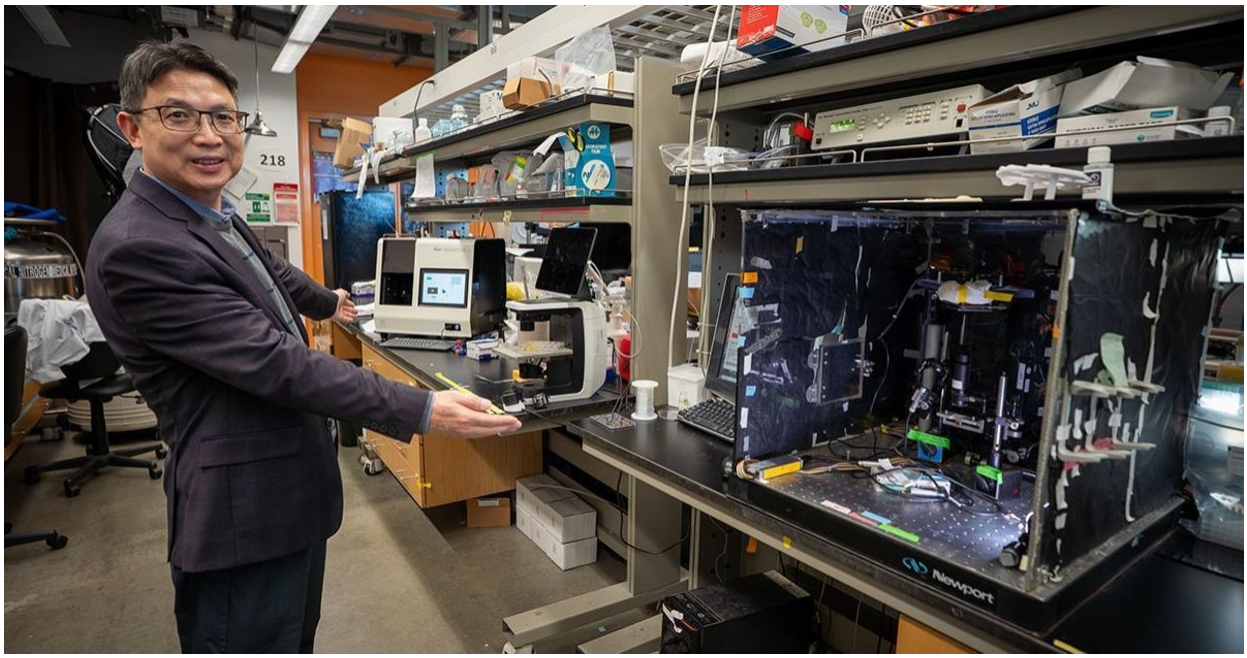
2025 Jacobs School Highlights

As we dive into a new quarter and a new year, we're taking a moment to reflect on some of our 2025 highlights for the Jacobs School of Engineering. From ranking Top 10 yet again, to launching an AI undergraduate major, doubling our bioengineering instructional lab capacity, and strengthening efforts to make fusion a practical reality, this video provides a small taste of what we are accomplishing together. We are already building on this momentum in 2026 in order to advance engineering and computer science to improve lives, strengthen the economy, and drive national security and global competitiveness.

Watch the Video



$25M ARPA-H Project Aims to End Liver Transplant Shortage with 3D Bioprinting

A research project of up to $25.8 million at UC San Diego, funded by ARPA-H, aims to tackle the critical shortage of donor organs by developing fully functional, patient-specific livers using 3D bioprinting. Led by Shaochen Chen, professor in the Aiiso Yufeng Li Family Department of Chemical and Nano Engineering, the multidisciplinary team is building on more than two decades of innovation in rapid, high-resolution 3D bioprinting and stem cell science. Researchers will work on scaling the technology from millimeter-scale tissue models to life-sized, transplantable organs made from a patient's own cells. Read coverage in the San Diego Union-Tribune.

