Weekly Discovery

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8 JULY 2019 - 12 JULY 2019

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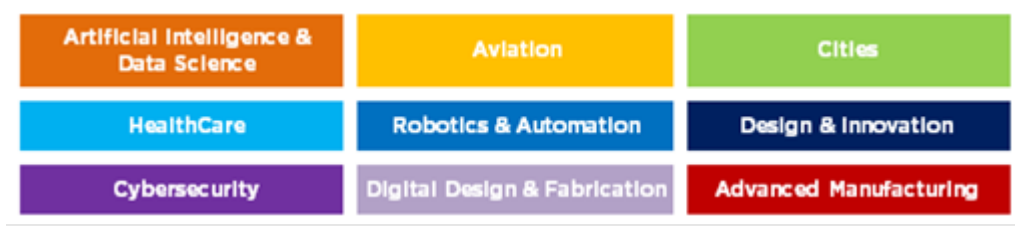


AUTONOMOUS VEHICLES

"Safety First for Automated Driving" (SaFAD)

"Together with 11 industry leaders across the automotive and automated driving technology spectrum Daimler is taking the lead in developing an industry-wide definition of safety with the SaFAD white paper."

Source: Daimler (2 July 2019)

AVIATION

"Eyes" for the Autopilot

"Researchers at the Technical University of Munich (TUM) and their project partners have now demonstrated a completely automatic landing with vision assisted navigation that functions properly without the need for ground-based systems."

Source: Technical University of Munich (4 July 2019)

BUILDING SYSTEMS

Building Automation System Market in Southeast Asia, Forecast to 2023

"This study covers ASEAN-6 countries in Southeast Asia … The BAS market includes automation level of the market and excludes management level and field level solutions. As a whole, BAS is part of BMS that includes building energy management system (BEMS) and emergency security and automation systems (ESAS)."

Source: Frost & Sullivan (31 May 2019)

ELECTRIC TAXIS

Electric Air Taxis Powered by Hydrogen Promise Greater Range for Intercity Commutes

"Hopkinton, Massachusetts-based Alaka'i Technologies says hydrogen fuel cells will give its six-rotor Scai air taxi greater range and lifting power than competitors using batteries, which could open up new opportunities to fly people and other payloads."

Source: NBC News (7 July 2019)

ENERGY MATERIALS

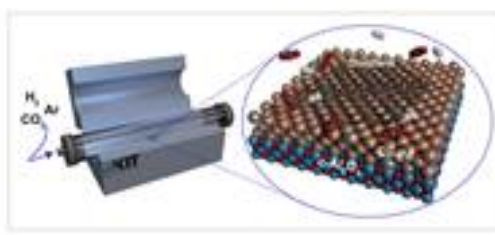
3D-Printed Thermoelectric Device Sets New Efficiency Record

"Findings show that printed thermoelectric materials using tin selenide are a very promising way forward, with the efficiency factor improved by over 50 percent compared to the previous record." Also read at Advanced Energy Materials.

Source: Design News (8 July 2019)

GRAPHENE

Producing Graphene from Carbon Dioxide



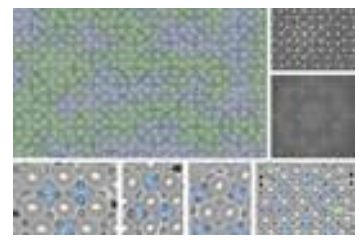
Source: Wiley Online Library

"Researchers are using carbon dioxide as a raw material to produce graphene." Read more at ChemSusChem.

Source: Science Daily (8 July 2019)

MATERIALS SCIENCE

A New Way of Making Complex Structures in Thin Films



"Self-assembling materials called block copolymers, can now be made into much more complex patterns that may open up new areas of materials design, a team of MIT researchers say." In addition, read at Nature Communications.

Source: MIT News (5 July 2019)

NEUROTECHNOLOGY

How You and Your Friends Can Play a Video Game Together Using Only Your Minds

"In BrainNet, three people play a Tetris-like game using a brain-to-brain interface. This is the first demonstration of two things: a brain-to-brain network of more than two people, and a person being able to both receive and send information to others using only their brain."

Source: University of Washington (1 July 2019)

NEW TECHNOLOGY

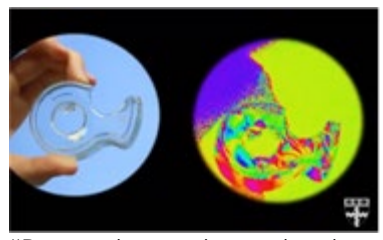
Automatic Glasses Track Eyes to Adjust Focus

"… a team of engineers at Stanford University has developed a pair of glasses that automatically adjust their focus depending on where the eyes are looking."

Source: Medgadget (3 July 2019)

OPTICS

Camera Brings Unseen World to Light



"Researchers … have developed a highly compact, portable camera that can image polarization in a single shot. The miniature camera - about the size of a thumb - could find a place in the vision systems of autonomous vehicles …"

Source: Harvard John A. Paulson School of Engineering and Applied Sciences (4 July 2019)

PHYSICS

Proton Imaging Moves a Step Closer to the Clinic

"One major challenge when delivering proton therapy is uncertainty in the range of a clinical proton beam travelling through the various tissues and organs in the body."

Source: Physics World (9 July 2019)

PRODUCT DESIGN

AI-Designed Heat Pumps Consume Less Energy

"Researchers at EPFL have developed a method that uses artificial intelligence to design next-generation heat-pump compressors. Their method can cut the pumps' power requirement by around 25%."

Source: EPFL (3 July 2019)

RIDESHARING

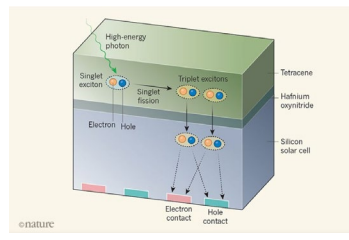
Surprising NYC Ridesharing Study Findings Have Implications for Policymakers

"Researchers have limited access to information about how people use popular ridesharing services like Uber and Lyft. But recent analysis of aggregate data about ridesharing trips in New York City, conducted by researchers at UConn and published last month … sheds new light on use of the service by people in the city's outer borough neighborhoods."

Source: EurekAlert! (8 July 2019)

SOLAR CELLS

An Exciting Boost for Solar Cells



"Einzinger and colleagues demonstrate an approach by which a molecular layer splits a high-energy excitation that is generated by the absorption of a high-energy photon into two lower-energy excitations ... could have an efficiency of up to 1.4 times that of state-of-the-art devices."

Source: Nature (3 July 2019)

SUSTAINABLITY

Garrett Benisch Designs Sum Waste Pen Derived from Human Sewage

"The curvy, translucent writing instrument made from biosolids was featured in the university's year-end design show and won first place in a national competition organised by research group Healthy Materials Lab."

Source: dezeen (9 July 2019)

TECHNOLOGY

New Student Presentation Method Combines Art, Technology and Architecture

"They guided students to create '3D mapping digital performances' for their end-of-year presentations instead of using the traditional method of boards or posters to explain their projects."

Source: Xi'an Jiaotong-Liverpool University (8 July 2019)

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