UC San Diego
JACOBS SCHOOL OF ENGINEERING

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$16.3M in upgrades for world's largest outdoor shake table

The world's largest outdoor earthquake simulator, run by structural engineers at the Jacobs School of Engineering, has received a $16.3 million grant from the National Science Foundation to expand the facility's testing capabilities. The funds will enable the simulator to recreate the motion of the ground during strong earthquakes in six degrees of motion. Researchers from academia and industry will use the upgraded facility to shake the heaviest test specimens in the world, from multi-story buildings, to bridge columns, bridge bents and wind turbines.

Learn more: bit.ly/UCSDshaketable

Engineering tech accelerator gets $1M boost

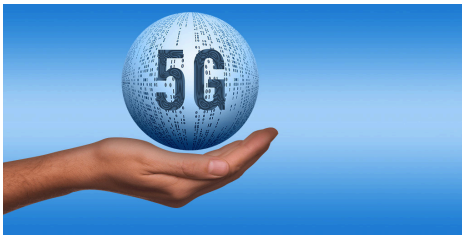
Invention Science Fund, the incubator arm of Intellectual Ventures, and San Diego's Legler Benbough Foundation, contributed $1 million in combined sponsorship funds to the Institute for the Global Entrepreneur at UC San Diego to help accelerate new startup companies. The sponsorship will expand a technology accelerator program run by the Jacobs School. The funds will offer more student and faculty entrepreneurs greater access to mentors and commercialization guidance. The Institute for the Global Entrepreneur is a collaboration between the Jacobs School of Engineering and Rady School of Management.

Learn more: bit.ly/BoostStartups

$10M NSF grant for Center for Trustworthy Machine Learning

With a $10 million grant, the National Science Foundation established the Center for Trustworthy Machine Learning at a consortium of six universities including UC San Diego. Researchers will work together toward two goals: understanding the risks inherent to machine learning; and developing the tools, metrics and methods to manage and mitigate these risks. Kamalika Chaudhuri, a computer science professor at the Jacobs School and member of the Center for Machine-Integrated Computing and Security, leads the UC San Diego portion of the research.

Learn more: bit.ly/TrustworthyML

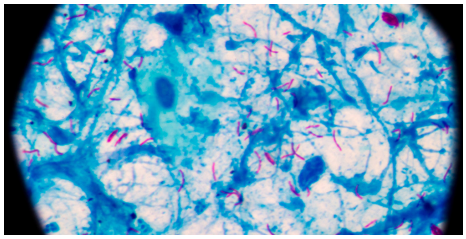


Samsung licenses 5G polar coding technology from UC San Diego engineers

Samsung and UC San Diego signed a major license agreement for the telecommunications industry. The license is for a standard-essential error-correction technology that makes polar codes practical. In particular, the technology plays a key role in the 5G wireless communications standard, where it is used to encode and decode polar codes. "Our technology is currently being implemented in millions of 5G chipsets, as the industry kicks into high gear with 5G standard-compliant hardware and infrastructure," said electrical engineering professor Alexander Vardy, a co-inventor of the technology.

Learn more: bit.ly/5GLicense

Machine learning predicts antibiotic resistant genes in infectious bacteria



Bioengineers at UC San Diego used machine learning to identify and predict which genes make infectious bacteria resistant to antibiotics. The approach was tested on strains of the bacteria that cause tuberculosis in humans, and identified 33 known and 24 new antibiotic resistance genes in these bacteria. "Knowing which genes are conferring antibiotic resistance could change the way infectious diseases are treated in the future," said co-senior author Jonathan Monk, a UC San Diego bioengineering alumnus and research scientist in the lab of Bernhard Palsson at the Jacobs School.

Learn more: bit.ly/AntibioticResistant

Using personal data to predict blood pressure

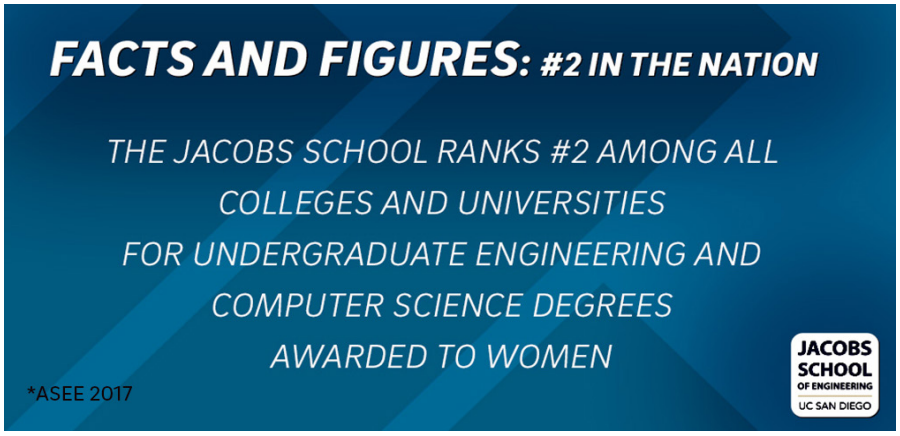
Electrical engineers at UC San Diego used wearable off-the-shelf technology and machine learning to predict, for the first time, an individual's blood pressure and provide personalized recommendations to lower it based on this data. Instead of prescribing a slew of changes to diet, exercise and sleep habits, this study aimed to pinpoint the one health behavior that most affected an individual's blood pressure, and have them focus on that. "This research shows that using wireless wearables and other devices to collect and analyze personal data can help transition patients from reactive to continuous care," said Sujit Dey, co-author of the paper and Director of the Center for Wireless Communications.

Learn more: bit.ly/PersonalizedBP

New $10.5M Center for Matter under Extreme Pressure

UC San Diego mechanical and aerospace engineering professor Farhat Beg is the PI of a new $10.5 million center that will study matter under extreme pressure, collaborate with national laboratories, and train graduate students in stockpile stewardship. The Center for Matter under Extreme Pressure is funded by the National Nuclear Security Administration (NNSA). The center is part of NNSA's Stockpile Stewardship Academic Alliances, created to support scientific advancement, promote interactions between academia and NNSA labs, and train scientists in relevant research areas.

Learn more: bit.ly/MatterUnderPressure



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