

The Code VW Used to Cheat Emissions Tests

UC San Diego computer scientists and colleagues at Ruhr University have uncovered the mechanism that allowed Volkswagen to circumvent U.S. and European emission tests. The research "How They Did It: An Analysis of Emission Defeat Devices in Modern Automobiles" was presented at the 2017 IEEE Symposium on Security and Privacy. Researchers also found an emissions-test-circumventing ploy for the Fiat 500X. The UC San Diego computer scientists were led by Kirill Levchenko, a research scientist in the department's Systems and Networking group. The research is referenced in New York Times stories on May 18 and May 19.

Learn more: bit.ly/CheatWare



New UC San Diego Tech Accelerator

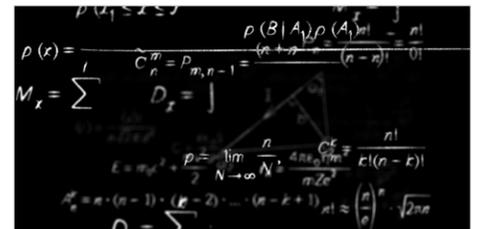
Field testing of prototypes with strategic partners is a key focus of a new technology accelerator at UC San Diego. The accelerator is run by the Institute for the Global Entrepreneur (IGE), a collaboration between the Jacobs School of Engineering and Rady School of Management. The accelerator provides each team up to \$50,000 in financial support over the year-long program. In addition to the focus on prototype testing with partners, the accelerator also provides entrepreneurship training, business and technical mentoring, industry connections, and access to research and prototyping facilities. Five UC San Diego engineering teams with innovations with great market potential are the first members of the accelerator. Their breakthroughs range from advanced healthcare diagnostics and stretchable batteries to solid-state LIDAR for autonomous-vehicle navigation.

Learn more: bit.ly/AcceleratorDebut

Developing Natural Intelligence for Machines

A new research center at the Jacobs School of Engineering is developing natural intelligence for machines. The Center for Engineered Natural Intelligence (CENI) combines theoretical and computational neuroscience, experimental neurobiology, neural engineering, mathematics, and algorithms. Their goal: to give cognitive computing systems the ability to think creatively on their own and arrive at original ideas and thoughts about specific problems. The Center is led by bioengineering professor Gabriel Silva and is one of just 8 groups from academia to be chosen to participate in the new IBM Watson AI XPRIZE.

Learn more: bit.ly/CENI-launch



Researchers Receive \$7.5 Million Grant to Study Memory Capacity and Energy Efficiency in the Brain

A UC San Diego mechanical engineer is the lead PI on a \$7.5 million, five-year MURI grant from the U.S. Air Force Office of Scientific Research. The researchers at UC San Diego, Stanford and the Salk Institute will work to answer fundamental questions related to how the biological brain processes information with maximum energy efficiency. Mechanical engineering professor Padmini Rangamani, an expert in theoretical and computational biophysics, leads the team.

Learn more: bit.ly/USAF-grant



Assessing Muscle Stiffness in People with Cerebral Palsy

UC San Diego electrical engineers and colleagues are developing wearable sensing and robotics technologies to consistently and objectively rate muscle stiffness. The work could eventually benefit people with cerebral palsy, stroke and multiple sclerosis who are often at risk of receiving doses of medication that are too low or too high due to lack of objectivity in assessing the level of muscle stiffness, or spasticity. The device is built on a regular sports glove that a doctor can wear while holding and moving a patient's limb back and forth. On the palm are 300 pressure sensors that measure the amount of force required to move a patient's limb. A motion sensor on the back measures how fast the limb is being moved. Sensor data are processed in real time, yielding data on the actual power required to move a patient's limb. Videos from Reuters as well as the Jacobs School capture the glove in action.

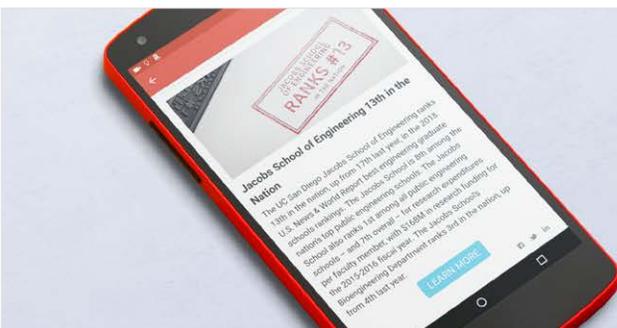
Learn more: bit.ly/MuscleMeter

Engineers Investigate a Simple, No-bake Recipe to Make Bricks from Martian Soil

Explorers planning to settle on Mars might be able to turn the planet's red soil into bricks without needing to use an oven or additional ingredients. Instead, they would just need to apply pressure to compact the soil—the equivalent of a blow from a hammer. These are the findings of a new study published in Nature Scientific Reports by a UC San Diego team led by structural engineering professor Yu Qiao. Media coverage of this research project included the New York Times.



Learn more: bit.ly/MarsBricks



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