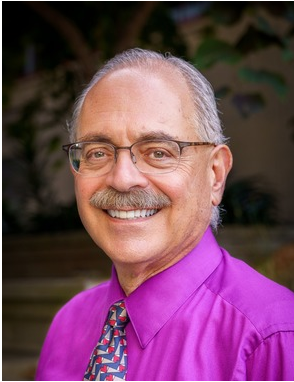


#11 Engineering School in the Nation



I am proud to share that our position improved this year in the closely watched U.S. News & World Report Best Engineering Schools rankings. [We jumped to become the #11 engineering school in the nation](#), up from #12 last year. Among the nation's public engineering schools, we rose to #7 in the nation, up from #8 last year.

And there is even more fantastic news. This is the first year U.S. News has broadened the inputs of the rankings to include citation metrics. Citations are technically when our peer institutions cite our work, and I interpret our citations as additional affirmation that our work is state-of-

the-art. When citation measures were added to the U.S. News rankings, our overall position rose.

In fact, we rank #1 in the nation among public engineering schools for citations per publication – and #5 in the nation overall in this category. I consider this citation ranking as a measure of our world-class thought leadership.

To our graduate students, postdocs, research scientists, faculty and staff – and to every single person inside and outside the Jacobs School who works behind the scenes to keep our education, research and innovation enterprise thriving – thank you! My admiration and congratulations go to you. This #1 ranking in intellectual leadership is for you!

The particulars of this citation ranking are as follows: at the Jacobs School, our average rate of citations per publication from 2019 to 2023 was the highest among all public engineering schools in the nation, and #5 overall. I am so pleased to see this much-deserved spotlight shining on our intellectual leadership. I am so pleased to see this measure of the scholarly impact we have on our colleagues in engineering and computer science throughout the country and around the world.

Schoolwide, the UC San Diego Jacobs School of Engineering increased its research expenditures to \$256M, which is up nearly five percent from last year – and higher than it has ever been. Research activity is one of the metrics that highlights the resources we have to train tomorrow's innovation workforce while advancing engineering and computer science to improve lives.

Yes, I celebrate that we are so strong in the rankings. But at the same time, I never lose my focus on the more important things that come later – the positive impacts of the new tools, new insights, new cures and new solutions that make their way from research and papers to innovations and implementations.

Just one example is the fact that Jacobs School researchers are collaborating all across campus to advance human health and to translate discoveries to the marketplace. A sampling of our contributions to this [campus-wide effort in Health Innovation are highlighted on a new campus website](#). Great new achievements from these efforts are imminent. I can't wait to see the wonderful results that emerge from our ever deepening collaborations with our colleagues in UC San Diego Health Sciences and across campus.

To our entire Jacobs School community, and to everyone who empowers us in our mission to advance engineering and computer science to improve human health and to solve the toughest challenges for the public good, thank you!

