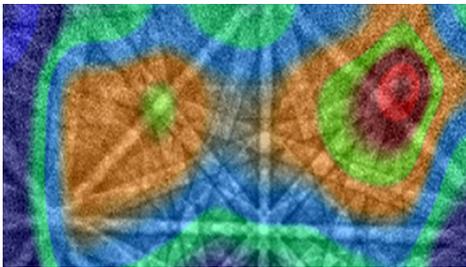


Tumor cell “stickiness” a biomarker for cancer recurrence?

A team of researchers led by bioengineers at UC San Diego has discovered a potential biomarker to identify and select the most aggressive cells in tumors. By analyzing tumor cells based on “stickiness,” as measured by their physical ability to adhere to their environment, the researchers found that “less sticky” (weakly adherent) cells migrated and invaded other tissues more than “more sticky” (strongly adherent) cells from the same tumor. Also, the genes that identify these weakly adherent cells make patients’ tumors five times more likely to reoccur within five years. The discovery was made possible thanks to a new microfluidic device they built to sort and separate cells by “stickiness.” This approach could improve prognostic evaluation of patient tumors.



Learn more: bit.ly/TumorCellStickiness



Speeding up crystal structure determination

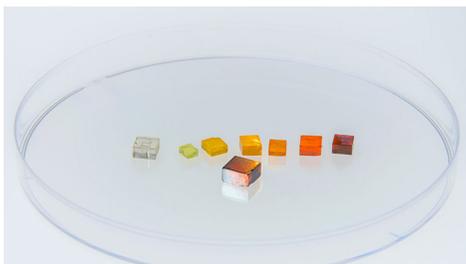
Nanoengineers developed a less labor-intensive method for determining the crystal structures of various materials and molecules, including alloys, proteins and pharmaceuticals. The method, published in *Science*, uses a machine learning algorithm to independently analyze electron diffraction patterns with at least 95% accuracy. A wide range of research areas including pharmacology, structural biology, and geology are poised to benefit from using similar automated algorithms to reduce the amount of time required for crystal structural identification.

Learn more: bit.ly/MLCrystalStructures

Undergraduate students take to the land, sea and air

Jacobs School of Engineering undergraduates run more than 30 organizations that provide their fellow students with critical hands-on engineering experiences. From record-setting rockets to race cars and submarines, Jacobs School students forge their own paths while learning by doing. The UC San Diego alumni magazine recently featured a subset of these organizations which have empowered students to take on the land, the sea and the air.

Learn more: bit.ly/TritonMagStudents



Controlled strain improves perovskite performance

A new method published in *Nature* could enable researchers to fabricate more efficient and longer lasting perovskite solar cells, LEDs and photodetectors. By growing thin perovskite films on substrates with different compositions, nanoengineers at UC San Diego invented a way of fabricating perovskite single crystals with precisely deformed, or strained, structures. “You can use strain engineering as a knob to tune existing functions or even install new functions in a material,” said nanoengineering professor Sheng Xu.

Learn more: bit.ly/StrainedPerovskites

Preserving Puerto Rico's past

The Cultural Heritage Engineering Initiative at UC San Diego is racing to preserve ancient indigenous sites in Puerto Rico before sea level rise destroys these historic spaces. The team, led by Falko Kuester, a professor of structural engineering, uses drone sensor data, data analytics, and a software platform they built, to create digital 3D surrogates of culturally important buildings and spaces, creating a record that can outlast earthquakes, fires, rising sea levels, and other natural disasters.

Learn more: bit.ly/qipuertorico



Neurodiversity and tech jobs

With \$2.6 million in NSF funding, UC San Diego researchers are developing an employment-training program to tap more deeply into the talent and potential of autistic adults for technology work. The research team includes electrical and computer engineering professors Pamela Cosman and Sujit Dey. Leanne Chukoskie, a research scientist at UC San Diego's Qualcomm Institute is a PI on the project called "Neurodiversity in tech: using interactive decision theory and augmented reality to enable employment for adults with ASD."

Learn more: bit.ly/AutisticTech

Oscar Vazquez-Mena honored for binational outreach

Oscar Vazquez-Mena, a nanoengineering professor, has been honored for his work to support the educational development of students from marginalized communities in the United States and Mexico. He was named a 2020 Emerging Scholar by *Diverse: Issues in Higher Education* magazine. Vazquez-Mena grew up in Chiapas, Mexico, and now runs an academic program for high school students who are US citizens but live in Tijuana. He is one of 15 scholars under the age of 40 receiving this recognition for a commitment to teaching, community service, research, scholarly awards, honors and academic accomplishments.



Learn more: bit.ly/BridgesToEducation



A dynasty of outstanding women in aerospace

Surya Vohra, a mechanical engineering undergraduate at UC San Diego, has been selected as a 2020 Brooke Owens Fellow. The Fellowship is awarded to exceptional undergraduate women in aerospace. This marks the fourth year—since the beginning of the Brooke Owens Fellow program—that a UC San Diego engineering student has been selected.

Learn more: bit.ly/SuryaVohraBOF



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Contact newsletter editor, Daniel Kane: dbkane@ucsd.edu

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