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3D PRINTING

Engineers Develop Multiformal Polymer "ink" for 3-D-Printed Devices

“A new method developed by MIT researchers uses standard 3-D printers to produce functioning devices with the electronics already embedded inside. The devices are made of fibers containing multiple interconnected materials, which can light up, sense their surroundings, store energy, or perform other actions.”

Source: MIT News (1 September 2019)

ARTIFICIAL INTELLIGENCE

AI Agents Startle Researchers with Unveiled Hide-and-Seek Strategies

“The AI players learned everything via a machine learning technique known as reinforcement learning. In this learning method, AI agents start out by taking random actions.”

Source: IEEE Spectrum (17 September 2019)

ARTIFICIAL INTELLIGENCE

On Strategic Choices Faced by Large Pharmaceutical Companies and Their Effect on Innovation Risk Under Fuzzy Conditions

“The fuzzy model captures the financial and pipeline sides of innovation risk of firms operating in uncertain environments. The model is used to evaluate innovation risk in a sample of 31 large pharmaceutical laboratories in the period 2006-2013.”

Source: Artificial Intelligence in Medicine (15 September 2019)

CLIMATE

Climate Signature Detected in Earth’s Rivers

“Climate dictates many of Earth’s geologic and hydrological systems, but scientists have struggled to pinpoint the influence of climate on the formation of rivers. Now, researchers have uncovered evidence suggesting climate controls the elevational profile of rivers across the globe.”

Source: United Press International (16 September 2019)

DEEP LEARNING

Deep Learning at Scale for the Construction of Galaxy Catalogs

“In a new study, researchers from NCSA and Argonne have developed a novel combination of deep learning methods to provide a highly accurate approach to classifying hundreds of millions of unlabeled galaxies.”

Source: Inside HPC (3 September 2019)

FAÇADE

Krucek + Sexton and Thornton Tomasetti Bring Undulating Glass to Chicago’s Merchandise Exchange

“Each panel measures approximately 25-feet-by-four-feet and were installed using a custom-designed suction cup fitting device. The top of the glass fins is held by a clever suspension system that can slide up and down and sideways allowing the building to move without breaking the glass.”

Source: The Architects’ Newspaper (19 September 2019)

HEALTHCARE

New Imaging Technology Could "Revolutionize" Cancer Surgery

“The new imaging technology uses the way light from lasers interacts with cancerous and healthy tissues to distinguish between them in real-time and with no physical contact, an advancement with the potential to eliminate the need for secondary surgeries to get missed malignant tissue.”

Source: University of Washington (16 September 2019)

INTERNET OF THINGS

It’s Time for IoT Security’s Next Big Step

“The Internet of Things security crisis has persisted for decades, producing a seemingly endless stream of under-secured consumer gadgets, corporate phones, printers, networking equipment... by now, every industry has an IoT albatross around its neck. And though new devices are increasingly equipped with basic security protections, those minimum standards are just the beginning.”

Source: Wired (12 September 2019)

MACHINE LEARNING

New Algorithm Can Distinguish Cyberbulles from Normal Twitter Users with 90% Accuracy

“A team of researchers, including faculty at Binghamton University, have developed machine learning algorithms which can successfully identify bullies and aggressors on Twitter with 90 percent accuracy.”

Source: Science Daily (14 September 2019)

MACHINE LEARNING

Using Machine Learning to Estimate Risk of Cardiovascular Death

“A team from MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL) came up with a new system for better predicting health outcomes: a machine learning model that can estimate, from the electrical activity of their heart, a patient’s risk of cardiovascular death.”

Source: University of Washington (16 September 2019)

PHYSICS

Scientists Detect the Ringing of a Newborn Black Hole for the First Time

"Physicists have heard the ringing of an infant black hole for the first time, and found that the pattern of this ringing is, in fact, predict the black hole's mass and spin – more evidence that Einstein was right all along.”

Source: Science Daily (1 September 2019)

ROBOTICS

Researchers Build Microscopic Biorobots Propelled by Muscles, Nerves

“Researchers have developed soft robotic devices driven by neuromuscular tissue that triggers when stimulated by light – bringing mechanical engineering one step closer to developing autonomous biorobots.”

Source: University of Illinois (16 September 2019)

SMART DESIGN

Using Smart Sensor Technology in Building Design: Researchers Find Apprehension of Using Technology May Stifle Architectural Innovation

“In today’s world, spaces with motion and temperature “smart sensors” are common and generally improve our overall well-being. Often times, data is being gathered from these sensors and is stored and analyzed in order to improve future architectural building design processes.”

Source: San Diego State University (17 September 2019)

SUSTAINABLE DESIGN

The Toilet Gets a Makeover

“The Gates Foundation challenges researchers to design self-contained waste processing systems for low-resource communities... Some are fueled by solar power, while others are fueled by the waste itself. As these innovative systems shift from the lab to field testing and commercialization, researchers are striving to meet additional goals, including mitigating toilet odors and recovering valuable resources from human waste.”

Source: Science (14 September 2019)

THERMOELECTRIC GENERATOR

This New Device Generates Light from the Darkness of Space

“Solar panels are great for powering devices during the day. But they don't work after the sun goes down. Now, a new technology that takes advantage of the cold darkness of space may do the trick.”

Source: Science (12 September 2019)

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