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

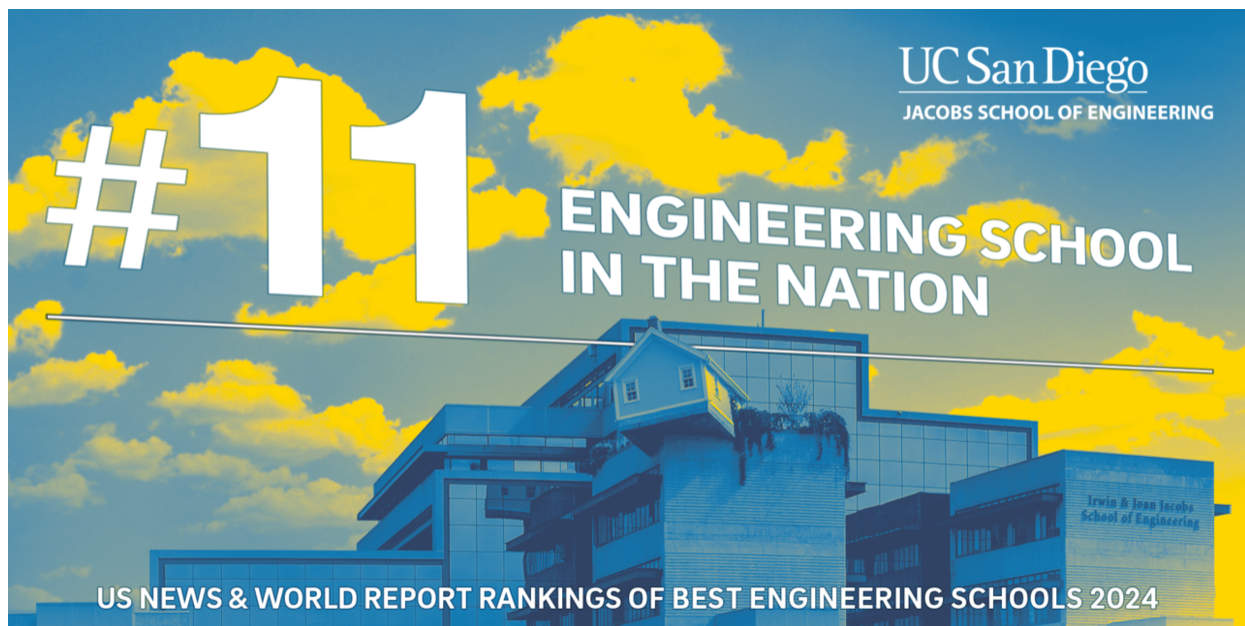
Sincerely,

Al

Albert ("Al") P. Pisano

Dean, UC San Diego Jacobs School of Engineering

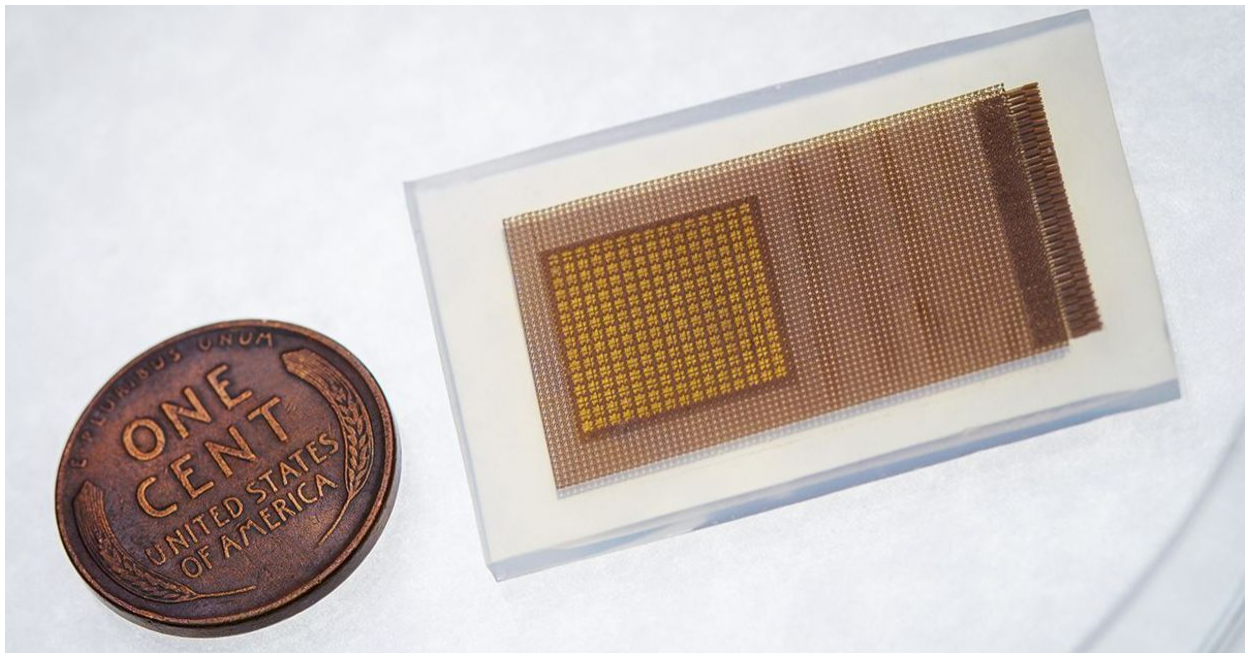
Special Adviser to the Chancellor for Campus Strategic Initiatives



Jacobs School Rises in the Rankings

The UC San Diego Jacobs School of Engineering is ranked the #11 best in the nation in the influential U.S. News & World Report Rankings of Best Engineering Schools. This #11 ranking is up from #12 last year. Among public engineering schools in the nation, the Jacobs School of Engineering ranks #7. The Jacobs School ranked #1 in the nation among public engineering schools for citations per publication, and #2 in the nation among public engineering schools for field weighted citations per publication. This is a measure of the scholarly impact that an engineering school's faculty have in their field and the caliber of their research.

