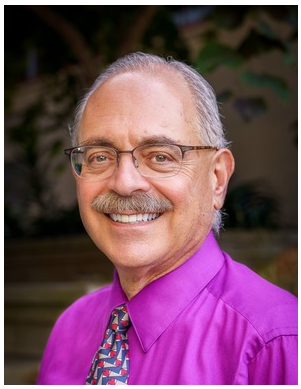
UC San Diego
JACOBS SCHOOL OF ENGINEERING

NEWS

December 2025

The Bold Beyond



This December, I am looking back; and I am looking ahead. As the dean of a world-class engineering school, I feel this is an especially important exercise.

When I look back, I see the roots of the future. As engineers and computer scientists, we are always inventing and building what's next, drawing upon our wisdom and experience.

And when I look ahead, I look toward **the bold beyond**. No one knows what exactly is on the other side of the horizon. But we can mobilize our intuition and start assembling plans to guide our collaborative work.

As we do this, we will continue to build on our education and research momentum in fusion engineering, emerging intelligence, semiconductors, biomanufacturing, healthcare engineering, and so much more.

We are also organizing for ever deeper connections between all these strategic research thrust areas and artificial intelligence, machine learning and high-performance computing. This is how we further drive industrial relevance. And it is an example of how we are preparing to make pivots to keep us on course as **the bold beyond** comes into clearer focus.

The year 2025 has highlighted again and again that engineers and computer scientists play outsized roles in the economic strength, global competitiveness and security of this country. For the U.S. to continue to build on these strengths, our world-class engineering schools must remain strong. And we must be circumspect enough to address the industrial and workforce needs of the moment, while also building the foundations of our future prosperity.

To maximize the impact of our collaborative work, it is necessary that we keep reaching beyond the borders of our campus. We will continue to bring relevant regional and national players together to drive real-world impact in education, research and manufacturing scale up.

None of this is easy work. If it were easy, everyone would do it. But this is our mission. And I am deeply grateful for everyone inside and outside the Jacobs School who is part of this critical effort.

So, as 2025 comes to a close, it is my heartfelt honor to thank everyone in our UC San Diego Jacobs School of Engineering community. Thank you for all of your contributions to our collective work. Thank you for your contributions to our shared mission. And thank you for collaboration as we look both to the future and to **the bold beyond** that is past even that.

If you are finalizing your year end plans for philanthropy, please see the year-end giving information in this link, and below. I am always more than happy to hear from you, and I am

motivated to do what I can to help you engage with our Jacobs School.

In the meantime, I hope you have a wonderful and restful holiday season. 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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Undergraduates Soared to New Heights in 2025

Eleven Jacobs School undergraduate programs ranked in the Top 10 among U.S. public engineering schools in 2025. This excellence extends across the School, and our students soar each and every day. From building electric aircraft to autonomous underwater vehicles, scoring high-performance computing wins and landing prestigious internships and jobs, Jacobs School of Engineering undergraduates had another incredible year.

