

## Our undergrads persevere and inspire

I'm a car person. You might say a real gear head. So, I find it relaxing to work on my vintage 1960 MG sports car. Beyond all that, I'm inspired by [video of our undergraduates testing the autonomous cars](#) they programmed to follow a race track. It's a track laid down in an outdoor classroom erected to give UC San Diego students options for safe, in-person education in the age of COVID-19. [This hands-on composite materials class](#) is another great example of the Jacobs School of Engineering community creating experiential educational opportunities during the pandemic.



For me, this kind of perseverance captures the spirit of the Jacobs School of Engineering and UC San Diego over the last 12 months. Every day, we strive to give our students the best education possible, while safely continuing our research and mentoring our undergraduates, graduate students and postdocs.

At the same time, our students step up and solve problems. [Jaida Day is a case in point.](#)

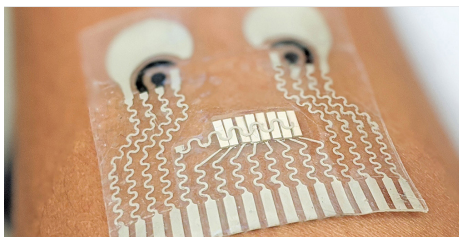
Despite multiple headwinds, the grit and determination I see every day from our students, staff and faculty are inspiring. As we close out the Winter Quarter, I'd like to thank everyone inside and outside the Jacobs School for your continued, unwavering hard work, support and collaboration. As you persevere, you inspire.

Stay tuned for my next newsletter in which I'll announce the updated US News & World Report Best Engineering Schools rankings.

In the meantime, 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



## New skin patch brings us closer to wearable, all-in-one health monitor

Nanoengineers at UC San Diego have developed a soft, stretchy skin patch that can be worn on the neck to continuously track blood pressure and heart rate while measuring the wearer's levels of glucose as well as lactate, alcohol or caffeine. It is the first wearable device that monitors cardiovascular signals and multiple biochemical levels in the human body at the same time.

Learn more: [bit.ly/BPBiochemPatch](https://bit.ly/BPBiochemPatch)

## This robot doesn't need any electronics

Mechanical engineers at UC San Diego have created a four-legged soft robot that doesn't need any electronics to work. The robot only needs a constant source of pressurized air for all its functions, including its controls and locomotion systems. Applications include low-cost robotics for entertainment, such as toys, and robots that can operate in environments where electronics cannot function, such as MRI machines or mine shafts.

Learn more: [bit.ly/airwalker](https://bit.ly/airwalker)



## NASA University Leadership Initiative grant will enable flying taxis

A futuristic system of flying taxis and shuttles is one step closer to reality thanks to a team of engineers led by UC San Diego. They received a \$5.8 million University Leadership Initiative grant from NASA to create computational design tools that will help U.S. companies develop more efficient air taxi designs, faster. The team also includes researchers from UC Davis, San Diego State University, Brigham Young University, Aurora Flight Sciences and M4 Engineering.

Learn more: [bit.ly/UCSDULI](https://bit.ly/UCSDULI)



## 'Wearable microgrid' uses the human body to sustainably power small gadgets

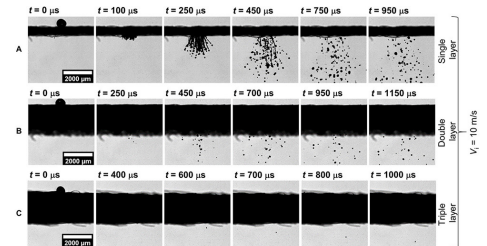
UC San Diego engineers have developed a "wearable microgrid" that harvests and stores energy from the human body to power small electronics. It consists of three main parts: sweat-powered biofuel cells, motion-powered devices called triboelectric generators, and energy-storing supercapacitors. All parts are flexible, washable and can be screen printed onto clothing. "We're applying the concept of the microgrid to create wearable systems that are powered sustainably, reliably and independently," said co-first author Lu Yin, a nanoengineering Ph.D. student.

Learn more: [bit.ly/WearableMicrogrid](https://bit.ly/WearableMicrogrid)

## Three-layered masks most effective against large respiratory droplets

While we knew that three-layered face masks prevented small particles from passing through the mask pores, researchers have now shown that three-layered surgical masks are also most effective at stopping large droplets from a cough or sneeze from getting atomized into smaller droplets. These large cough droplets can penetrate through the single- and double-layer masks and atomize to much smaller droplets, which is particularly crucial since these smaller droplets (often called aerosols) are able to linger in the air for longer periods of time, spreading COVID-19 and other airborne viruses.

Learn more: [bit.ly/3LayeredMask](https://bit.ly/3LayeredMask)



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