SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

We SHARE to inspire and ignite ideas!

30 Nov – 4 Dec 2020

The Library publishes 9 alerts focusing on Topics relevant to growth and research areas to SUTD.

Stay up to date by subscribing to any of these 9 Topical Reports - CLICK HERE TO SUBSCRIBE NOW

Artificial Intelligence & Data Science	Aviation	Cities
HealthCare	Robotics & Automation	Design & Innovation
Cybersecurity	Digital Design & Fabrication	Advanced Manufacturing

AI

London A.I. Lab Claims Breakthrough That Could Accelerate Drug Discovery

"Researchers at DeepMind say they have solved 'the protein folding problem,' a task that has bedeviled scientists for more than 50 years."

Source: New York Times (30 Nov 2020)

BUILDING MATERIALS

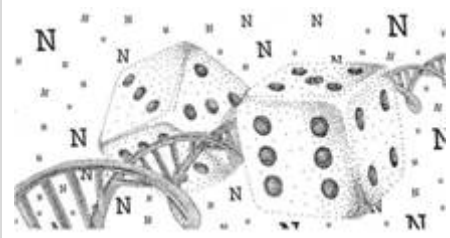
New UBCO research suggests recycled concrete could be a sustainable way to keep rubble out of landfills

"Researchers at UBC Okanagan's School of Engineering conducted side-by-side comparisons of recycled and conventional concrete within two common applications—a building foundation and a municipal sidewalk. They found that the recycled concrete had comparable strength and durability after five years of being in service."

Source: University of British Columbia (30 Nov 2020)

CHEMISTRY

Separating gases using flexible molecular sieves



Researchers have made reported some exciting findings relating to metal-organic frameworks (MOFs), a class of porous materials, which could benefit a wide range of important gas separation processes. Read more in Nature.

Source: University of Liverpool (30 Nov 2020)

COMPUTING

Shrinking massive neural networks used to model language

"A new approach could lower computing costs and increase accessibility to state-of-the-art natural language processing." Please refer to research paper.

Source: MIT News (1 Dec 2020)

DEVICES

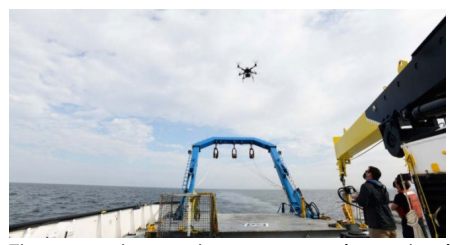
New device offers faster way to detect antibiotic-resistant bacteria

"Combatting the infections is no easy task, though. When antibiotics are carelessly and excessively prescribed, that leads to the rapid emergence and spread of antibiotic-resistant genes in bacteria -- creating an even larger problem."

Source: EurekAlert! (1 Dec 2020)

DRONES

Researchers Use Drones for Advanced Combat Laser System Tests

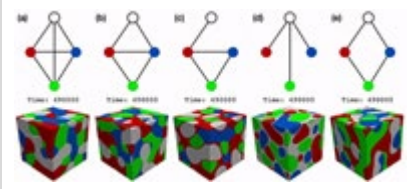


The quadrocopter was equipped with a mass-dimensional model of a system for evaluating the parameters of laser weapons. In the future, more tests will be carried out and a completely digital system will be used to assess several of the combat laser's parameters, including targeting accuracy and power.

Source: Interesting Engineering (30 Nov 2020)

LIQUID SEPARATION

Math enables custom arrangements of liquid 'nesting dolls'



"Princeton researchers have developed a new way to examine, predict and engineer interactions between multiple liquid phases. The method uses graph theory to track which phases contact each other."

Source: Princeton University (30 Nov 2020)

MEDTECH

Metal-Breathing Bacteria Synthesize High-Tech Material

Now electrical engineers have found a way to use such bacteria to manufacture an up-and-coming two-dimensional material called molybdenum disulfide (MoS2), which can form a sheet just a few atoms thick and holds promise for future electronics

Source: Scientific American (1 Dec 2020)

ROBOT DESIGN

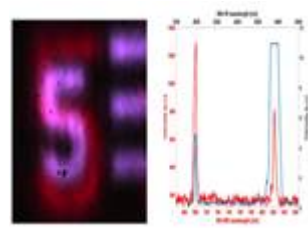
Computer-aided creativity in robot design

"MIT researchers' new system optimizes the shape of robots for traversing various terrain types."

Source: MIT (30 Nov 2020)

SENSORS

Optical Conversion Tech Images Infrared "In Color"

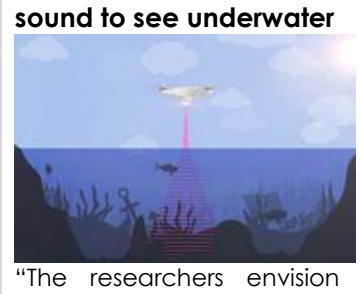


"Sensors and smartphone cameras armed with this will one day see unseen regions of IR spectrum"

Source: IEEE Spectrum (27 Nov 2020)

SENSING

Stanford engineers combine light and sound to see underwater



"The researchers envision their hybrid optical-acoustic system one day being used to conduct drone-based biological marine surveys from the air, carry out large-scale aerial searches of sunken ships and planes, and map the ocean depths with a similar speed and level of detail as Earth's landscapes."

Source: Stanford University (30 Nov 2020)

SOUND

Headset over earphone: Cancelling out unnecessary and unwanted noise

"By integrating laser-based technology - which can deal with high frequencies - into headrests they eliminate the need for users to wear head/ear phones or buds."

Source: Eureklalert! (29 Nov 2020)

SUSTAINABILITY

At This Cutting-Edge Skateboard Company, Shredding Meets Sustainability

The test was built based on previous animal studies. It captures high-density locomotion information from a person while exploring two virtual environments to predict heart-rate variability when exposed to threatening or highly stressful situations.

Source: Popular Mechanics (26 Nov 2020)

TECHNOLOGY

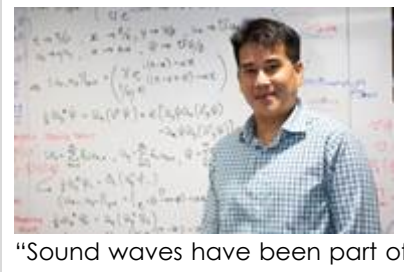
New technology can potentially tame lightning

"This technology may induce electrical discharge from passing lightning, helping to guide it to safe targets and reduce the risk of catastrophic fires."

Source: Tech Explorist (24 Nov 2020)

TECHNOLOGY

Sound waves power new advances in drug delivery and smart materials



"Sound waves have been part of science and medicine for decades, but the technologies have always relied on low frequencies. Now researchers have revealed how high frequency sound waves could revolutionize the field of ultrasound-driven chemistry."

Source: Science Daily (24 Nov 2020)

TECHNOLOGY

T-ray technology reveals what is getting under your skin

"A new method for analysing the structure of skin using a type of radiation known as T-rays could help improve the diagnosis and treatment of skin conditions such as eczema, psoriasis and skin cancer."

Source: Technology.Org (28 Nov 2020)