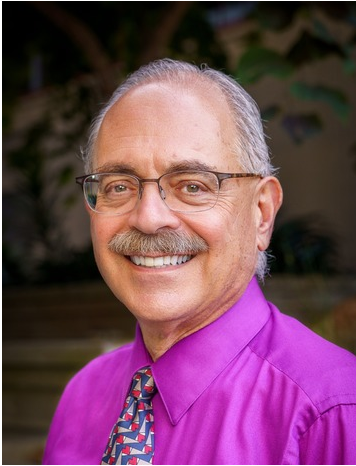


## The forging of collaboration



In engineering and computer science academic circles, big talk about technical collaboration is everywhere. And yet, there are nuances about collaborations that are not often discussed. First among them is that deep, game-changing collaborations are extremely challenging to forge. The effort, however, is well worth it. The bigger the lift, the greater the potential outcome. That's why I am so driven when it comes to forging new collaborations that have the potential to accelerate engineering and computer science for the public good.

It will be no surprise to you, I'm sure, that I loved to see the collaborative nature of our UC San Diego Jacobs School of Engineering innovation ecosystem highlighted in a [recent story in The San Diego Union Tribune](#). The story is about an educational project that prepares Japanese startups to succeed in the US market – a collaboration that is poised to add exciting new ideas and jobs to our region. In fact, the program itself is run by the UC San Diego Institute for the Global Entrepreneur, which is a collaboration that was worked out between our Jacobs School of Engineering and the Rady School of Management.

At my recent Dean's Council of Advisors meeting, 50+ of us talked about the challenges in forging collaborations at the enterprise scale. Smaller groups dove down into the details of the four Jacobs School Grand Initiatives on the agenda: collaborative efforts funded by the [CHIPS and Science Act of 2022](#); a next-generation biofoundry; moving from fusion science to fusion engineering; and efforts to create a platform to help [industry launch collaborative R&D consortia](#).

Maximum success in these enterprise-scale endeavors is only possible if we can forge strong collaborations in times and places in which the forging is NOT easy. This requires things like building consensus on the boundaries that separate competitive and pre-competitive research arenas, even as the technical details are changing rapidly.

For world-class engineering schools, positive impact requires the hard work of building the complex, multi-party collaborations required to solve the toughest challenges we face as a society. If this building were easy, it would have been done already. The challenges in building are what make being the Dean of the Jacobs School of Engineering such a satisfying and exciting job. As you will see, in all the stories below, hard-fought collaborations play important roles in achieving positive impact. As always, I can be reached at [DeanPisano@ucsd.edu](mailto:DeanPisano@ucsd.edu).

