

## Empowered to drive positive impact

Last week, we formally welcomed our 11 new professors to the UC San Diego Jacobs School of Engineering.

I vividly remember what it's like to be an assistant professor of engineering at a large university. It was exhilarating and rewarding. At times, it was also daunting and frustrating. For me, as an early-career professor, I didn't always feel empowered to drive innovation within the department, the school or the university. I didn't always feel empowered to pursue outside-the-box ideas aimed at leveraging mechanical engineering to drive positive impact.

That's why, as an engineering Dean at a top-10 school, one of my objectives is to fully empower our early-career professors. As a community, we have a responsibility to help our faculty to eliminate obstacles that get in the way of their ability to innovate for the benefit of society. We have a duty to ensure that our early-career faculty in engineering and computer science have the runways they need to achieve their maximum potential as researchers, educators and innovators.

Last week, speaking to our new faculty hires, I meant what I said, and I said what I meant with, "YOU are the Jacobs School of Engineering." These new faculty are all driven by a desire to conduct research that has positive impacts on people. My job – our job – is to empower them to drive this positive impact.

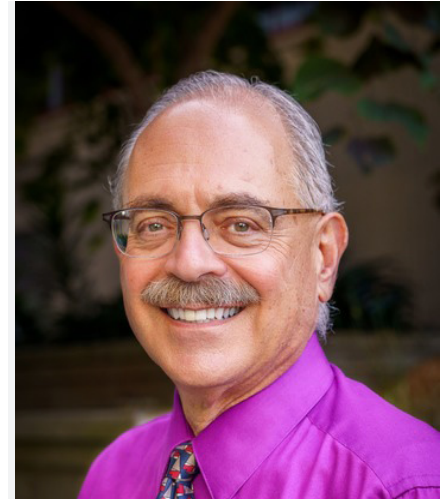
We are just a year or two away from a wonderful tipping point in which more than half of the 300+ faculty here at the Jacobs School will have been hired within a span of 10 years. This metric points to the fact that we are a young, vibrant, powerful school. We are surging. I'm thrilled to think about how much more capacity for innovation and positive impact we will gain as our faculty progress in their careers.

I look forward to working with everyone in our extended Jacobs School of Engineering community to ensure that all of our faculty make the greatest positive impact possible. Together, we can fully empower cross-disciplinary teams that leverage engineering and computer science in order to strengthen our innovation economies and improve the health and wellbeing of individuals and communities.

As always, I can be reached at [DeanPisano@eng.ucsd.edu](mailto:DeanPisano@eng.ucsd.edu).

~Albert P. Pisano, Dean

UC San Diego Jacobs School of Engineering



## Franklin Antonio Hall is open

Franklin Antonio Hall is open, and the circulation of people and ideas has begun. As soon as you walk into the building, the soaring atrium draws your attention upward, to the collaborative research labs on floors two, three and four. Franklin Antonio Hall is home to 13 laboratories, each of which brings together researchers from across the Jacobs School and across the campus to solve the toughest challenges facing society that no lab, or industry, can solve alone. The building's first floor is buzzing with student and entrepreneurship activity, and the café (Crafted at Minerva's) is on the way. Thank you to everyone who has stepped up, and continues to step up, to make this physical and intellectual ecosystem for innovation as strong and impactful as possible.

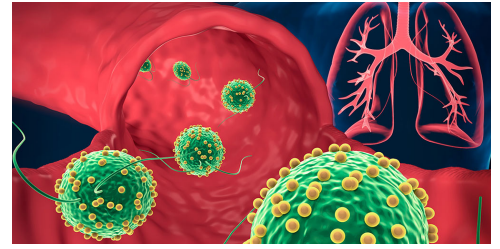
## Six undergraduate engineering programs in top 10

The undergraduate bioinformatics and biotechnology program at UC San Diego is ranked #1 in the nation! It's the second year in a row for this honor. Five other bioengineering and computer science specialties also earned top-10 marks in last month's undergraduate rankings from US News. The mobile and web applications undergraduate specialty within our Department of Computer Science and Engineering ranks #6. The bioengineering and biomedical undergraduate program in the Department of Bioengineering is ranked #7. The artificial intelligence, data science and computer systems specialties within the Department of Computer Science and Engineering, all rank #10.



## Tiny swimming robots treat deadly pneumonia in mice

A new kind of microscopic robot delivered medication to the lungs of mice, clearing up life-threatening cases of bacterial pneumonia. The cross-disciplinary team of UC San Diego nanoengineers created the tiny robots using cells from a type of algae that swims. These swimming algae allowed the microrobots to navigate the lungs of mice and deliver their drug cargo. This antibiotic cargo was packed into nanoparticles cloaked in white-blood-cell membranes. The microrobots, as reported in *Nature Materials*, safely eliminated pneumonia-causing bacteria in the lungs and resulted in 100% survival of the mice. By contrast, untreated mice all died within three days after infection.

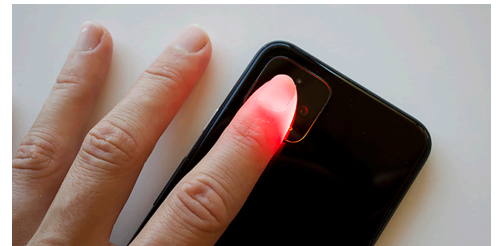


## Soft devices—powered by algae—glow in the dark when squished

Mechanical engineers at UC San Diego and researchers at the Scripps Institution of Oceanography collaborated to develop soft devices that glow in the dark when squished, stretched and bent, powered solely by “stressed” algae. The devices do not require any electronics to light up, making them an ideal choice for building soft robots that explore the deep sea and other dark environments. The team took their inspiration for these devices from the bioluminescent waves that sometimes occur at San Diego’s beaches during red tide events.

## Measure blood oxygen at home, in a smartphone flash

Monitoring the amount of oxygen in your blood could one day be done using your smartphone’s camera and flash. The mobile health tech was developed by researchers led by UC San Diego electrical engineer Edward Wang, who is also part of the campus Design Lab. The project could lead to innovations that allow people to monitor conditions such as asthma and COVID-19 at home more easily. The new technique involves placing a fingertip over the camera and flash of a smartphone, which uses a deep-learning algorithm that the team trained to decipher the blood oxygen levels.



## UC San Diego selected for expanded NSF Innovation Corps Hub

The Institute for the Global Entrepreneur at UC San Diego has been selected to join one of five new NSF Innovation Corps (I-Corps) Hubs, meant to scale the NSF-led National Innovation Network in accelerating the translation of discoveries into new solutions that benefit society. Each I-Corps Hub is funded for up to \$3 million per year for five years and comprises a regional alliance of at least eight universities; UC San Diego joins the Desert and Pacific Region Hub, led by Arizona State University. IGE is a collaboration between the Jacobs School of Engineering and Rady School of Management.