Weekly Discovery

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21 - 25 March 2022

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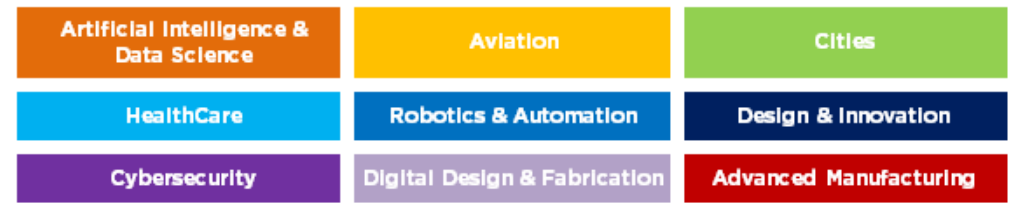
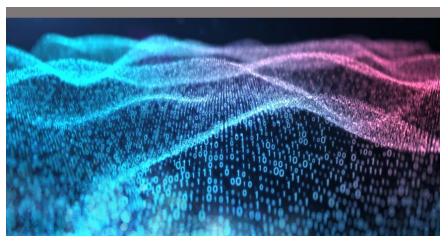


AI

Mathematical Paradox Demonstrates The Limits Of AI



"Humans are usually pretty good at recognizing when they get things wrong, but artificial intelligence systems are not. According to a new study, AI generally suffers from inherent limitations due to a century-old mathematical paradox."

Source: University of Cambridge (17 March 2022)

AI

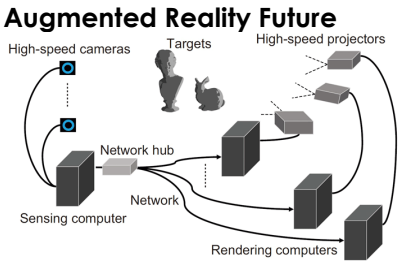
Public Transport: AI Assesses Resilience Of Timetables

"A brief traffic jam, a stuck door, or many passengers getting on and off at a stop - even small delays in the timetables of trains and buses can lead to major problems. A new artificial intelligence (AI) could help designing schedules that are less susceptible to those minor disruptions."

Source: Martin Luther University (17 March 2022)

AUGMENTED REALITY

Intensity Control of Projectors in Parallel – A Doorway to an Augmented Reality Future

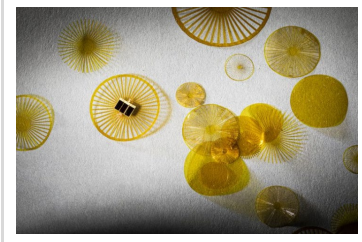


"A challenge to adopting augmented reality (AR) in wider applications is working with dynamic objects, owing to a delay between their movement and the projection of light onto their new position. But, Tokyo Tech scientists may have a workaround. They have developed a method that uses multiple projectors while reducing delay time."

Source: Tokyo Institute of Technology (16 March 2022)

DEVICES

Tiny Battery-Free Devices Float In The Wind Like Dandelion Seeds

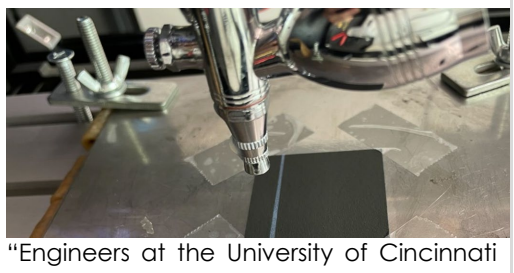


"Inspired by how dandelions use the wind to distribute their seeds, a team has developed a tiny sensor-carrying device that can be blown by the wind as it tumbles toward the ground."

Source: University of Washington (16 March 2022)

ENERGY

Conversion Process Turns Pollution Into Cash

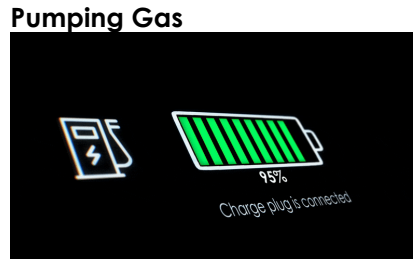


"Engineers at the University of Cincinnati have developed a promising electrochemical system to convert emissions from chemical and power plants into useful products while addressing climate change."

Source: University of Cincinnati (18 March 2022)

ELECTRIC CARS

New Quantum Technology To Make Charging Electric Cars As Fast as Pumping Gas

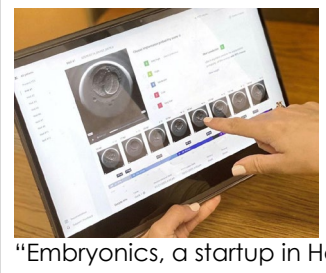


"The paper showed that all-to-all coupling is irrelevant in quantum batteries and that the presence of global operations is the only ingredient in the quantum advantage. The group went further to pinpoint the exact source of this advantage while ruling out any other possibilities and even provided an explicit way of designing such batteries."

Source: SCITECHDAILY (20 March 2022)

HEALTHCARE

AI Could Help Increase the IVF Success Rate



"Embryonics, a startup in Haifa, Israel, aims to raise the IVF success rate with its suite of AI algorithms. The company's system uses machine learning to help doctors create personalized treatment plans."

Source: IEEE Spectrum (18 March 2022)

MATERIALS

Ten Future Materials That Could Change The Way We Build

"Following news that hemp could be used as a low-cost, low-carbon way of reinforcing concrete, here are 10 promising new construction materials including plastic that's stronger than steel and 3D-printed mushroom columns.

Researchers are developing materials that perform better or that tread more lightly on the planet – and ideally do both."

Source: DEZEEN (17 March 2022)

MATERIAL SCIENCE

Could We Make Cars Out Of Petroleum Residue?

"Researchers have developed a way to make lightweight fibers, for possible use in the bodies of cars, out of an ultracheap feedstock: the waste material from the refining of petroleum."

Source: MIT (18 March 2022)

MATERIAL SCIENCE

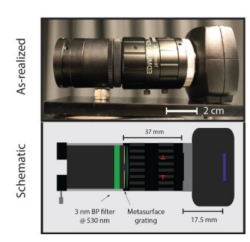
Smart Coatings In The Pipeline

"An imaginative approach to polymer surface coating has produced a sustainable way to remove mercury from water – while providing a wide range of protection including for preventing metal corrosion and solvent damage of plastic PVC pipes…The smart coating, made from low-cost waste chemicals from oil refining and other sources, also can prevent acid and water damage of concrete surfaces and be repaired in-situ by a simple heating process..."

Source: Flinders University (20 March 2022)

OPTICS

Turning Any Camera Into A Polarization Camera



"Researchers have developed a metasurface attachment that can turn just about any camera or imaging system, even off-the-shelf systems, into polarization cameras. The attachment uses a metasurface of subwavelength nanopillars to direct light based on its polarization and compiles an image that captures polarization at every pixel."

Source: Harvard (18 March 2022)

SMART FACTORY

ETRI Developed The Network Technology For Real-Time Remote Control Of Smart Factory

"ETRI demonstrated real-time remote control of a factory with a 5G wired/wireless network. Two-way communication within 3ms inside the factory and 10 ms between remote sites."

Source: NATIONAL RESEARCH COUNCIL OF SCIENCE & TECHNOLOGY (16 March 2022)