Weekly Discovery

We SHARE to inspire and ignite ideas!

1 JULY 2019 - 5 JULY 2019

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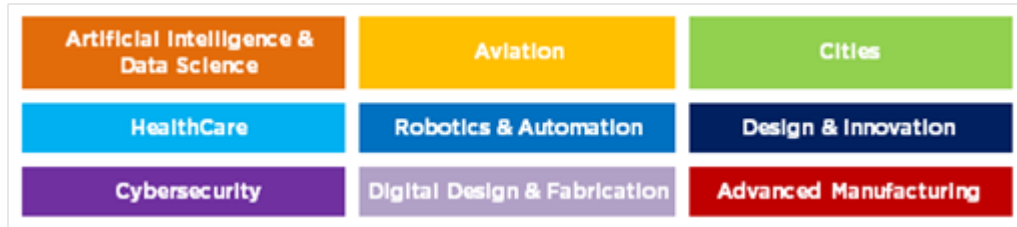


3D PRINTING

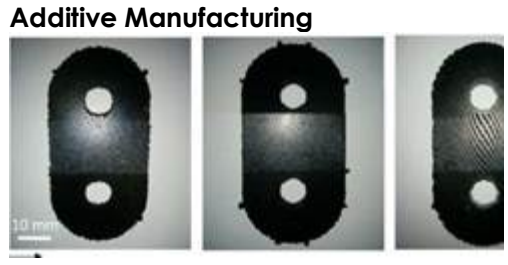
Mimicking the Ultrastructure of Wood with 3D-Printing for Green Products

"Researchers at Chalmers University of Technology, Sweden, have succeeded in 3D printing with a wood-based ink in a way that mimics the unique 'ultrastructure' of wood. Their research could revolutionise the manufacturing of green products."

Source: Chalmers University of Technology (27 June 2019)

3D PRINTING

UI Researchers Validate Optimum Composites Structure Created with Additive Manufacturing

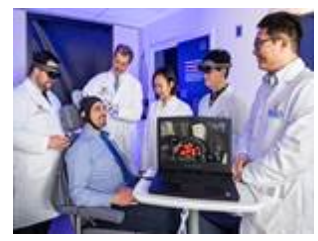


"A new wave of additive manufacturing uses polymer composites that are extruded from a nozzle as an epoxy resin, but reinforced with short, chopped carbon fibers. The fibers make the material stronger, much like rebar in a cement sidewalk. The resulting object is much stiffer and stronger than a resin on its own."

Source: University of Illinois (27 June 2019)

AUGMENTED REALITY

Augmented Reality System Allows Clinicians to 'See' Patient Pain

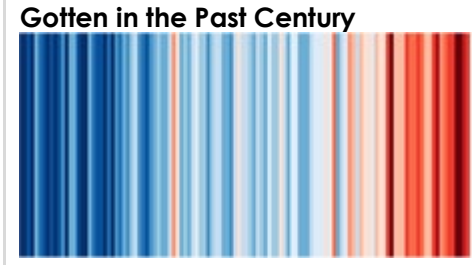


"The technology could potentially be very useful in objectively measuring pain and identifying it in patients who have trouble communicating their symptoms."

Source: Medgadget (1 July 2019)

CLIMATE

New Climate 'Stripes' Reveal How Much Hotter Your Hometown Has Gotten in the Past Century



"Inspired to create visually elegant and shareable climate data, climate scientist Ed Hawkins at the University of Reading in the United Kingdom created the 'warming stripes,' which use bands of color to indicate warming or cooling temperatures from 1901 to 2018, last year."

Note: for most countries, the data comes from the Berkeley Earth temperature dataset, updated to the end of 2018.

Source: Science Magazine (26 June 2019)

DATA ANALYTICS

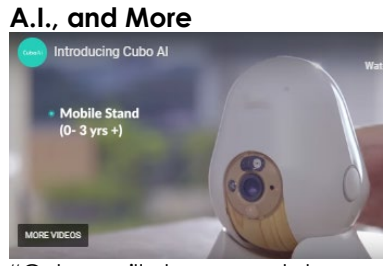
Drag-and-Drop Data Analytics

"For years, the researchers have been developing an interactive data-science system called Northstar, which runs in the cloud but has an interface that supports any touchscreen device, including smartphones and large interactive whiteboards."