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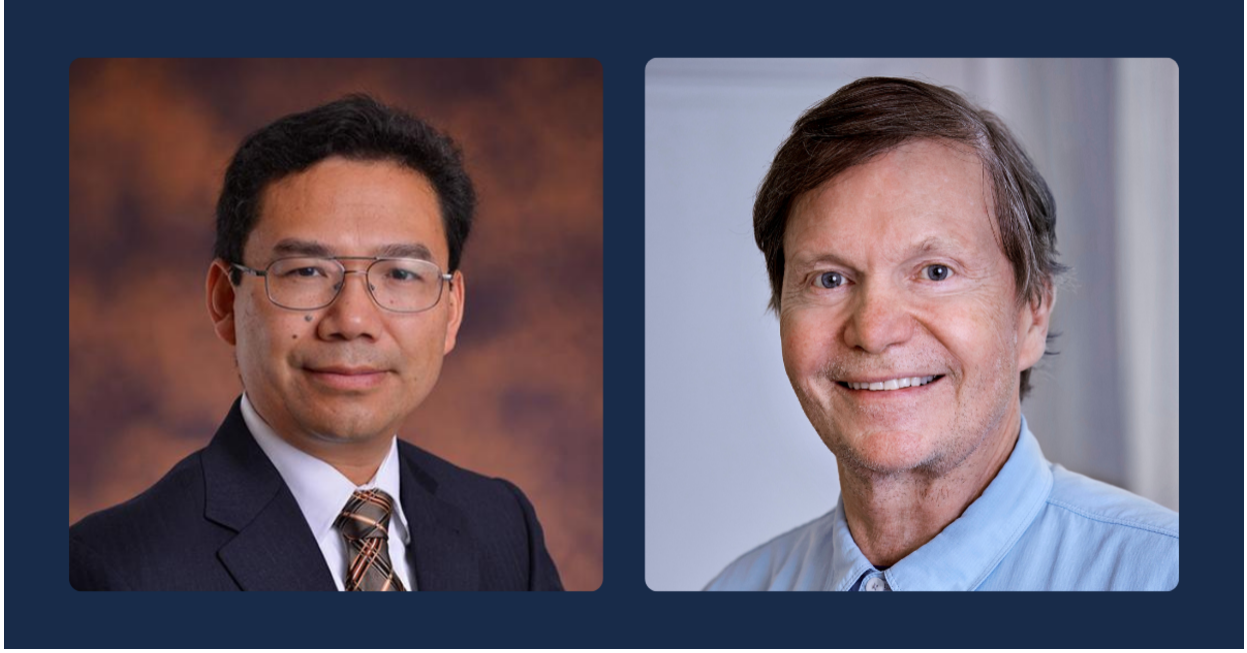

Two Engineering Faculty Elected to National Academy of Inventors

Congratulations to chemical and nano engineer Ping Liu and bioengineer Bernhard Palsson! These stand-out faculty members have been elected to the National Academy of Inventors (NAI). Liu develops materials and technologies to make next-generation rechargeable batteries safer, longer-lasting, faster-charging and more environmentally friendly. Palsson is a pioneer in biomanufacturing whose work has enabled the production of high-value biochemicals at large scale. Both faculty hold endowed faculty chairs, highlighting just how important endowed chairs are for the critical work of moving discoveries to real-world positive impacts.

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Mobile Batteries for Electric Construction Vehicles, Grid Resilience

In a first-of-its-kind test, engineers at UC San Diego are experimenting with large, mobile batteries to both charge electric construction vehicles and support a more resilient electric grid. This research is funded by the California Energy Commission and is being conducted at the NSF-funded Distributed Energy Resource Connect (DERConnect) testbed at UC San Diego. At DERConnect, researchers and industry partners can test their own hardware — like these mobile batteries —to study how their hardware performs on an actual, functioning electric grid under a wide range of simulated conditions.

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AI and Robotics Mix at San Diego Robotics Forum

At our 10th annual Contextual Robotics Institute San Diego Robotics Forum, the theme was embodied AI, or what happens when smart software meets the physical world. Jacobs School alumnus Quan Vuong gave the keynote, discussing his work at Physical Intelligence, a startup building general-purpose brains for robots. Faculty and students presented a wide range of robotics innovations ranging from new kinds of surgical robots to wildfire-spotting AI systems. Watch Contextual Robotics Institute Director Henrik Christensen talk to CBS about robotics at UC San Diego and the workforce of the future.

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Bringing Engineering Innovations to Market

Two Jacobs School faculty are working to bring their innovations to market through UC San Diego's 2026 Accelerating Innovation to Market (AIM) program. The program accelerates dual-use technologies with applications spanning civilian healthcare, national defense and critical infrastructure resilience. Via Lotus Biosciences, chemical and nano engineering professor Zeinab Jahed is developing a platform for direct, carrier-free gene delivery to the cell nucleus to bypass limitations of viral vectors. With PiCool Technologies, mechanical and aerospace engineering professor Renkun Chen is developing new solutions to manage extreme heat flux in high-performance computing systems including AI data centers.

