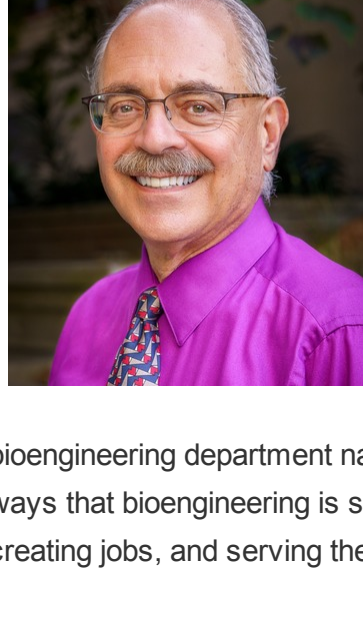


\$25 million to accelerate bioengineering



I am so excited to tell you that a new \$25 million gift will provide critical resources to our world-renowned bioengineering department here at the UC San Diego Jacobs School of Engineering. Eminent biotechnology innovator and entrepreneur Gene Lay, through the Laygend Foundation, made this gift in honor of his mentor – our beloved bioengineering professor emeritus Shu Chien. In recognition of Gene Lay's generous gift, we are renaming our bioengineering department the Shu Chien-Gene Lay Department of Bioengineering.

It's an honor to have Gene Lay and Shu Chien in our bioengineering department name. Their professional accomplishments illustrate the wide range of ways that bioengineering is such a powerful engine for improving lives, advancing medicine, creating jobs, and serving the public good. This is who we are.

Gene Lay's generosity will provide a new source of permanent support to our bioengineering faculty and to our bioengineering graduate students. We will also have additional funds to build and enhance hands-on learning facilities for our bioengineering undergraduates.

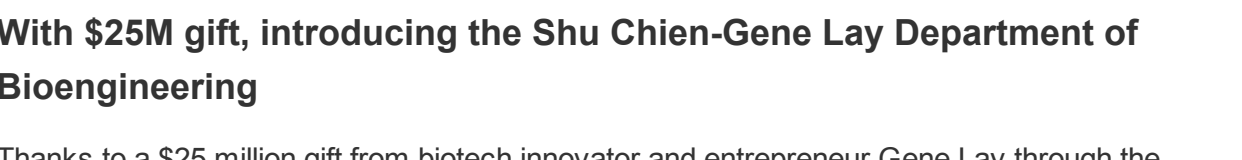
This gift represents wonderful forward momentum for our bioengineering department, for the Jacobs School, and for UC San Diego. Attracting and retaining the bioengineering students and faculty who make life-changing advances, and training tomorrow's innovation workforce, is a group effort. Gene Lay's gift is a critical leap in the right direction.

In my philosophy, leading an engineering school is not about winning and achieving a final goal; it's really all about us continually moving forward together. This gift indeed represents a critical leap forward, but of course there will always be the next step. And the step after that. And this is the kind of forward motion for the public good that can be achieved when we work together. So each time a person, family, foundation or company rises to the occasion and gets involved with the Jacobs School, and with campus more generally, we are able to take yet another step in the right direction. With each act of generous partnership, we grow our ability to improve health and happiness, to solve challenges facing society, to create good jobs, and to train the innovation workforce to fill those jobs. With each act of generous partnership, we are better able to leverage engineering and computer science education and research for the public good. This is how we make bold possible.

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

Sincerely,
Al

Albert ("Al") P. Pisano, Dean
UC San Diego Jacobs School of Engineering



With \$25M gift, introducing the Shu Chien-Gene Lay Department of Bioengineering

Thanks to a \$25 million gift from biotech innovator and entrepreneur Gene Lay through the Laygend Foundation, we are proud to introduce the Shu Chien-Gene Lay Department of Bioengineering at UC San Diego. The new name honors BioLegend founder Gene Lay and his mentor Shu Chien, a beloved emeritus professor of bioengineering and medicine. Chien is one of the people who built the foundation for our sustained success in bioengineering; the department's grad program has ranked in the top 5 in the nation for more than two decades, and it recently ranked #1 in the nation for part of its undergrad program. Read Shu Chien's take on [benefits of blood flow that you may not know](#).

