Weekly Discovery

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21 January 2019 - 25 January 2019

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2D MATERIALS

New Catalog Pinpoints Likely Defects in 2D Materials
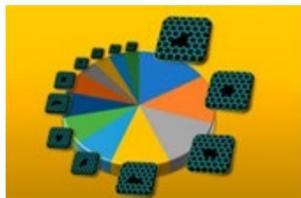
"They have produced a catalog of the exact sizes and shapes of the holes that would most likely be observed when a given number of atoms is removed from the atomic lattice."

Source: Materials Today (21 January 2019)

3D PRINTING

The World's Largest 3D Printed Concrete Bridge Is Completed in Shanghai

"The fabrication of the bridge comprises a 3D printing concrete system independently developed by Professor Xu Weiguo's team. The concrete components of this bridge had been entirely printed with two robotic arm 3D printing systems over the course of 450 hours."

Source: Design Boom (21 January 2019)

5G

Surgeon Performs World's First Remote Operation Using '5G Surgery' in Animal in China

"The doctor in the southeastern province of Fujian used the next-generation network to control robotic arms in a remote location 30 miles away. The surgery was made possible by the extremely low latency of 5G."

Source: Independent (19 January 2019)


AI & BLOCKCHAIN

Successfully Melding AI and Blockchain

"Companies that recognize the power of this combination will have to manage coordinated technology implementations and more complex transformations. To navigate the challenges ahead, leaders will need to think through several key decisions."

Source: Accenture (2018)

ARTIFICIAL INTELLIGENCE

Approximate Bayesian Computation with Deep Learning Supports a Third Archaic Introgression in Asia and Oceania
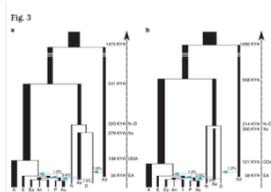
"We built a demographic model based on deep learning in an Approximate Bayesian Computation framework to infer the evolutionary history of Eurasian populations including past introgression events in Out of Africa populations fitting the current genetic evidence."

Source : Nature Communications (16 January 2019)

BIOMIMICRY

Scaling of Bird Wings and Feathers for Efficient Flight
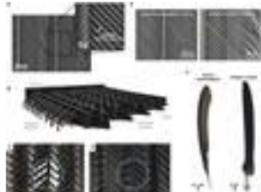
"Findings provide insight into the 'design' of birds and may be translatable to more efficient bird-inspired aircraft structures."

Source: Science Advances (16 January 2019)

DATA ANALYTICS

Boosting Mall Revenues Through Advanced Analytics
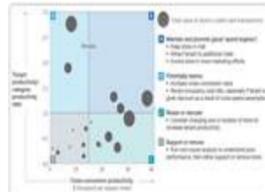
"When a mall operator uses advanced analytics to select tenants, optimize mall layout, and determine rents, its revenues can rise by 20 percent."

Source: McKinsey & Company (January 2019)

FINTECH

FinTech Report 2019

"With this report we provide a comprehensive overview of the state of the FinTech market as it is today as well as a prognosis with detailed information on 12 different market segments in the areas of Digital Payments, Alternative Financing, Alternative Lending and Personal Finance."

Source: Statista (2019)

HEALTHCARE

Scientists Grow Perfect Human Blood Vessels in a Petri Dish

"The breakthrough engineering technology, outlined in a new study published today in *Nature*, dramatically advances research of vascular diseases like diabetes, identifying a key pathway to potentially prevent changes to blood vessels - a major cause of death and morbidity among those with diabetes."

Source: The University of British Columbia (16 January 2019)

INFRARED ENERGY

Novel Materials Convert Visible into Infrared Light

"Scientists have succeeded in developing a chemical process to convert visible light into infrared energy, allowing innocuous radiation to penetrate living tissue and other materials without the damage caused by high-intensity light exposure."

Source: Science Daily (16 January 2019)

INTERNET OF THINGS

IoT Proliferation in Medtech

"The evolving role of regulators, manufacturers, providers and consumers in a medical IoT ecosystem."

Source: PwC (2018)

MATERIALS SCIENCE

Mechanical Engineers Develop Process to 3D Print Piezoelectric Materials

"Researchers have developed methods to 3D print piezoelectric materials that can be custom-designed to convert movement, impact and stress from any directions to electrical energy."

Source: Virginia Tech (21 January 2019)

MATERIALS SCIENCE

Researchers Report Breakthrough in Ice-Repelling Materials

"Researchers from the University of Houston have reported a new theory in physics called stress localization, which they used to create a durable silicone polymer coating capable of repelling ice from any surface."

Source: Phys.org (15 January 2019)

PROSTHETICS

The Magic Touch: Bringing Sensory Feedback to Brain-Controlled Prosthetics

"We can take the signals from this part of the brain and infer what the patient or the subject wanted to do, and then you make the robotic arm do that. There's a cottage industry of developing different ways of doing that, and they're all slight variants of one another."

Source: Verdict Medical Devices (21 January 2019)

ROBOTICS

10 Robotics Startups to Watch in 2019

"As part of our coverage to kick off 2019, The Robot Report has shared the top robotics stories, most-funded robotics companies of 2018, and 10 major robotics companies to watch in 2019."

Source: The Robot Report (18 January 2019)

SOFT ROBOTS

Smart Microrobots That Can Adapt to Their Surroundings

"The group of scientists ... drew inspiration from bacteria to design smart, biocompatible micro robots that are highly flexible."

Source: EurekAlert! (18 January 2019)