

Arrived and Rising



25 years ago, Irwin and Joan Jacobs set their name on the School of Engineering here at UC San Diego. By entrusting us with their name, they put the School on a new course that changed everything – for the better. Their gift engaged a process of rising, a process of growth, and a process of research broadening and thus impact. I'm grateful for the momentum that Irwin and Joan imparted to the school. Each and every day, I see the artifacts of that continued momentum as we advance engineering and computer science for the public good.

Recently, we celebrated the 25th anniversary of this naming among an intimate group on the lawn of Franklin Antonio Hall. We were joined by an important cast of players who all helped to ensure that Irwin and Joan's momentum was fully imparted to the school. The event was wonderful. One of the common themes from the day was just how far-reaching and numerous the positive impacts of our naming gift has been – and continue to be. Transformative philanthropy is not a term I use lightly, and that's precisely what we came together to celebrate. To all our event speakers, thank you for your contributions, your memories and your insights.

Seeing Irwin and Joan at the center of this wonderful collection of dedicated people who all worked together to build the foundations and launch the Jacobs School gave me great pause. It took me some time to get my head fully around what was accomplished together. It compelled me both to look back and to look forward. As I look back, I am proud to say that the Jacobs School of Engineering has arrived. And as I look forward, I see that we will be rising still.

Irwin and Joan have been at the very core of our School's public identity for 25 years. Of course, they engaged with and cared for engineering at UC San Diego in many ways long before the Jacobs School came into existence. Did you know that in 1981 Irwin and Joan created the first endowed chair at UC San Diego?

We are celebrating the moment when Irwin and Joan decided to make the big commitment, and I am grateful to them that they did.

In closing, I'd like to give my broad thanks to everyone, past and present, who has helped create, sustain and grow the Irwin and Joan Jacobs School of Engineering. To our students, staff, faculty, industry partners, donors, friends, advisors, alumni, elected officials, the people of California: thank you. Thank you for all the ways you commit to the Jacobs School.

I hope that you believe – as I do – that the Jacobs School of Engineering long-ago arrived as a force for the public good – and is rising still.

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

Sincerely,

Al

Albert ("Al") P. Pisano, Dean

UC San Diego Jacobs School of Engineering



Celebrating 25 Years

As Dean Pisano described above, we recently celebrated the 25th Anniversary of the naming of the Irwin and Joan Jacobs School of Engineering. Below is an excerpt from Dr. Irwin Jacobs' comments from the day.

"I did a little calculation and realized that using some fudgy arithmetic, it's my 50th anniversary of leaving teaching, leaving UC San Diego. At that time, I rationalized it by saying I've been teaching theory all this time, now I have the chance to show that that theory is useful in practice. What's exciting now, is you look around the school and the various departments, the students, faculty, staff, and there are so many things happening, I don't think you have to leave the university anymore to realize you're making a huge impact on the world around us."

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UC San Diego Researchers Receive \$5.7M for Climate Action Projects

UC San Diego teams received \$5.7 million in climate action seed grants from the University of California. The goal is to spur implementation of solutions that directly address state climate priorities. Mechanical engineering professor Patricia Hidalgo-Gonzalez leads a project to support electric utilities and disadvantaged communities to make distribution networks resilient against climate change. Mechanical engineering professor Shengqiang Cai is developing biodegradable but durable hydrogels to help retain water in small farms, as a way to combat drought. Cai's team will work with Southeast Asian, Latino and Black farmers in Fresno and Tulare counties. San Diego Supercomputer Center Chief Data Officer and Halıcıoğlu Data Science Institute Faculty Fellow Ilkay Altintas will lead a new project to integrate next-generation science into existing systems for wildfire mitigation to help California carry out prescribed burns at the scale required to increase climate resilience.

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AI-Powered Technologies You Should Know About

From social robots to help people with cognitive impairments to robots that can perform life saving surgeries, researchers at UC San Diego are developing AI-driven technologies that impact everyday life, and the Jacobs School of Engineering is leading the charge. Learn more about seven such AI projects, including a mobile platform for managing chronic health conditions, a chatbot that gives movie recommendations, and self-driving vehicles for delivery and micro-transit.

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New Cisco Research Partnership

Cisco Research is providing support for UC San Diego engineering projects that tap into the Jacobs School of Engineering's strengths in cybersecurity, networking and distributed systems.

This funding will advance projects in federated learning, natural language processing, recommender systems, cybersecurity, and carbon-aware computing. The projects hail from the UC San Diego Center for Networked Systems and the Jacobs School's computer science and electrical engineering departments. The projects are funded through a first-of-its-kind Master Sponsored Research Agreement between the university and Cisco Research. Other projects will be funded in the future.