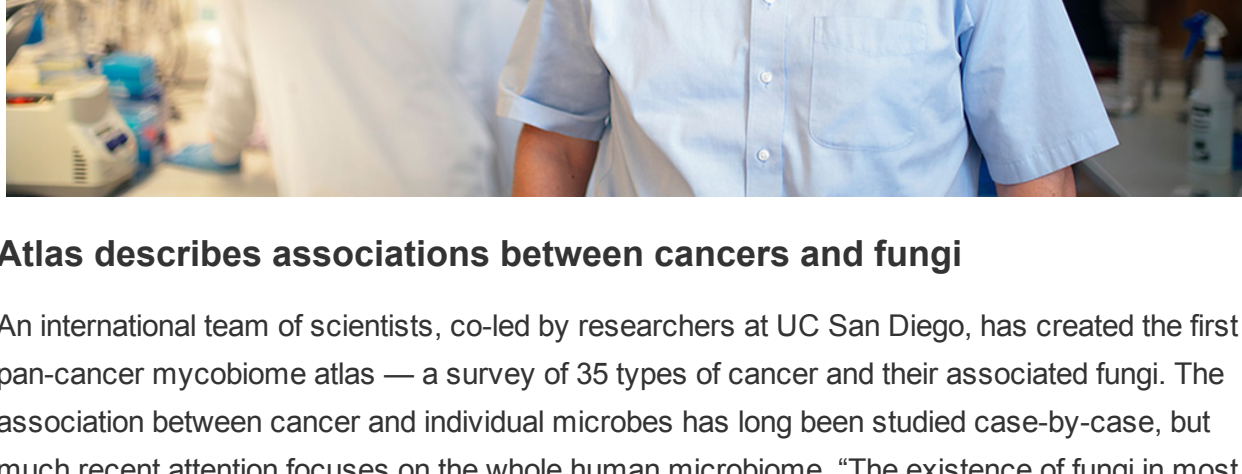
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UC San Diego named a partner in \$148M Schmidt Futures AI initiative

UC San Diego has been selected to join the Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship, a \$148 million program from Schmidt Futures to accelerate the next scientific revolution by applying AI to research in STEM. The program will initially support approximately 160 postdoctoral fellows across nine universities around the world each year, to learn and apply AI methods to their research. At UC San Diego, the program will be led by electrical and computer engineering Professor Tara Javidi, with STEM faculty champions from all across campus, including Shyue Ping Ong and Andrea Tao from nanoengineering, and Michael Todd from structural engineering.

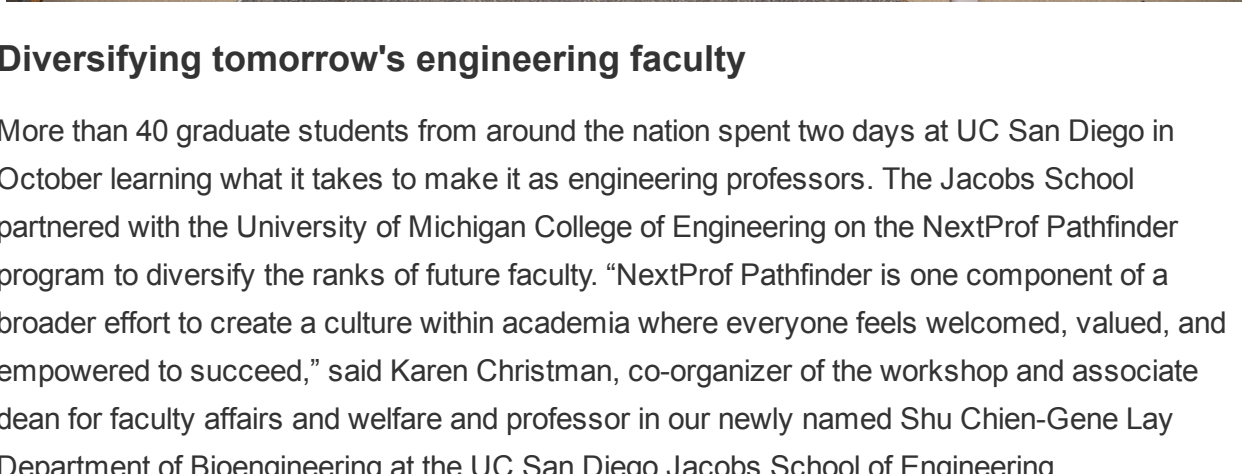
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Atlas describes associations between cancers and fungi

