SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

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27 - 31 December 2021

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ARCHITECTURE

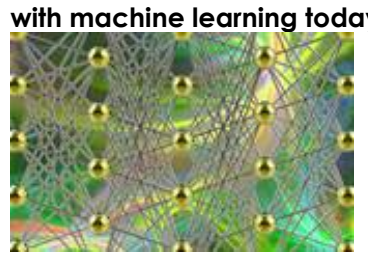
Zaha Hadid Architects creates multi-level city park in Cyprus' capital

"Zaha Hadid Architects has completed Eleftheria Square, a public park that runs alongside the historic Venetian Walls of Nicosia, Cyprus.
The multi-level Eleftheria Square is built within a section of the dry moat that, together with the Venetian Walls, marks the boundary between the oldest part of the city and the new neighbourhoods that surround it."

Source: DEZEEN (22 December 2021)

ARTIFICIAL INTELLIGENCE

2021's Top Stories About AI Spoiler: A lot of them talked about what's wrong with machine learning today

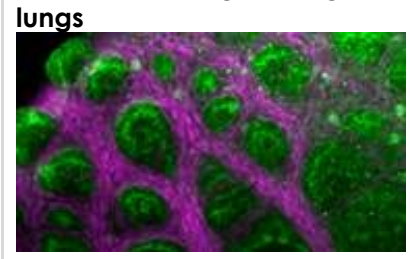


"Here are the 10 most popular AI articles that Spectrum published in 2021, ranked by the amount of time people spent reading them. Several came from Spectrum's October 2021 special issue on AI, The Great AI Reckoning."

Source: IEEE Spectrum (27 December 2021)

BIOENGINEERING

Humble lizards offer surprising approach to engineering artificial lungs

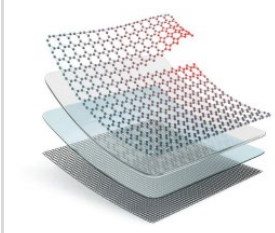


"A new study from Princeton University shows how the brown anole lizard solves one of nature's most complex problems — breathing — with ultimate simplicity. Whereas human lungs develop over months and years into baroque tree-like structures, the anole lung develops in just a few days into crude lobes covered with bulbous protuberances."

Source: Princeton University (23 December 2021)

CONSTRUCTION MATERIALS

Step forward in quest to develop living construction materials and beyond



"In a new study in Nature Communications, researchers from the College of Biological Sciences demonstrate how to transform silica — a common material used in plaster and other construction materials — into a self-assembling, dynamic and resilient material."

Source: University of Minnesota (20 December 2021)

ELECTRIC VEHICLES

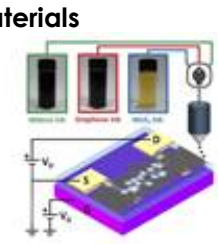
YSE Study Finds Electric Vehicles Provide Lower Carbon Emissions Through Additional Channels

"A recent study from the Yale School of the Environment published in Nature Communications found that the total indirect emissions from electric vehicles pale in comparison to the indirect emissions from fossil fuel-powered vehicles."

Source: Yale (22 December 2021)

ELECTRONICS

A new platform for controlled design of printed electronics with 2D materials

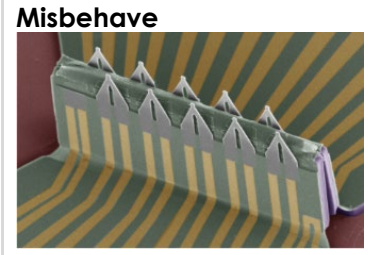


"A study, published today in Nature Electronics, led by Imperial College London and Politecnico di Torino researchers reveals the physical mechanisms responsible for the transport of electricity in printed two-dimensional (2D) materials. "

Source: Imperial College (21 December 2021)

ELECTRONIC SENSORS

'Pop-up' Electronic Sensors Could Detect When Individual Heart Cells Misbehave

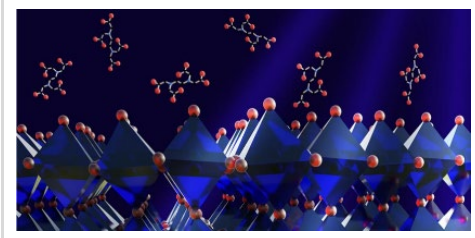


"Engineers at the University of California San Diego have developed a powerful new tool that monitors the electrical activity inside heart cells, using tiny "pop-up" sensors that poke into cells without damaging them."

Source: UC San Diego (23 December 2021)

MATERIAL

Templating approach stabilises 'ideal' material for alternative solar cells



"The researchers, from the University of Cambridge, used an organic molecule as a 'template' to guide perovskite films into the desired phase as they form. Their results are reported in the journal *Science*. "

Source: University of Cambridge (23 December 2021)

OPTICAL RECOGNITION

Simple, accurate, and efficient: Improving the way computers recognize hand gestures

"Optical hand gesture recognition sees improvements in accuracy and complexity with new algorithm"

Source: SPIE (23 December 2021)

OPTICS

Fingers Made of Laser Light: Controlled Grabbing and Rotation of Biological Micro-Objects

"Their work demonstrates how several optical tweezers made of highly focused laser light will one day be able to grab cell clusters in a controlled manner and rotate them in any desired direction."

Source: Uni Freiburg (23 December 2021)

QUANTUM COMPUTATIONS

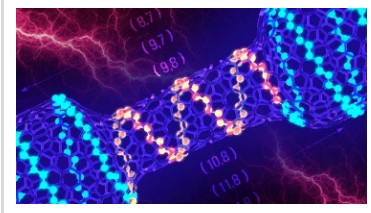
Quantum marbles in a bowl of light

"Which factors determine how fast a quantum computer can perform its calculations? Physicists at the University of Bonn and the Technion - Israel Institute of Technology have devised an elegant experiment to answer this question."

Source: University of Bonn (22 December 2021)

TRANSISTORS

Researchers use electron microscope to turn nanotube into tiny transistor



"An international team of researchers has used a unique tool inserted into an electron microscope to create a transistor that's 25,000 times smaller than the width of a human hair."

Source: Queensland University of Technology (24 December 2021)