Sincerely,

AI

Albert ("Al") P. Pisano, Dean

UC San Diego Jacobs School of Engineering

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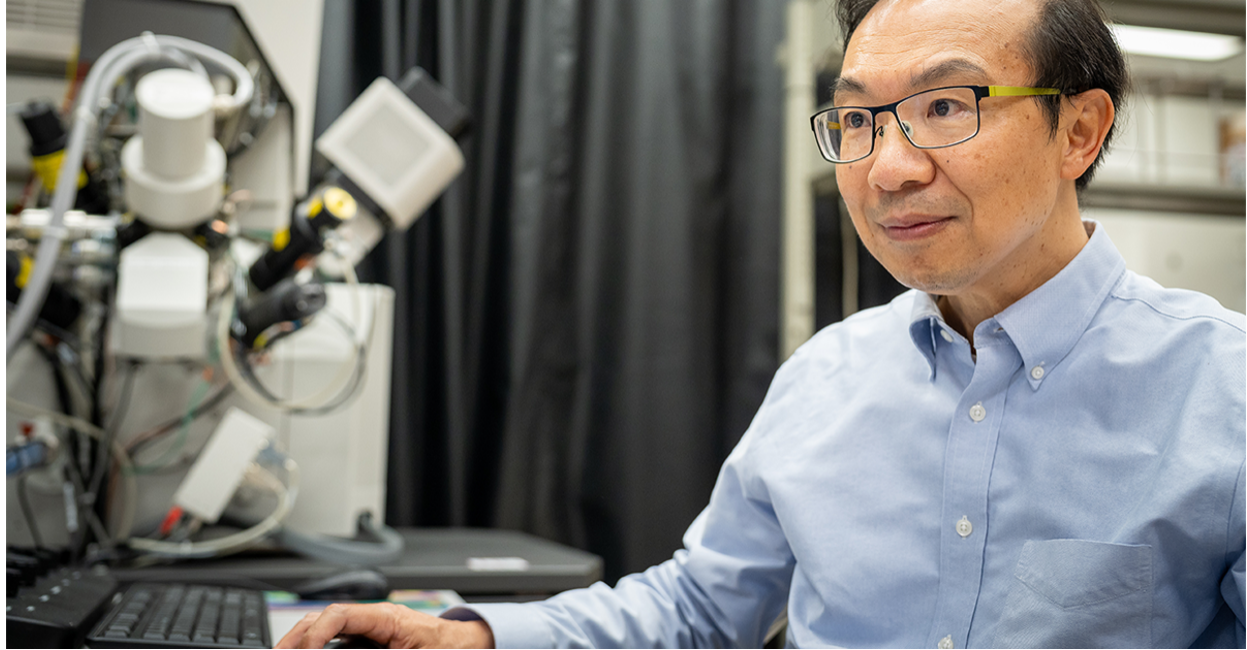


## Impact Like None Other

As Joan and Irwin Jacobs hit personal milestones at 90, we're reflecting on their indelible impact on UC San Diego and the whole region. As a founding faculty member of UC San Diego, Irwin served as a professor from 1966 to 1972. He went on to co-found Linkabit and later Qualcomm, where he served as founding chairman and CEO. Thanks to Irwin and Joan's support and visionary generosity – which began with their first gift 45 years ago in 1977 – UC San Diego has transformed immensely. From establishing, and accelerating, the Jacobs School of Engineering; to advancing healthcare in the region; to strengthening global policy and strategy research; to making UC San Diego an arts destination; to creating endowed faculty chairs; to supporting undergraduate and graduate student scholarships – and so much more – Irwin and Joan's expansive impact has reached nearly every corner of campus.

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## UC San Diego a Key Member of \$27M DoD Microelectronics Hub

The U.S. Department of Defense awarded approximately \$27 million for the USC-led Microelectronics Commons project, part of the CHIPS and Science Act of 2022. The UC San Diego Jacobs School of Engineering is a key member of this coalition of research and industry organizations that are collaborating to accelerate the development and manufacturing of microelectronics in the United States. With a focus on 5G/6G technologies, this collaboration is about translating the sophisticated materials and devices developed in academic labs to domestic fabrication. The name of the coalition is California DREAMS, an acronym for the California Defense Ready Electronics and Microdevices Superhub.

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## ALERTCalifornia Wildfire Safety Collaboration Earns TIME Recognition



On Sept. 11, 2023 at 5:19 a.m. a new AI-driven system detected and alerted firefighters to a potential ignition near Grass Valley, Calif. Even though this fire was near a residential area, the first 911 call was not reported until 6:01 a.m., and firefighters were already at the scene. This early detection and rapid response allowed firefighters to keep the fire contained to less than a quarter of an acre. This new AI system is part of ALERTCalifornia, a UC San Diego program in collaboration with CAL FIRE and a wider range of university, government and industry partners. TIME Magazine recently honored ALERTCalifornia's AI system as one of 200 extraordinary inventions that change lives. More on the technology in the [New York Times](#).

