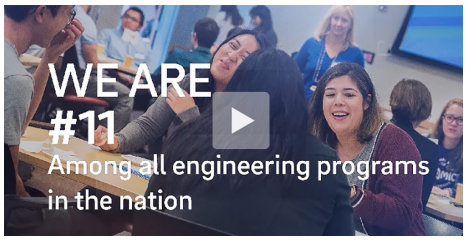
UC San Diego
JACOBS SCHOOL OF ENGINEERING

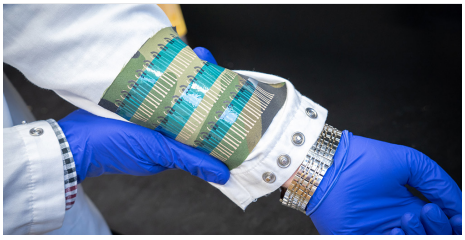
MONTHLY NEWS APR 2019

Rising in the rankings

The UC San Diego Jacobs School of Engineering jumped to #11 in the nation in the new U.S. News and World Report Best Graduate Schools rankings. "The jump to 11 from 17 in three years is only part of the story," said Albert P. Pisano, dean of the Jacobs School. "At the same time, we've made investments for continued upward momentum well into the next decade." This fall for example, UC San Diego plans to break ground on Franklin Antonio Hall, which is the university's new engineering research and education facility. The building is named in honor of UC San Diego engineering alumnus Franklin Antonio who made a generous gift in 2017.



Learn more: bit.ly/JacobsSchool2020Ranking



Printed sensors for on-the-spot fentanyl detection

Nanoengineers at UC San Diego developed screen-printed sensors that could offer a faster, convenient and low-cost method to detect the opioid drug fentanyl. The sensors can detect micromolar concentrations of fentanyl in just one minute, are easy to produce, cost only a few cents apiece, and are disposable. The sensors work via electrochemical detection: they identify chemicals based on the voltage at which compounds are oxidized or reduced, causing a spike in electric current. This spike generates a unique signature that researchers could use to identify drug agents like fentanyl. The work is from the lab of Joseph Wang, director of the UC San Diego Center for Wearable Sensors.

Learn more: bit.ly/FentanylSensors

Computer science professor receives IEEE McDowell Award

Rajesh Gupta, a computer science professor and founding director of the Halicioglu Data Science Institute at UC San Diego, has received the IEEE Computer Society 2019 W. Wallace McDowell Award for his seminal contributions in design and implementation of microelectronic systems-on-chip and cyberphysical systems. Previous winners of this award—one of computing's most prestigious individual honors— include Intel co-founder Gordon Moore; world wide web pioneer Tim Berners-Lee; and other academic and industry leaders.

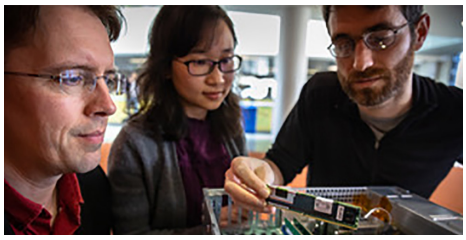
Learn more: bit.ly/GuptaIEEEAward

The robots that dementia caregivers want

Building robots that can help people with dementia has been a longtime goal for roboticists. Yet until now, no one has sought to survey informal caregivers, such as family members, about what characteristics and roles these robots should have. A team of scientists at UC San Diego sought to address this by spending six months co-designing robots with family members, social workers, and other caregivers who care for people with dementia. The research is led by computer science professor Laurel Riek, a member of the UC San Diego Contextual Robotics Institute. The researchers found that caregivers wanted the robots to fulfill two major roles: support positive moments shared by caregivers and their loved ones; and lessen caregivers' emotional stress by taking on difficult tasks, such as answering repeated questions and restricting unhealthy food.

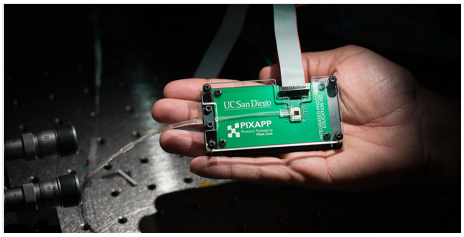
Learn more: bit.ly/robotsforsorrow

Evaluating Intel's Optane DIMM's



UC San Diego computer scientists completed the first comprehensive evaluation of Intel's new Intel Optane DC Persistent Memory Modules (Optane NVDIMMs). They found that Optane DIMMs can make key storage applications 17 times faster, especially if system designers adapt their hardware and software to make the best use of the new technology. "It's been really exciting to finally have first-hand access to this memory," said Steven Swanson, computer science professor and lead investigator. "For a long time, researchers (including my group) have made predictions about how this technology would perform. We've proposed systems based on those predictions, and now we get to see how they really perform," said Swanson.

Learn more: bit.ly/ucsdinteloptaneDIMM



Education kit teaches practical skills in integrated photonics

Students today typically don't learn practical skills in integrated photonics—like how to characterize and test photonics integrated circuits— until the PhD level. Electrical engineers at UC San Diego, in collaboration with Tyndall National Institute in Cork, Ireland, are changing that. They developed an educational toolkit to bring integrated photonics into the undergraduate college engineering and science curriculum. The team envisions that teaching these skills earlier on will enable more graduates to enter the integrated photonics industry workforce and meet the growing demand for photonics technicians and engineers.

Learn more: bit.ly/PhotonicsToolkit

Research Expo faculty talks feature anticancer vaccines, natural language for computers, and multifunctional materials

In addition to connecting with 200+ graduate students at Research Expo, Professors Ken Loh, Ndapa Nakashole and Liangfang Zhang will share their latest research in industry-focused TED-style talks. Multifunctional materials for warfighter and structural monitoring, enabling natural language processors to generalize, and nano-vaccines for cancer immunotherapy, are the themes of their talks on April 18 at Research Expo.

Learn more: bit.ly/ResearchExpo19

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