Weekly Discovery

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1 October 2018 - 5 October 2018

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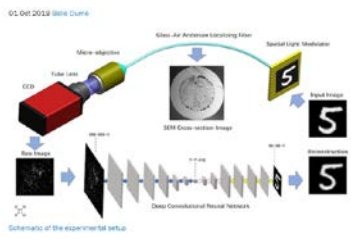
ARTIFICIAL INTELLIGENCE

Deep Learning Improves Fibre Optic Imaging



"The device, which is the first of its kind, transmits the images through disordered fibres thanks to an effect called transverse Anderson localization and works even for objects that are located several millimetres away from the fibre input face without the need for any additional distal optics."

Source: Physics World (1 October 2018)

AUTONOMOUS VEHICLES

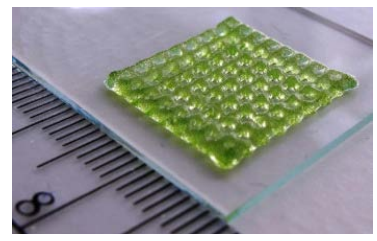
How Do You Get People to Trust Self-Driving Vehicles? This Company Is Giving Them 'Virtual Eyes'

"In this case, the car communicates with a pedestrian as they use a pedestrian crossing. The virtual eyes seek out the pedestrian – appearing to 'look' directly at them. This signals to road users that the car has identified them, and intends to take action to avoid them, reducing the fear that it will knock them over."

Source: World Economic Forum (26 September 2018)

BIOPRINTING

3D Bioprinting of Living Structures with Built-In Chemical Sensors

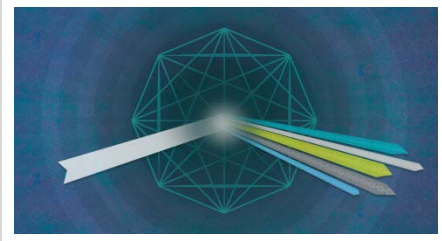


"A new method enables non-invasive monitoring of oxygen metabolism in cells that are 3D bioprinted into complex living structures. This has great implications for studies of cell growth and interactions e.g. under tissue-like conditions, as well as for the design of 3D printed constructs facilitating higher productivity of microalgae in biofilms."

Source: University of Copenhagen (1 October 2018)

BLOCKCHAIN

Blockchain and the Five Vectors o Progress



"For most companies, the value of blockchain is still more potential than actual. But barriers to adoption are falling, helping to resolve key issues and bring the technology into the mainstream."

Source: Deloitte (29 September 2018)

CITIES

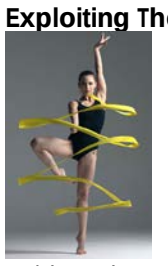
The Eco-City: Exploring the Green Route in Housing, Transport and Food

"The report analyses three key areas of ecological sustainability in cities: housing, food and transport. Cities have the ability to dispel the stereotypical appearance as major polluters of the world by embracing green polices which limit emissions of carbon dioxide gas."

Source: Euromonitor (September 2018)

DYNAMIC STABILITY

Humans Control Complex Objects by Exploiting Their Stability



"Although more work is needed to explore just how broadly applicable the analysis is to other transient movements, the results could have implications for robotics, prosthetics, and the design of everyday objects that are easier for motor-impaired individuals to control."

Source: Physics Today (1 October 2018)

FUTURE OF DESIGN

The Future of Design

"Here, *AD* speaks with a director of design at Google, who predicts that the more technology we develop, the less we will have to use ... What's our takeaway? Design will make all the difference."

Source: Architectural Digest (1 October 2018)

HUMANOID ROBOTS

This Creepy but Handy Humanoid Robot Installs Drywall by Itself

"The Japanese machine can pick up and apply drywall sheets maneuvering a cordless screwdriver without human supervision."

Source: Interesting Engineering (October 2018)

LIGHT TECHNOLOGY

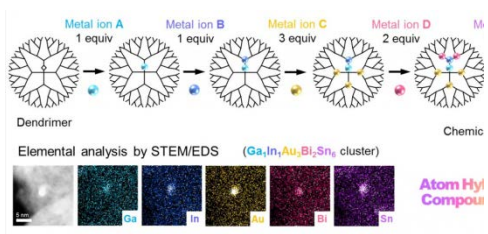
Hollow-Core Fiber Breakthrough

"The use of HCFs in optical communications has to date been severely limited by their relatively-high optical loss. The breakthrough ... could herald the creation of larger and more distributed data centres, and more resilient and cost effective 5G networks."

Source: Novus Light (1 October 2018)

MATERIALS SCIENCE

Breakthrough in Blending Metals



"Researchers in Japan have found a way to create innovative materials by blending metals with precision control. Their approach, opens up an unexplored area of chemistry that could lead to the development of advanced functional materials."

Source: EurekAlert! (24 September 2018)

MEDICAL DEVICE

A Self-Powered Heart Monitor Taped to the Skin

"Scientists developed a human-friendly, ultra-flexible organic sensor powered by sunlight, which acts as a self-powered heart monitor ... They were then able to measure the heartbeats of rats and humans under bright light conditions."

Source: RIKEN (27 September 2018)

MEDICAL RESEARCH

Five Breakthroughs in Restoring Mobility

"Technological advances and surgical developments are offering new hope to those with reduced or no mobility."

Source: The Guardian (30 September 2018)

PAVILION DESIGN

Selgascano + FRPO to Design Inflatable Canopy for Spain's EXPO 2020 National Pavilion

"The pavilion was made to be ultralight as a more sustainable structure that could be easily removed and transported. Formed as a 'breathing pavilion', the design allows two inflatables to move up and down to respond to views, light and breeze."

Source: ArchDaily (2 October 2018)

PHYSICS

Nobel Prize in Physics Shared by Woman for 1st Time in 55 Years

"The duo invented what is called chirped pulse amplification, a process in which laser pulses are stretched in time, amplified and then compressed. When a pulse gets squished in time, becoming shorter, the same amount of light is packed into a tiny space and so the pulse's intensity skyrockets. This technique is used in millions of laser eye surgeries every year..."

Source: Live Science (2 October 2018)

ROBOTICS

Tiny Soft Robot with Multilegs Paves Way for Drugs Delivery in Human Body

"A novel tiny, soft robot with caterpillar-like legs capable of carrying heavy loads and adaptable to adverse environment was developed from a research led by City University of Hong Kong (CityU). This mini delivery-robot could pave way for medical technology advancement such as drugs delivery in human body."

Source: Science Daily (26 September 2018)

URBAN TRANSPORTATION

World Metro Figures 2018

"For this new metro Statistics Brief UITP has collected exhaustive data for a series of key indicators for all metros in the world including ridership, number of lines, network length, number of stations and – new for this edition – fleet size. Extensive data was also collected for another new field: infrastructure construction model."

Source: UITP (September 2018)

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