Source: MIT News (27 June 2019)

EMERGING TECH

Awesome Tech You Can't Buy Yet: Electric Surfboards, Baby-Guarding A.I., and More



"Cubo will keep watch, sending you photos of your baby when it does baby things, like staring wide-eyed at the camera or writhing. The device can also detect when your child has its face covered or enters an area you have designated as a 'danger zone,' such as your kitchen."

Source: Digital Trends (30 June 2019)

HEALTHCARE

Smart Materials Provide Real-Time Insight into Wearers' Emotions

"Smart wearable technology that changes colour, heats up, squeezes or vibrates as your emotions are heightened has the potential to help people with affective disorders better control their feelings."

Source: EurekAlert! (28 June 2019)

NANOMATERIALS

Synthetic Skin Could Aid Wound Healing

"Engineers have devised a fabric dressing whose thickness and elasticity can be custom-matched to specific areas of the body."

Source: Phys.org (1 July 2019)

NEUROSCIENCE

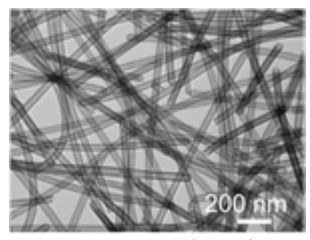
The Neuroscience of Autism: New Clues for How Condition Begins

"Scientists have uncovered details of a key cellular mechanism crucial for proper brain development. It involves a gene that, when mutated, had previously been linked to the development of autism."

Source: Science Daily (2 July 2019)

NEW MATERIAL

Bio-Mimicry of Polar Bear Fur Offers Insulation



"As the properties of polar bear hair work to prevent heat loss, they are a useful model for a synthetic heat insulator, and this new material mimics the structure of polar bear hairs to lock in heat in the same way, in a development that could find useful applications in architecture and aerospace."

Source: Materials Today (27 June 2019)

PRODUCT DESIGN

Jony Ive's 10 Most Revolutionary Designs for Apple

"As Jony Ive steps down from Apple, we take a look back at his incredible list of industry-defining career highlights, from the iMac, to the iPod, iPhone and Apple Watch."

Source: Dezeen (28 June 2019)

ROBOTICS

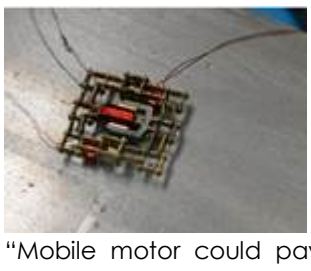
This Artificial Muscle Is Powered Just Like the Real Thing, No Battery Required

"The artificial muscle consists of polymer material, into which the researchers have integrated enzymes. A solution of glucose and oxygen in water powers the polymer actuator, in a similar way as biological muscles."

Source: Digital Trends (27 June 2019)

ROBOTICS

Tiny Motor Can 'Walk' to Carry Out Tasks



"Mobile motor could pave the way for robots to assemble complex structures - including other robots."

Source: EurekAlert! (2 July 2019)

SPACECRAFT

NASA Will Fly a Billion-Dollar Quadcopter to Titan, Saturn's Methane-Rich Moon

"NASA's next billion-dollar mission, called Dragonfly, will be an innovative quadcopter to explore Titan, Saturn's largest moon, the agency announced today. The craft will soar and hover over the icy moon's surface - and land on it - in a search for the conditions and chemistry that could foster life."

Source: Science (27 June 2019)

SPECTROSCOPY

Weak Measurements Track Single Nuclear Spins

"Physicists … have now developed a new approach to NMR that allows them to directly track the precession of single nuclear spins. Until now, they were not sure that this was even possible because of an effect called quantum back-action, which is the disturbing effect that a measurement itself introduces onto the state of the quantum system being measured."

Source: Physics World (1 July 2019)

SUPER CURRENTS

Physicists Use Light Waves to Accelerate Supercurrents, Enable Ultrafast Quantum Computing

"Scientists have discovered that terahertz light -- light at trillions of cycles per second -- can act as a control knob to accelerate supercurrents."

Source: Science Daily (1 July 2019)

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