SUTD LIBRARY

Weekly Discovery

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20 MAY 2019 - 24 MAY 2019

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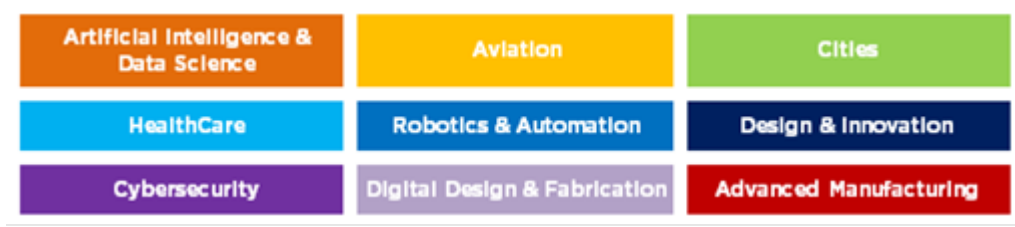


ARCHITECUTRE

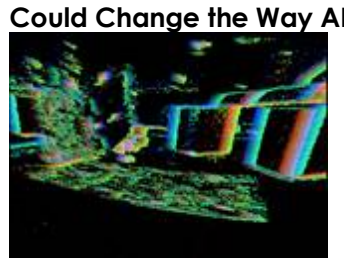
Professor Rethinks Living Spaces Within Refugee Camps

"Abudayyeh has conceptualized a new design for temporary shelters that focuses on the interior space, with insertable walls, dividers, and interior surfaces that allow the residents a measure of spatial authorship based on their unique needs."

Source: University of Tennessee at Knoxville (20 May 2019)

ARTIFICIAL INTELLIGENCE

Helping Robots Remember: Hyperdimensional Computing Theory Could Change the Way AI Works

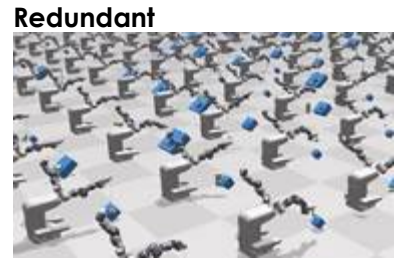


"Maryland research could fundamentally alter and improve the basic artificial intelligence task of sensorimotor representation - how agents like robots translate what they sense into what they do."

Source: University of Maryland (15 May 2019)

ARTIFICIAL INTELLIGENCE

NVIDIA Brings Robot Simulation Closer to Reality by Making Humans Redundant



"NVIDIA researchers are teaching robots to do useful tasks by training them in simulation using a new approach that, unlike previous methods, doesn't require a researcher to fine-tune the simulation parameters to match with reality, with this step happening completely autonomously."

Source: IEEE Spectrum (20 May 2019)

AUTOMATION

Automated Chauffeur Robot Parks Your Car and Returns It When Summoned

"The hikvision 'parking robot' is different to others, though, as it acts as an automated platform that then parks your car for you, before returning it when summoned. This not only streamlines space in parking lots but also reduces stress, potential damages, and also offers more time for people to go shopping, for example."

Source: designboom (19 May 2019)

AUTONOMOUS MACHINES

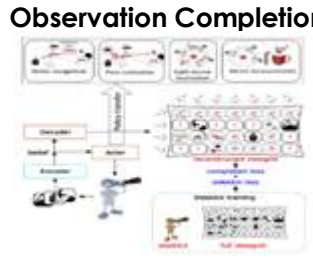
'Spidey Senses' Could Help Autonomous Machines See Better

"Better sensing capabilities would make it possible for drones to navigate in dangerous environments and for cars to prevent accidents caused by human error. Current state-of-the-art sensor technology doesn't process data fast enough – but nature does."

Source: Purdue News (20 May 2019)

COMPUTER VISION

Emergence of Exploratory Look-Around Behaviors Through Active Observation Completion



"The proposed methods learned observation policies that not only performed the completion task for which they were trained but also generalized to exhibit useful 'look-around' behavior for a range of active perception tasks."

Source: Science Robotics (15 May 2019)

HEALTHCARE

Helping Organizations Respond to Health Emergencies

"… three types of maps that will help nonprofit organizations and universities working in public health get ahead of disease outbreaks and reach vulnerable communities more effectively. The maps we're introducing — population density maps complete with demographic estimates, movement maps and network coverage maps …"

Source: Facebook Newsroom (20 May 2019)

INTERNET OF THINGS

How the Internet of Things Will Transform Airport Environments

"Connected devices and their wealth of data have led to significant improvements in operational efficiency and passenger experience in airports."
Also read the FAA's Airport Cooperative Research Program (ACRP) Research Report 191, which "gives airports a holistic introduction to the Internet of Things".

