SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

# Weekly Discovery

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21 - 25 June 2021

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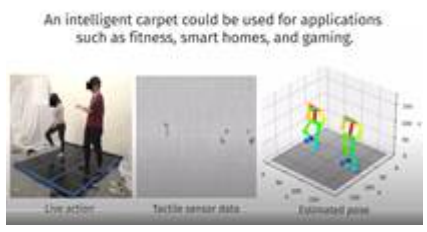
AI

## MIT makes an AI smart carpet for monitoring people without cameras




"The sentient Magic Carpet from Aladdin might have a new competitor. While it can't fly or speak, a new tactile sensing carpet from MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) can estimate human poses without using cameras, in a step towards improving self-powered personalized healthcare, smart homes, and gaming."

Source: MIT CSAIL (21 June 2021)

AI

## Modeling A Circular Economy For Electronic Waste

"New research from the Hypothetical Materials Lab at the University of Pittsburgh Swanson School of Engineering develops a framework to understand the choices an electronic waste recycler has to make and the role that digital fraud prevention could have in preventing dishonest recycling practices."

Source: PITT (21 June 2021)

ARCHITECTURE

## Electrohydraulic Arachno-Bot A Fascinating Lightweight

"Goodbye, bulky components and connectors: A team of scientists at the Max Planck Institute for Intelligent Systems in Germany and at the University of Colorado Boulder in the US has now found a new way to exploit the principles of spiders' joints to create lightweight robots."

Source: Max Planck Institute (16 June 2021)

ARCHITECTURE

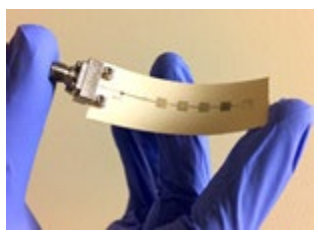
## Sou Fujimoto Architects Reveals Vanishing Design of Qianhai's New City Center Landmark

"The proposed tower is 268m high, and consists of 99 individual tower-like elements connected a strong horizontal plane in the upper part, gradually vanishing as they descend. It is both one tower and a collection of towers all at once, symbolizing the future of societies in an age of diversity."

Source: Archdaily (18 June 2021)

DATA TRANSFER

## Backscatter Radio at Gigabit Speeds

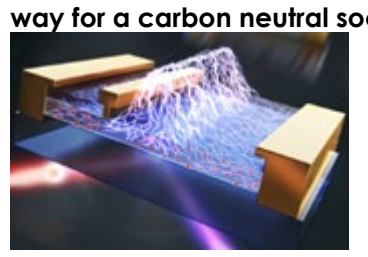


"Now scientists have developed a backscatter radio operating at millimeter-wave frequencies of 24 to 28 gigahertz, the kind used in upcoming 5G cell phones. The new device is capable of data rates of 2 gigabits per second over distances of 0.5 meters, consuming just 0.17 picojoules per bit."

Source: IEEE Spectrum (18 June 2021)

DEVICE TECHNOLOGY

## Scientists develop energy saving technique which could help pave way for a carbon neutral society



"Now, in this new study, published today in Nature Electronics, scientists outline how to precisely quantify this electric field, meaning next generation power and radio frequency electronic devices can be developed which have the potential to be faster, and more reliable, as well as more energy efficient."

Source: University of Bristol (21 June 2021)

ECONOMY

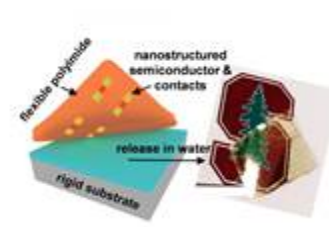
## Global Economic Forecasts: Q2 2021


"The global economic outlook has improved since Q1 2021. Global real GDP growth in 2021 is now expected to be the fastest in more than 40 years, at 5.8%.
The latest edition of our Global Economic Forecast report focuses on the quarterly macro changes across 8 key markets, the economic impact of different COVID-19 scenarios and what they mean for the future of the global economy."

Source: Euromonitor (June 2021)

ELECTRONICS

## New manufacturing technique for flexible electronics




"researchers at Stanford University have invented a manufacturing technique that yields flexible, atomically thin transistors less than 100 nanometers in length - several times smaller than previously possible."

Source: Stanford (17 June 2021)

MATERIALS

## Meringue-Like Material Could Make Aircraft As Quiet As A Hairdryer

"Extremely low-density graphene-based aerogel 'meringue' can improve passenger comfort and reduce noise up to 80%."

Source: BATH! (18 June 2021)

MEDTECH

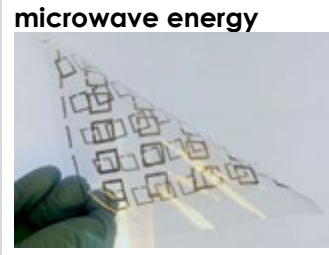
## Robot-assisted surgery: Putting the reality in virtual reality

"Cardiac surgeons may be able to better plan operations and improve their surgical field view with the help of a robot. Controlled through a virtual reality parallel system as a digital twin, the robot can accurately image a patient through ultrasound without the hand cramping or radiation exposure that hinder human operators."

Source: Eurekalert! (19 June 2021)

METAMATERIALS

## Engineers develop inexpensive, scalable method to make metamaterials that manipulate microwave energy

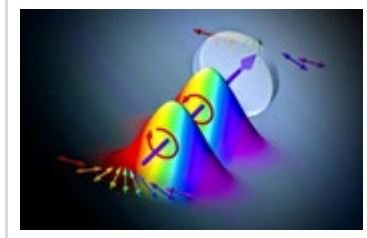


"Engineers at Tufts University have developed new methods to more efficiently fabricate materials that behave in unusual ways when interacting with microwave energy, with potential implications for telecommunications, GPS, radar, mobile devices, and medical devices."

Source: Tech Explore (21 June 2021)

PHYSICS

## New high-speed method for spectroscopic measurements



"Researchers at Tampere University and their collaborators have shown how spectroscopic measurements can be made much faster. By correlating polarization to the colour of a pulsed laser, the team can track changes in the spectrum of the light by simple and extremely fast polarization measurements."

Source: Tampere University (21 June 2021)

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