An international team of scientists, co-led by researchers at UC San Diego, has created the first pan-cancer mycobiome atlas — a survey of 35 types of cancer and their associated fungi. The association between cancer and individual microbes has long been studied case-by-case, but much recent attention focuses on the whole human microbiome. "The existence of fungi in most human cancers is both a surprise and to be expected," said Rob Knight, professor in the departments of pediatrics, bioengineering, and computer science and engineering at UC San Diego. Knight also directs the UC San Diego Center for Microbiome Innovation. "It is surprising because we don't know how fungi could get into tumors throughout the body. But it is also expected because it fits the pattern of healthy microbiomes throughout the body, including the gut, mouth and skin, where bacteria and fungi interact as part of a complex community." The team includes researchers from UC San Diego spinout company Micronoma. Read coverage in [The New York Times](#).

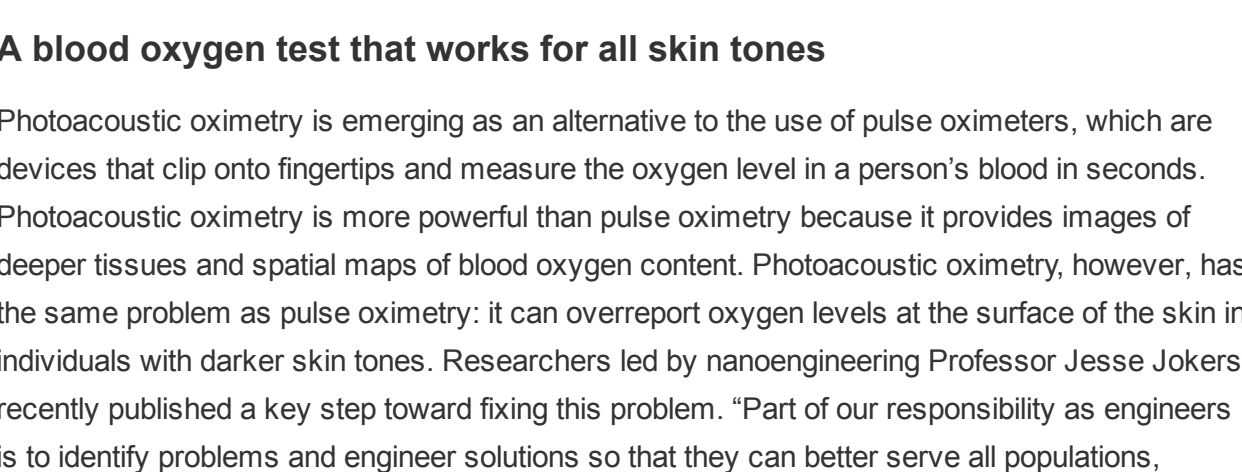
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Diversifying tomorrow's engineering faculty

More than 40 graduate students from around the nation spent two days at UC San Diego in October learning what it takes to make it as engineering professors. The Jacobs School partnered with the University of Michigan College of Engineering on the NextProf Pathfinder program to diversify the ranks of future faculty. "NextProf Pathfinder is one component of a broader effort to create a culture within academia where everyone feels welcomed, valued, and empowered to succeed," said Karen Christman, co-organizer of the workshop and associate dean for faculty affairs and professor in our newly named Shu Chien-Gene Lay Department of Bioengineering at the UC San Diego Jacobs School of Engineering.