Source: Building Design + Construction (20 May 2019)

MATERIALS SCIENCE

Why Are Gels Elastic?

"Until now, scientists have been unable to explain the microscopic structures within gels that impart their elasticity, or springiness, nor how those structures form. A team of scientists … discovered that the elasticity of gels arises from the packing of clusters of particles in the gels, which the group dubbed locally glassy clusters."

Source: EurekAlert! (20 May 2019)

MOBILE APP

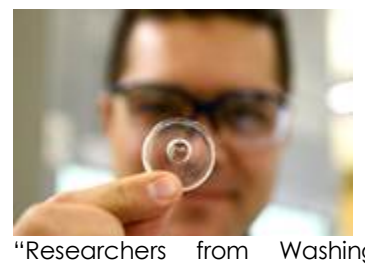
Smartphone App Can Help Diagnose a Rare Disease

"Team of researchers at Kaunas University of Technology, Lithuania, have created a mobile application, which helps recognize early symptoms of a rare Huntington's disease."

Source: EurekAlert! (21 May 2019)

OPTICAL ENGINEERING

Researchers Develop New Lens Manufacturing Technique

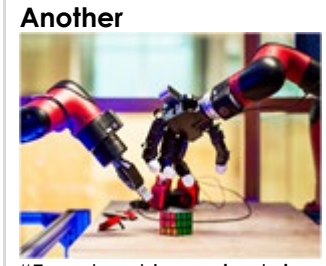


"Researchers from Washington State University and Ohio State University have developed a low-cost, easy way to make custom lenses by using a liquid mold from droplets that they can manipulate with magnets to create lenses in a variety of shapes and sizes."

Source: Washington State University (20 May 2019)

ROBOTICS

Inside Facebook's New Robotics Lab, Where AI and Machines Friend One Another

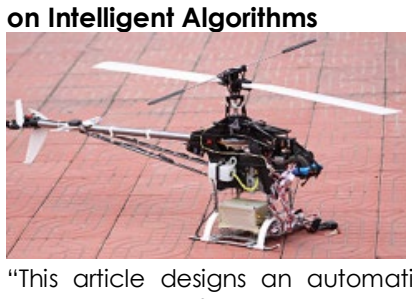


"Facebook's project is part of a great coming-together of AI and robots … AI is making robots smarter, but robots are also now helping advance AI … Particularly the future of AI, how can we get to human-level AI - are currently being addressed by people who work in robotics."

Source: Wired (20 May 2019)

UNMANNED AERIAL VEHICLES

Research on Unmanned Aerial Vehicle Modeling and Control Based on Intelligent Algorithms



"This article designs an automatic flight control system for an unmanned aerial vehicle helicopter. The differential evolution intelligent algorithm is used for a state-space model identification; the differential evolution method has an advantage of choosing initial point randomly …"

Source: Advances in Mechanical Engineering (20 May 2019)

URBAN TRANSPORTATION

Driverless Cars Working Together Can Speed Up Traffic by 35 Percent

"The researchers, from the University of Cambridge, programmed a small fleet of miniature robotic cars to drive on a multi-lane track and observed how the traffic flow changed when one of the cars stopped."

Source: University of Cambridge (20 May 2019)

VIRTUAL REALITY

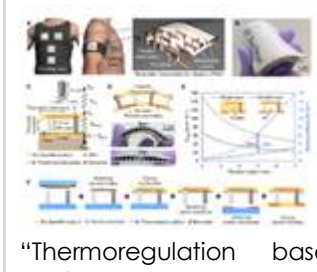
Software Versus Hardware: The Future of VR Audio Hangs in the Balance

"Dirac, a company that develops digital signal processing techniques for optimizing audio, thinks the solution is software-centric … Meanwhile, audio equipment-maker Harman International (now part of Samsung) has sketched out a solution that requires lots of hardware."

Source: IEEE Spectrum (16 May 2019)

WEARABLES

Wearable Thermoelectrics for Personalized Thermoregulation



"Thermoregulation based on these devices may enable a shift from centralized cooling toward personalized cooling with the benefits of substantially lower energy consumption and improved human."

Source: Science Advances (17 May 2019)

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