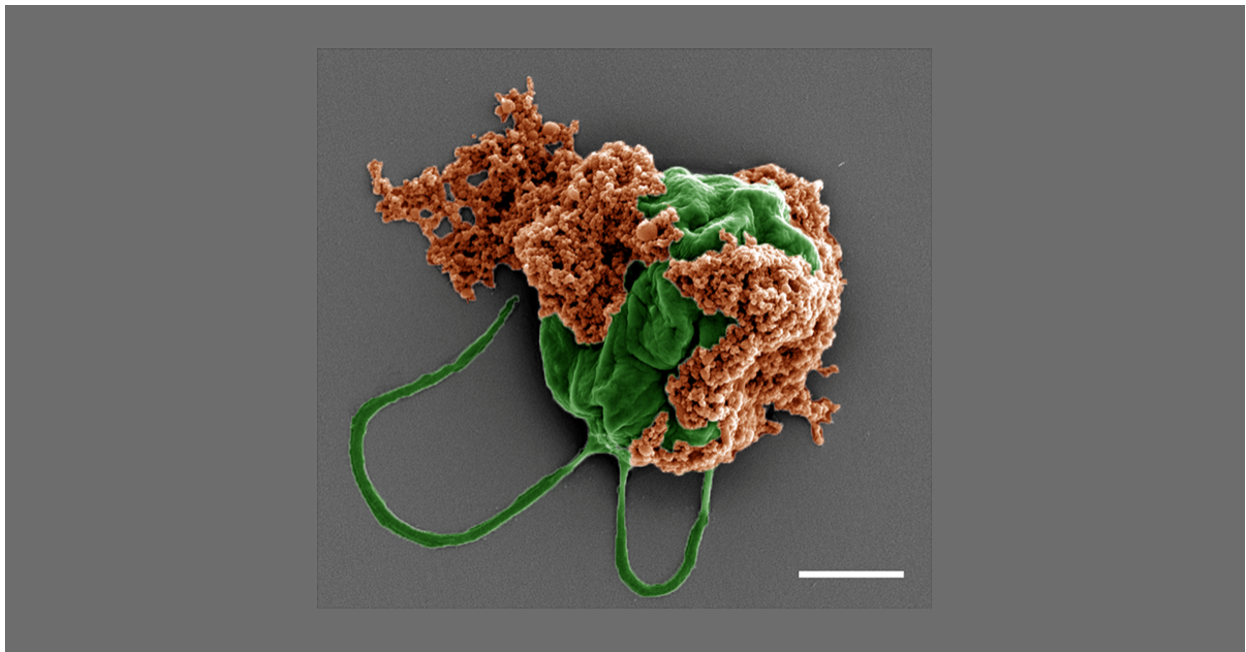
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Wearable Ultrasound Patch Monitors Cerebral Blood Flow

In the journal *Nature*, nano engineers at UC San Diego describe a wearable ultrasound patch that can offer continuous, non-invasive monitoring of blood flow in the brain. The soft and stretchy patch can be comfortably worn on the temple to provide three-dimensional data on cerebral blood flow—a first in wearable technology. The wearable ultrasound patch offers a hands-free, consistent and comfortable solution that can be worn continuously during a patient’s hospital stay. This marks a significant leap from the current clinical standard, which requires a trained technician to hold an ultrasound probe against a patient’s head. Read coverage in [Interesting Engineering](#).

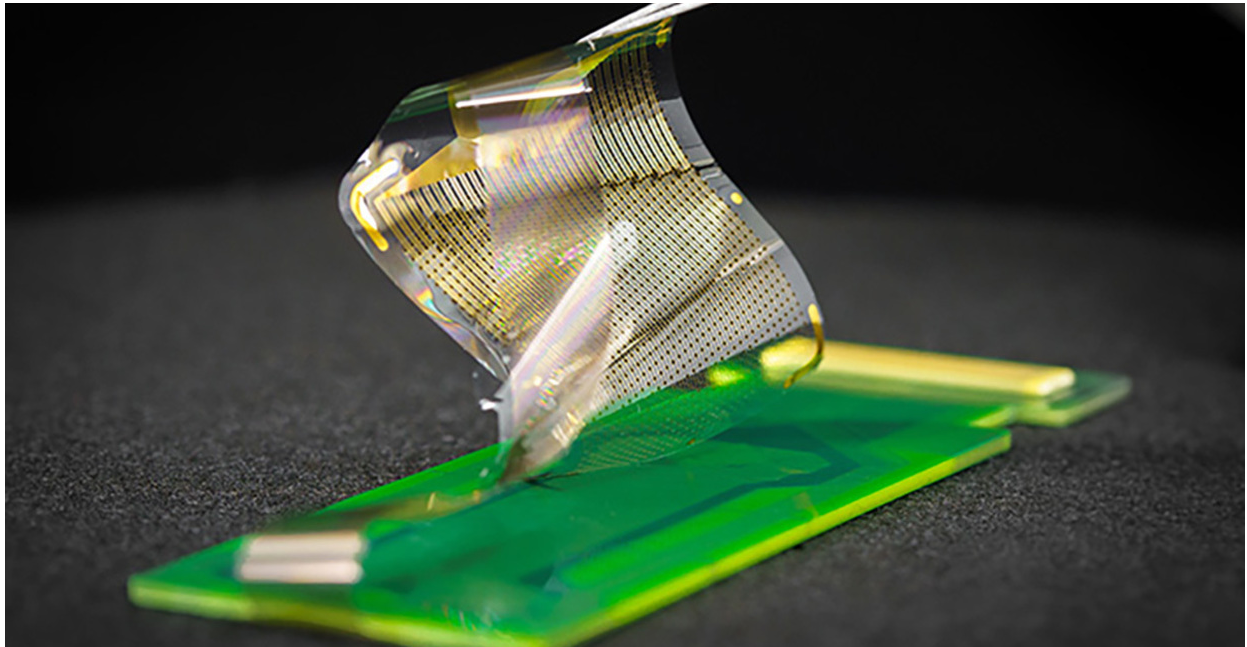
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Micro-scale Robots Deliver Drugs to Metastatic Lung Tumors