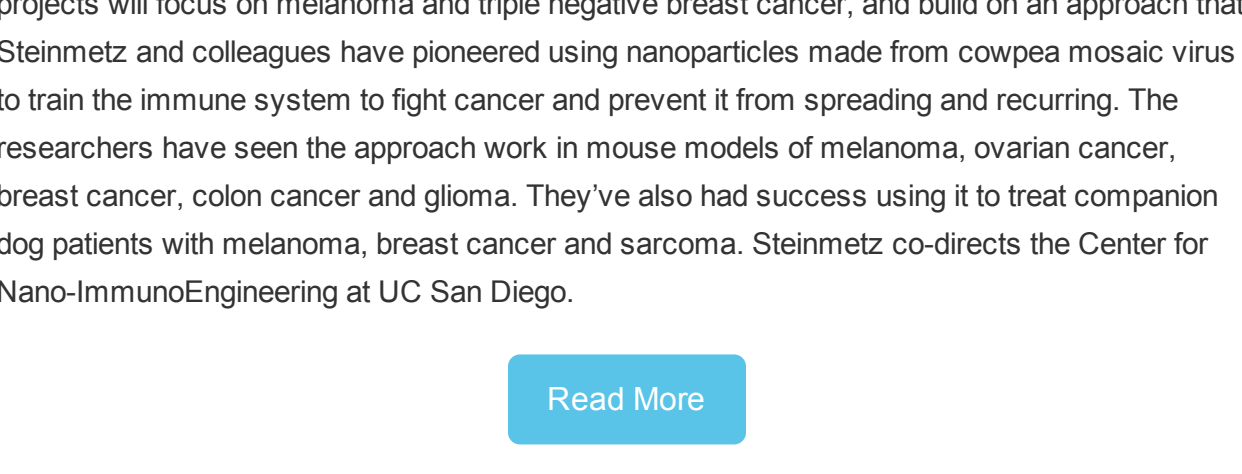
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A blood oxygen test that works for all skin tones

Photoacoustic oximetry is emerging as an alternative to the use of pulse oximeters, which are devices that clip onto fingertips and measure the oxygen level in a person's blood in seconds. Photoacoustic oximetry is more powerful than pulse oximetry because it provides images of deeper tissues and spatial maps of blood oxygen content. Photoacoustic oximetry, however, has the same problem as pulse oximetry: it can overreport oxygen levels at the surface of the skin in individuals with darker skin tones. Researchers led by nanoengineering Professor Jesse Jokerst recently published a key step toward fixing this problem. "Part of our responsibility as engineers is to identify problems and engineer solutions so that they can better serve all populations, regardless of skin tone," said Yash Mantri, the lead graduate student on the project.

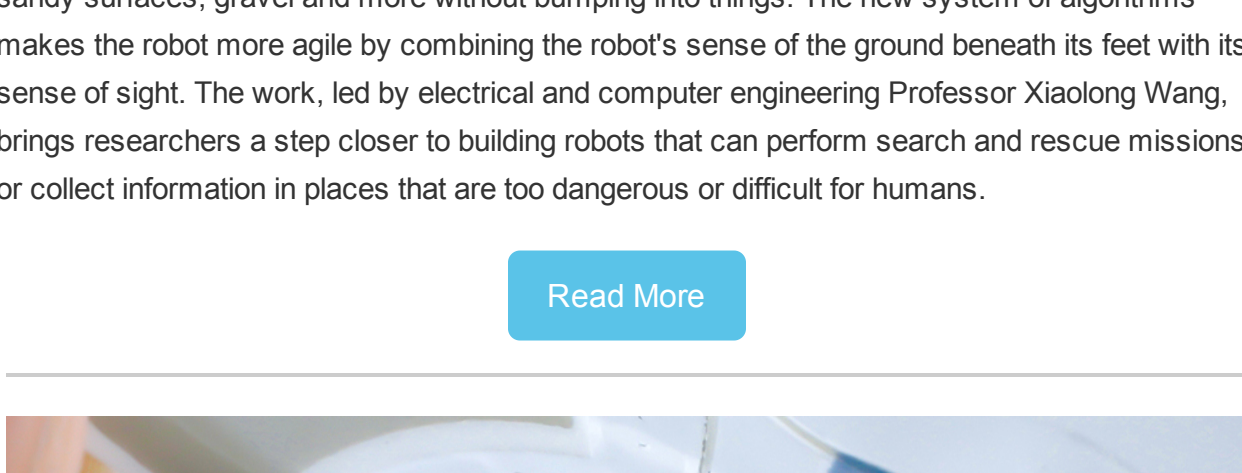
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\$4.3M to advance cancer therapies that rely on plant viruses

A team led by nanoengineering Professor Nicole Steinmetz has received \$4.3 million in grants from the NIH to advance research using plant viruses to develop cancer immunotherapies. The projects will focus on melanoma and triple negative breast cancer, and build on an approach that Steinmetz and colleagues have pioneered using nanoparticles made from cowpea mosaic virus to train the immune system to fight cancer and prevent it from spreading and recurring. The researchers have seen the approach work in mouse models of melanoma, ovarian cancer, breast cancer, colon cancer and glioma. They've also had success using it to treat companion dog patients with melanoma, breast cancer and sarcoma. Steinmetz co-directs the Center for Nano-ImmunoEngineering at UC San Diego.