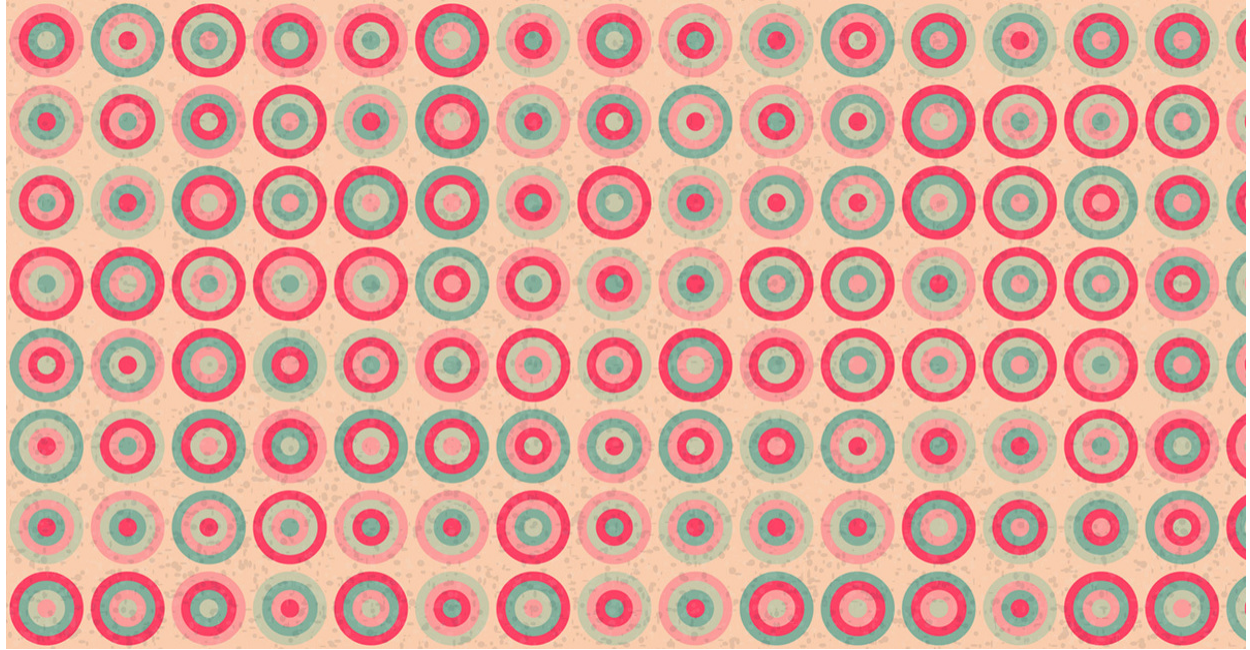
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### Japanese Biotech Startups Learn the Ropes at UC San Diego

Seven Japanese startup leaders spent two weeks at UC San Diego's Institute for the Global Entrepreneur this fall learning about the life science startup market in the United States as part of the first cohort of the Beyond JAPAN program. The program, an initiative of the Japanese government, is a five-year effort meant to nurture entrepreneurial talent that can expand global business. Read coverage in [The San Diego Union Tribune](#).

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## UC San Diego and Mount Sinai Receive \$8.5M NIH Award for Data Integration Hub

Bioengineers at UC San Diego and researchers at the Icahn School of Medicine at Mount Sinai have been awarded an \$8.5 million grant to create a data integration hub aimed at accelerating novel therapeutics and cures for diseases within initiatives supported by the National Institutes of Health (NIH) Common Fund. It's an opportunity to make innovative discoveries through full utilization of the data that have emerged from the large investments made through the NIH Common Fund, explained UC San Diego bioengineering professor Shankar Subramaniam.

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## Teaching the Art of Problem Solving



Problem solving is a critical skill for technical education and technical careers of all types. But what are best practices for teaching problem solving to high school and college students? The Jacobs School of Engineering is on the forefront of efforts to improve how problem solving is taught, with a hands-on problem-identification and problem-solving techniques course. Over 1,500 students and teachers across the San Diego region have already benefited over the last three years. This program, a collaboration with the UC San Diego Division of Extended Studies, kicked off with a generous gift from a local philanthropist.

