We tackle the hardest problems

At the Jacobs School of Engineering, we tackle the hardest problems that no lab, discipline or industry can solve alone. This is one of the ways we prepare our students and postdocs to become the innovation workforce our nation so desperately needs.

Ten simple rules for women principal investigators during a pandemic and a call to end funding discrimination against Black scientists in the United States are two new examples of our faculty engaging with some of the toughest challenges in the organization and practice of research.

Another example: electrical engineers and computer scientists are collaborating with a National Lab and industry partners to scale up a new, energy-saving photonic network approach for data centers.

While our students, staff and faculty are making incredible advances, I'm working with many people inside and outside the Jacobs School to ensure we have not just more, but the right kinds of research and teaching infrastructure and ecosystems.

In the short video below, I share some additional thoughts on why, and how, we are working so hard to create relevant innovation ecosystems in Franklin Antonio Hall. I am absolutely dedicated to ensuring that our research community is empowered to move fundamental advances through engineering to innovation and out to the marketplace.

I look forward to collaborating with many of you on this and other challenges of 2021. As always, I can be reached at DeanPisano@eng.ucsd.edu.

~Albert ("Al") P. Pisano, Dean

UC San Diego Jacobs School of Engineering

Franklin Antonio Hall: Industry Partnerships

We are a top 9 engineering school with the creativity and openness necessary to tackle the toughest shared challenges. Academia, industry and government labs working together on future technology is baked into the DNA of the Jacobs School. In Franklin Antonio Hall, we are building on this to create a national model for innovation ecosystems with local roots and national and international reach.

Learn more: bit.ly/PisanoFAHIndustry
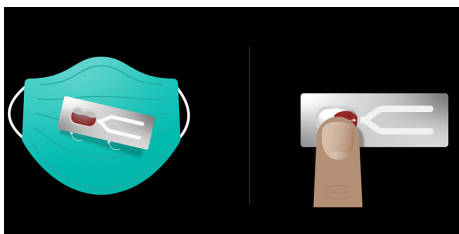
Turning masks into COVID-19 wearable sensors

Nanoengineers at UC San Diego are developing a color-changing test strip that can be stuck on a mask and used to detect SARS-CoV-2 in a person's breath or saliva. The project, which received $1.3 million from the NIH, is aimed at providing simple, affordable and reliable surveillance for COVID-19 infections that can be done daily and easily implemented in resource-poor settings. "In many ways, masks are the perfect 'wearable' sensor for our current world," said nanoengineering professor Jesse Jokerst.

Learn more: bit.ly/COVIDMaskSensor

Photonics pioneers aim to cut data center energy use

Electrical engineers and computer scientists at UC San Diego are on the front lines of global efforts to reduce the energy used by data centers. The potential impact is great: the US government estimates that data centers currently consume more than 2.5% of U.S. electricity, and that figure is projected to double in about eight years. The team has been awarded a total of $7.5 million from ARPA-E and the California Energy Commission to advance nation-wide efforts to double data center energy efficiency in the next decade through deployment of new photonic—light based—network topologies. It was here at the Jacobs School a decade ago that these same engineers assembled and demonstrated the first data center testbed using an optically switched network.
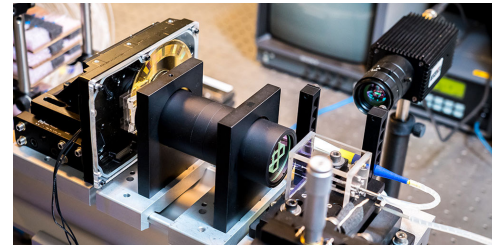
Learn more: bit.ly/UCSDEnlitened

Engineering leaders call for end to funding discrimination

Representatives from a network of deans, chairs and distinguished faculty in biomedical engineering have called upon the NIH and other funding agencies to address disparities in allocating funding support to Black researchers. Karen Christman, associate dean at the Jacobs School of Engineering and bioengineering professor, and Padmini Rangamani, professor of mechanical and aerospace engineering, are coauthors on the call, published in a paper in Cell. According to studies of the allocation of NIH research funding, Black applicant award rates for research funding has stood at about 55 percent of that of white principal investigators of similar academic achievement. The authors make several recommendations for how research funding disparities can be eliminated.

Learn more: bit.ly/FundBlackScientistsucsd

Ten suggestions for female faculty and staff during the pandemic

When university campuses sent students, staff and faculty members home in March 2020, Padmini Rangamani, a professor of mechanical and aerospace engineering at UC San Diego, suddenly found herself running her research lab remotely, teaching her classes online, and supervising her two children, ages 10 and 13, who were also learning online. To deal with the stress the situation created, Rangamani turned to a support network of fellow female faculty members around the United States. The group eventually decided to write a scholarly article with recommendations for other female principal investigators in academia, to normalize conversations about work-life balance and ensure the particularly vulnerable do not feel forced to exit the academic system.

Learn more: bit.ly/PandmicTipsforFemalePIs

THE UC SAN DIEGO
JACOBS SCHOOL OF ENGINEERING
IS THE
#9 ENGINEERING SCHOOL IN THE USA
US NEWS AND WORLD REPORT RANKING OF
BEST ENGINEERING SCHOOLS (PUBLISHED MARCH 2020)