Engineers at UC San Diego have developed micro-scale robots that swim through the lungs and deliver cancer-fighting medication directly to metastatic tumors. This approach has shown promise in mice, where it inhibited the growth and spread of tumors that had metastasized to the lungs, thereby boosting survival rates compared to control treatments. To create these bio-compatible swimming microrobots, the nano engineers attached drug-filled nanoparticles to the surface of single-celled green algae that swim. Each algal cell has two tails which provide the microrobots with their swimming capabilities. The resulting microrobots efficiently swim around in the lungs and deliver their cancer-drug payloads directly to tumor sites. Read coverage in [U.S. News and World Report](#).

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Brain Recording Device Receives FDA Approval for a Clinical Trial

The FDA approved a clinical trial to test the effectiveness of an electronic grid that records brain activity during surgery, developed by engineers at UC San Diego. The device with nanoscale sensors records electrical signals directly from the surface of the human brain in record-breaking detail. The grid's breakthrough resolution could provide better guidance for planning and performing surgeries to remove brain tumors and treat drug-resistant epilepsy. The device was invented by electrical engineers at UC San Diego, who partnered with neurosurgeons and medical researchers from UC San Diego, Massachusetts General Hospital and Oregon Health & Science University. Listen to coverage on [NPR's All Things Considered](#).

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Plant Virus Treatment Shows Promise Against Metastatic Cancers

A team of nano engineers from UC San Diego continues to advance their use of cowpea mosaic virus nanoparticles to trigger the immune system to fight cancer and prevent it from spreading and recurring. Now, in new work in mice, the team demonstrated that their nanoparticles can be administered systemically in order to improve survival rates and inhibit metastasis across various cancer types. The approach provides a systemic treatment to wake up the body's immune system to eliminate the disease before metastases form and settle. The team is excited about the potential for use of this approach post-surgery, and the goal is to advance to clinical trials. [Watch coverage on CBS8.](#)

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High-Impact Solutions: How UC San Diego Accelerates MedTech

UC San Diego ranks 4th in the nation for startup creation, and has helped launch over 1,000 companies. More than one third of these are in the medtech space, thanks in part to the MedTech Accelerator at our Institute for the Global Entrepreneur, and close collaborations with physician scientists at UC San Diego Health and the UC San Diego School of Medicine. Learn more about two such medtech startups — Melio and LIMBER Prosthetics and Orthotics — both of which spun out from Jacobs School of Engineering research.

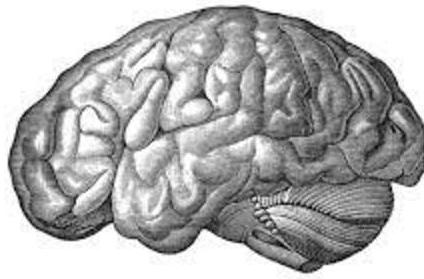
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Mentorship Programs are Key to Student Involvement, Success in STEM

Programming at our IDEA Engineering Student Center is making an impact. Research based on two IDEA Center programs shows that engineering and computer science undergraduate students who take part in mentorship programs are more involved in campus communities than those who don't. The study establishes an empirical, and quantifiable, connection between mentoring programs and campus involvement. The study shows that underrepresented students in engineering and computer science who participated in these programs were more likely to be involved in research opportunities, peer leadership roles and student organizations than demographically similar peers who did not participate in these programs.

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Some Brain Cells Age Faster and Are More Prevalent in Alzheimer's

New in the journal *Nature*, bioengineers at UC San Diego have discovered that some brain cells age more rapidly than others, and they are disproportionately abundant in individuals afflicted with Alzheimer's disease. Additionally, researchers observed sex-specific differences in the aging process of certain brain cells, with the female cortex exhibiting a higher ratio of "old" oligodendrocytes to "old" neurons compared to the male cortex. The discoveries were made possible by a new technique called MUSIC (multinucleic acid interaction mapping in single cells), which allows researchers to peek inside individual brain cells and map out interactions between chromatin—which is the tightly coiled form of DNA—and RNA. This technique enables researchers to visualize these interactions at single-cell resolution, as well as study how they influence gene expression.

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