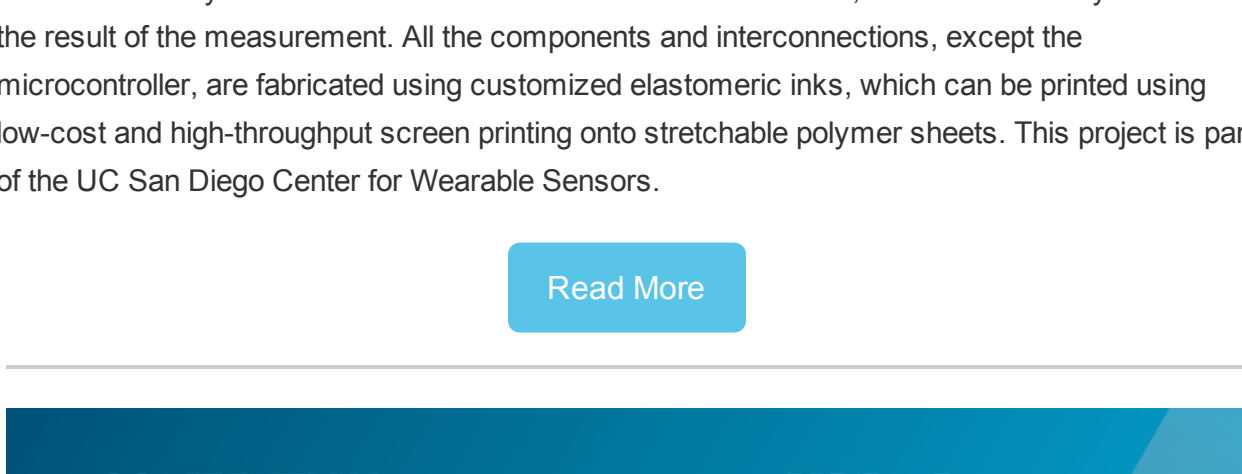
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New algorithms help four-legged robots run in the wild

Electrical engineers at UC San Diego developed a new system of algorithms that enables four-legged robots to walk and run on challenging terrain while avoiding both static and moving obstacles. In tests, the system guided a robot to maneuver autonomously and swiftly across sandy surfaces, gravel and more without bumping into things. The new system of algorithms makes the robot more agile by combining the robot's sense of the ground beneath its feet with its sense of sight. The work, led by electrical and computer engineering Professor Xiaolong Wang, brings researchers a step closer to building robots that can perform search and rescue missions or collect information in places that are too dangerous or difficult for humans.

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Standalone sweat sensor provides immediate readout display

Nanoengineers at UC San Diego have developed a thin, flexible and stretchy sweat sensor that can show a readout of the level of glucose, lactate, sodium, or pH of your sweat, at the press of a finger. It is the first standalone wearable device that allows the sensor to operate independently. Even without any wired or wireless connection to external devices, the sensor directly visualizes the result of the measurement. All the components and interconnections, except the microcontroller, are fabricated using customized elastomeric inks, which can be printed using low-cost and high-throughput screen printing onto stretchable polymer sheets. This project is part of the UC San Diego Center for Wearable Sensors.

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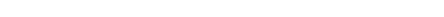
Register for the San Diego Robotics Forum

Join us on November 16 to connect with San Diego's top robotics firms, as well as researchers and students working on cutting-edge robotics. The theme of the [2022 Forum is "San Diego Robotics."](#) From medical robots to autonomous trucks, UAVs to bioinspired robots for deep sea exploration, the Forum will highlight the breadth and depth of robotics work underway here in San Diego, including at the Contextual Robotics Institute at UC San Diego. The day-long program features presentations and panel discussions from some of the region's largest robotics companies, including Qualcomm, General Atomics, and Brain Corp, as well as posters and demonstrations of the groundbreaking research happening at UC San Diego. In October, UC San Diego had a [big research showing at the global robotics conference IROS](#).

[Register at no cost](#)

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