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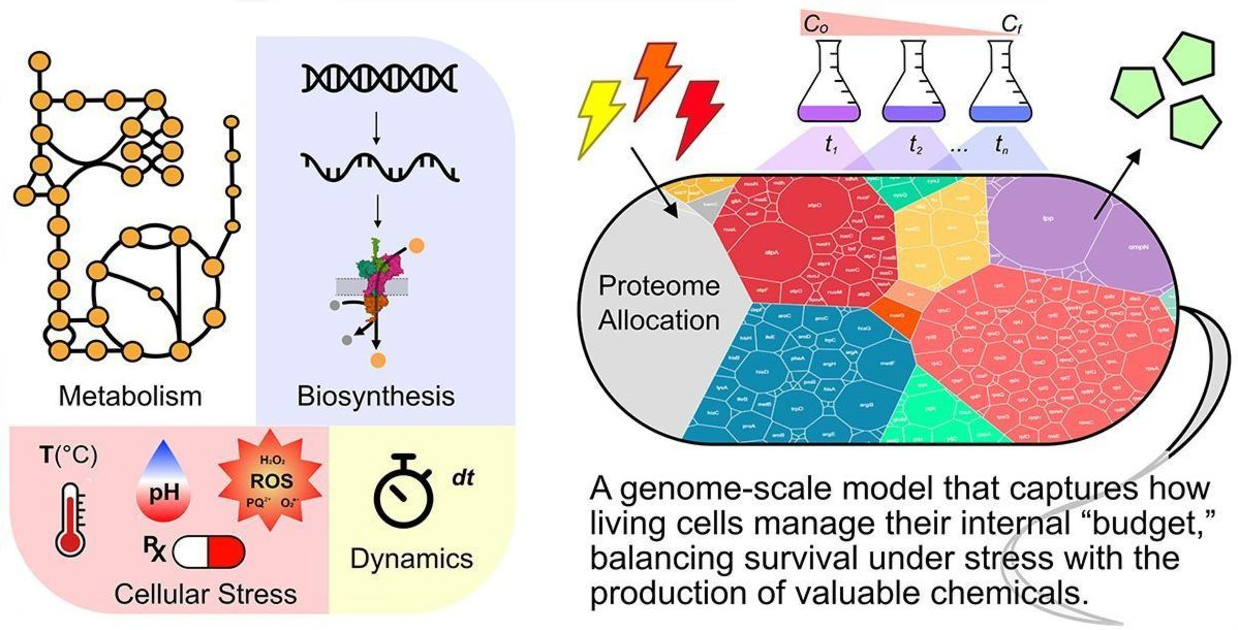

Building Whole Cell Models to Design Better Microbes and Drugs

Bioengineers at the UC San Diego Future Biomanufacturing Center, in partnership with CFD Research Corporation, have launched a $4.1 million DARPA-funded project to build comprehensive whole cell models of E. coli cells that capture all cellular processes and predict how individual cells behave under different conditions. These “digital twins” of bacterial cells will be used to better understand how to engineer microbes that can sustainably produce valuable chemicals from renewable resources. The models will also provide insights into bacterial responses to antibiotics, which could enable researchers to combat drug-resistant infections.

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Strengthening U.S. Semiconductor Innovation and Workforce

Development

UC San Diego is playing a major role in U.S. efforts to rebuild the country's semiconductor manufacturing strengths and maintain strengths in microelectronics design. Much of this is led by Andrew B. Kahng, distinguished professor in the Departments of Computer Science and Engineering and of Electrical and Computer Engineering. Kahng has served as principal investigator of OpenROAD, a nationwide project led by UC San Diego that is making chip design more accessible through free, open-source tools. He is also co-principal investigator of the NSF Chip Design Hub, and heads another major research effort through DARPA's Next-Generation Microelectronics Manufacturing program.

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Spray-on Coating Protects Plans Against Disease and Drought

A spray-on polymer coating developed by chemical and nano engineers could protect crops from bacterial infections and drought. Importantly, spraying just part of a leaf results in immunity to bacterial infections and improved drought tolerance for the entire plant. Creating the spray coating — and making it plant-friendly — was made possible by modifying a common polymer synthesis method to work in gentle, water-based conditions. Using this modified method, the researchers produced a polymer material that is permeable to gases, so it allows plant leaves to continue breathing and growing normally.