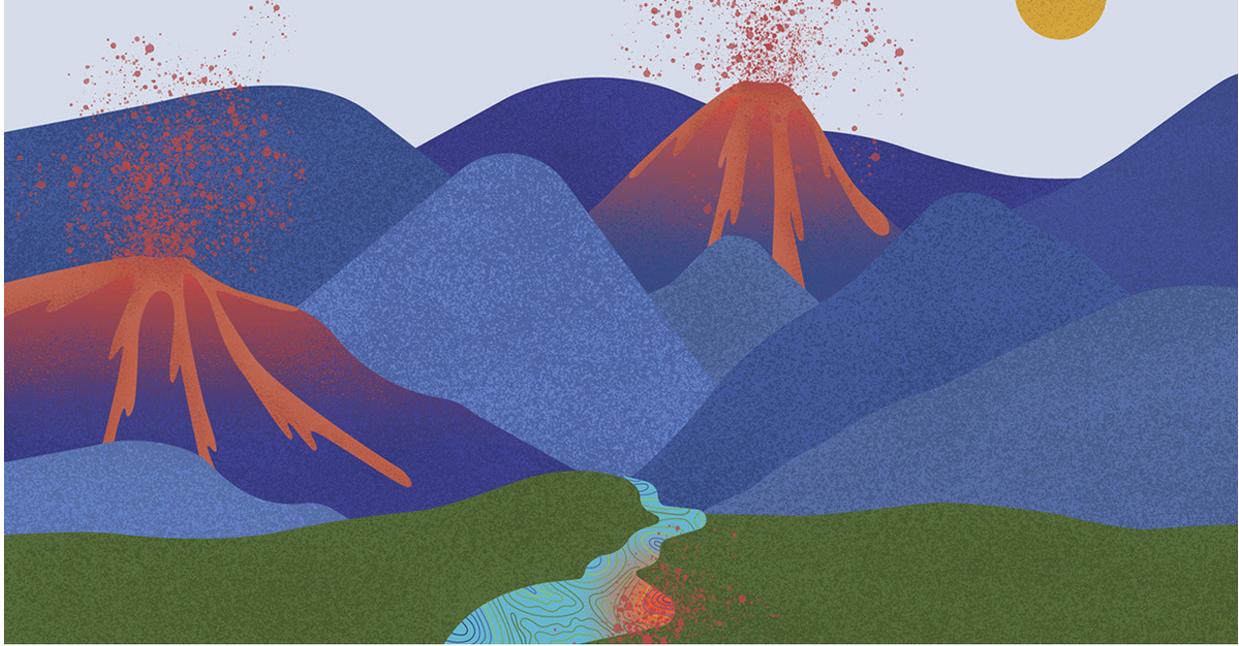
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Giving Your Old Smartphone a Second Life

An estimated 1.5 billion smartphones are decommissioned – and often forgotten – every year after only about 2.5 years of use. Their processors, however, can run for more than 10 years. UC San Diego computer scientists recently proposed a way to give these phones a new life. Their study considers the practicality and environmental benefits of reusing processors – even from decade-old devices – for non-consumer applications, specifically as cloudlets for microservices for social media websites, and as wildlife monitoring sensors. Researchers also explore how to combine phones to perform increasingly complex tasks. The paper, presented at the 2023 Architectural Support for Programming Languages and Operating Systems conference, earned a Distinguished Paper Award and has been downloaded more than 50,000 times. [Watch coverage on KPBS.](#)

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Genome Topography and Cancer

Bioengineers at UC San Diego have uncovered a connection between the topography of the human genome and the presence of mutations in human cancer. They found that certain regions of the genome act as hotspots for the accumulation of mutations. One of the findings, published in *Cell Reports*, is that several mutational signatures linked to alcohol consumption accumulate in regions of the genome that are copied early during cell division. This connection was specifically seen in esophageal, head and neck, and liver cancers. This finding is unexpected because mutations tend to arise in regions that are copied in the later stages of cell division, where errors occur more frequently.

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Bringing AI to Bear on Wildfire Detection

Jacobs School engineers are involved in efforts to bring the power of AI to fire detection. Falko Kuester, a structural engineering professor, is one of the technical leads on a project [recently profiled by The New York Times](#). The project's goal is to turn to AI to sift through footage from more than 1000 mountaintop cameras in California for signs of fire. The project is part of [ALERTCalifornia](#), a UC San Diego-based program working to understand wildfires and other natural disasters and their impacts, to better inform management decisions. Elsewhere at the Jacobs School, computer science professor Gary Cottrell and colleagues are [building deep learning models](#) to improve early wildfire detection. These algorithms will be incorporated into early wildfire detection work at the San Diego Supercomputer Center-based [WIFIRE Lab](#).

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Plankton Super Swimmers Were the Cause of Historic Red Tide Event

A major red tide bloom off Southern California in spring 2020 delighted beachgoers with dazzling displays of bioluminescence. But despite its beauty, the event was a harmful algal bloom, releasing toxins that had the potential to harm marine life. A team led by Drew Lucas, an associate professor at the Scripps Institution of Oceanography and in the Jacobs School Department of Mechanical and Aerospace Engineering, was able for the first time to uncover the cause of such an exceptionally dense bloom. The findings were made possible by methods at the intersection of oceanography and engineering. The story received wide news coverage by [Yahoo News](#), [KPBS](#) and more.

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