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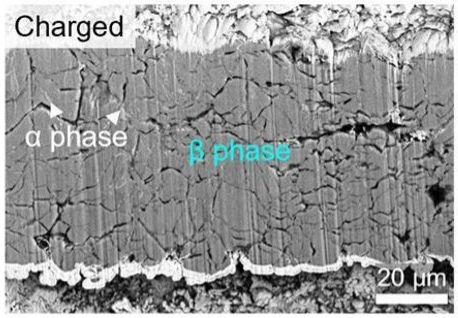

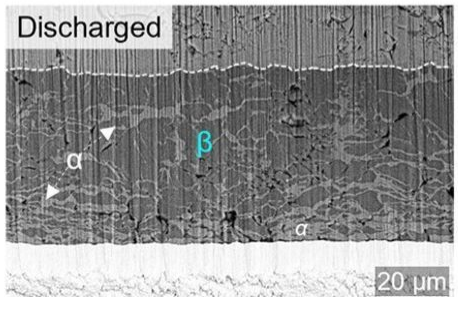

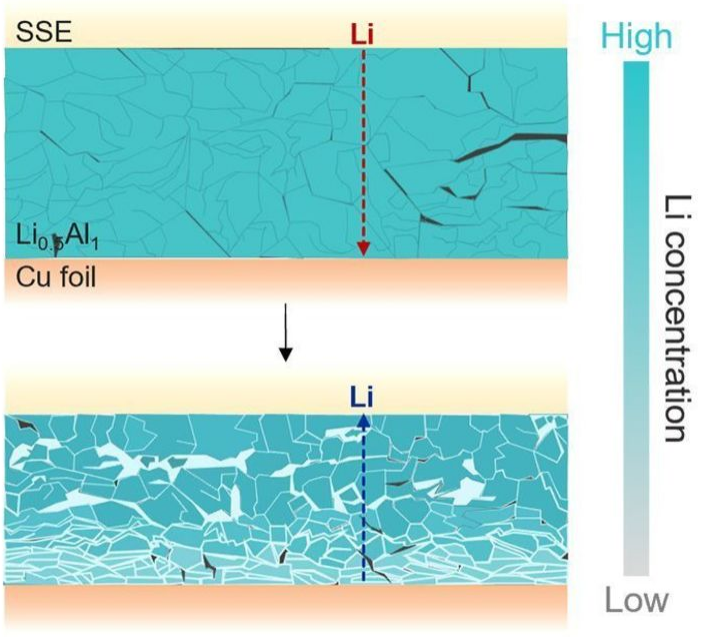

Solid-state Batteries that Charge Faster and Last Longer

A new design strategy for metal alloy negative electrodes could significantly improve the performance and durability of next-generation solid-state batteries. The work, co-led by UC San Diego engineers, could help advance the path toward practical, high-performance energy storage for electric vehicles. This research was supported by LG Energy Solution—UC San Diego Frontier Research Laboratory.

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Teaching Computer Science Through Gaming

In a new computer science course, UC San Diego students learn about the future of computing through the lens of video games. Game developers, for example, work to make computing more efficient and to reduce latency. They also work with GPUs, which are at the core of the computing infrastructure powering machine learning and neural networks. “I want to get my students excited about computing in the context of gaming,” said computer science teaching professor Niema Moshiri. “They need to better understand the tradeoffs we need to make between performance and memory, for example.”

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Year-End Giving

The generosity of our Jacobs School community enables us to advance engineering and computer science education and research in order to improve lives and solve tough challenges. The last weeks of 2025 offer a unique window for giving. Learn more in seven strategies for year-end giving (PDF). It provides actionable advice to align your philanthropic support with your financial goals.

Learn more in this PDF

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