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Engineer Elected Fellow of the African Academy of Sciences

Abdoulaye Ndao, an associate professor in the Department of Electrical and Computer Engineering, has been named a Fellow of the African Academy of Sciences (AAS), one of the highest honors for scientists working to advance research and innovation in Africa. He is the first AAS Fellow in UC San Diego's history. The fellowship recognizes his long-standing efforts to promote scientific excellence and leverage research to support Africa's development. At the Jacobs School, Ndao leads a research group that develops next-generation optics technologies.

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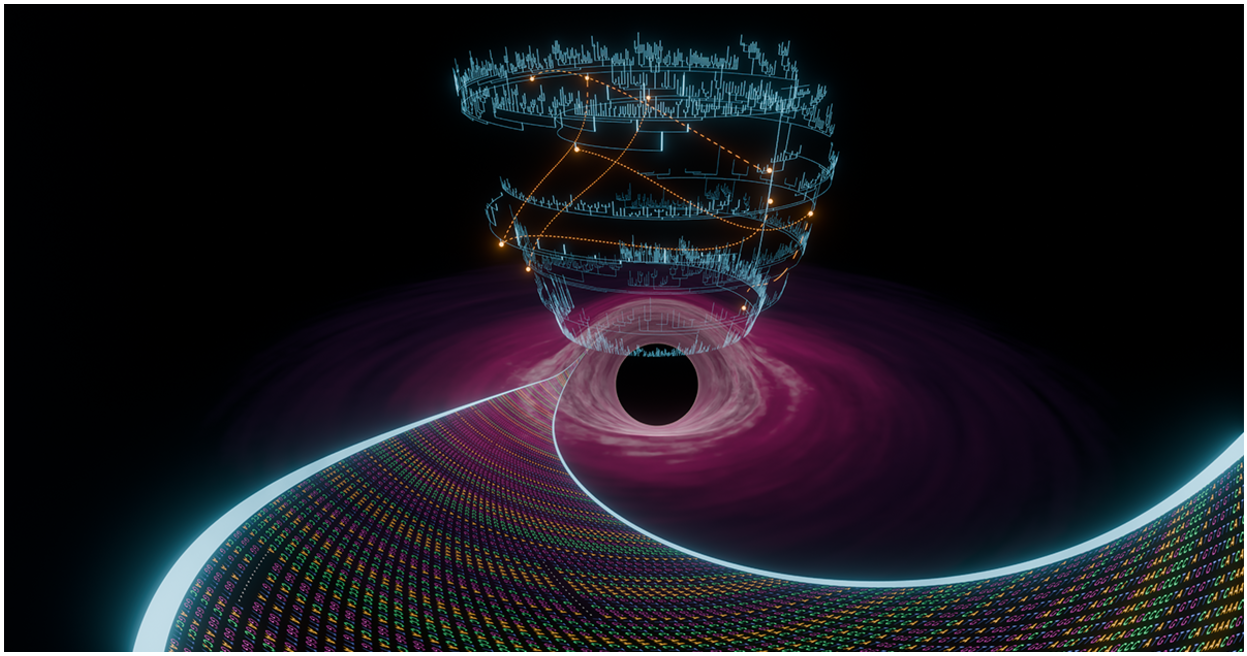

Compressed Data Technique Enables Pangenomics at Scale

A new data structure and compression technique developed by engineers at UC San Diego enables the field of pangenomics to handle unprecedented scales of genetic information. Pangenomics, a subset of bioinformatics, is the study of many different genomes from one specific species. This can provide a more holistic picture of the natural variation and mutations that occur within a species than using one singular reference genome. The new method, detailed in *Nature Genetics*, provides unmatched compression for pangenomes while also significantly advancing their representative power by encoding additional biologically relevant information, including phylogenies, mutations, and whole-genome alignments.

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