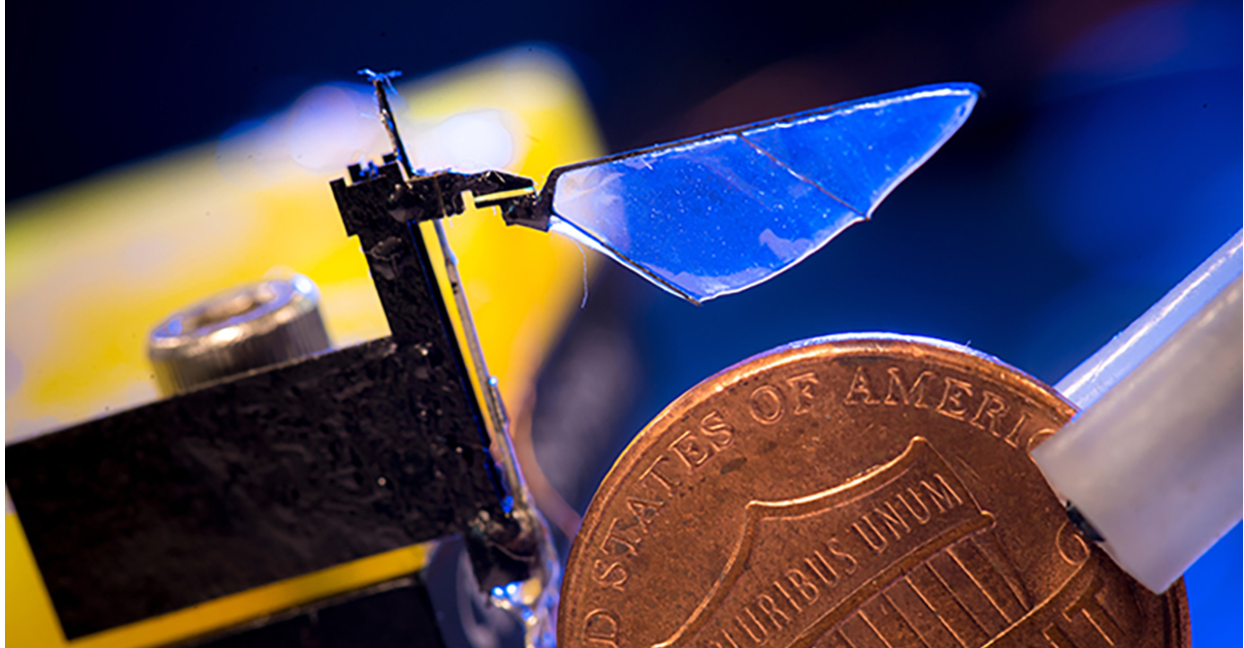
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### **Increasing Diversity in Graduate Programs Through Collaboration**

The Jacobs School of Engineering partnered with Florida A&M University and the University of Texas at El Paso on a program meant to increase diversity in electrical engineering graduate programs, thanks to a gift from Intel Corporation. Six undergraduate electrical engineering students from Florida A&M and UTEP participated in the first cohort of the program, conducting research in electrical engineering labs for seven weeks at UC San Diego. Both Florida A&M and UTEP are minority serving institutions and core members of the Inclusive Engineering Consortium (IEC), a non-profit organization that brings together academia, industry, and government to advance education, research, and electrical and computer engineering careers.

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## Robots Helped Us Understand How Flight Evolved in Insects

Thanks to a six-year collaboration between roboticists at UC San Diego and biophysicists at Georgia Tech, we now know how the two different modes of flight – synchronous and asynchronous – evolved in insects. For years, scientists assumed that four groups of insects all evolved asynchronous flight separately. However, a new analysis performed by the Georgia Tech team concludes that asynchronous flight actually evolved together in one common ancestor. Then some groups of insect species reverted back to synchronous flight, while others remained asynchronous. To confirm and test this hypothesis, the team then used robotic insects developed by mechanical engineers at UC San Diego to perform experiments that could never be done on insects. Watch a video about this work in [IEEE Spectrum](#).

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