

# Weekly Discovery

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29 July 2019 – 2 August 2019

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HealthCare	Robotics & Automation	Design & Innovation
Cybersecurity	Digital Design & Fabrication	Advanced Manufacturing

**AIRPORT TECH**  
**The Amazing Ways Dubai Airport Uses Artificial Intelligence**



Photo: Adobe

"...the United Arab Emirates (UAE) leads the Arab world with its adoption of artificial intelligence in other sectors and areas of life and has a government that prioritizes artificial intelligence including an AI strategy and Ministry of Artificial Intelligence with a mandate to invest in technologies and AI tools."

Source: [Forbes](#) (Jul 26 2019)

**ALZHEIMERS**  
**New Research Sheds More Light On Alzheimer's in Women**



"Despite the prevailing view that women's increased risk is tied to living longer (Alzheimer's symptoms typically appear later in life), scientists now believe biological and social determinants are more at play."

Source: [Forbes](#) (28 July 2019)

**ARCHITECTURE**  
**"Design Orchard" Incubator / WOHA**



"Design Orchard embodies a new concept which distances itself from outdated retail concepts and offers a new lifestyle space instead. Poised at a prominent junction of Singapore's famous Orchard Road – Asia's most iconic shopping avenue - Design Orchard aims to nurture emerging Singaporean creative talent."

Source: [Archdaily](#) (27 Jul 2019)

**BIOTECH**  
**Liver Transplants Could Be Redundant With Discovery Of New Liver Cell**



"Researchers at King's College London have used single cell RNA sequencing to identify a type of cell that may be able to regenerate liver tissue, treating liver failure without the need for transplants."

Source: [Kings Collage London](#) (26 Jul 2019)

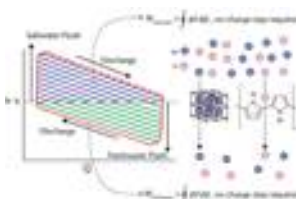
**CARBON SEQUESTRATION**  
**New Paper Points To Soil Pore Structure As Key To Carbon Storage**



"Michigan State University professors discovered a new mechanism determining how carbon is stored in soils that could improve the climate resilience of cropping systems and also reduce their carbon footprints."

Source: [Michigan State University](#) (23 July 2019)

**ENERGY**  
**Energy From Seawater**



(Source: ACS Omega, 2019)

"A new battery technology could make coastal wastewater treatment plants energy-independent and carbon neutral. Read more [here](#)."

Source: [Science Daily](#) (29 July 2019)

**GENETIC ENGINEERING**  
**Microbial Manufacturing: Genetic Engineering Breakthrough For Urban Farming**



"New research of MIT's Research Enterprise in Singapore's IRG, DiSTAP, revolutionises the creation of genetic material, enabling drastically accelerated development of key microbial factories for urban farming in Singapore."

Source: [EurekAlert](#) (25 July 2019)

**HEALTHCARE**  
**Under Development Medical Camera Could Help Cut Time And Cost Of Procedures**



"Researchers have completed a successful clinical trial, to detect and image radioactive tracers used in PET and in SPECT scans with the hope of enabling doctors to scan patients for abnormalities in shorter times while reducing the amount of radiation patients would be exposed to."

Source: [Kavli Institute](#) (25 July 2019)

**MACHINE LEARNING**  
**A Computer That Understands How You Feel**



"Machine learning technology is getting really good at recognizing the content of images - of deciphering what kind of object it is," said senior author Tor Wager, who worked on the study while a professor of psychology and neuroscience at CU Boulder. "We wanted to ask: Could it do the same with emotions? The answer is yes."

Source: [EurekAlert](#) (26 Jul 2019)

**MACHINE LEARNING**  
**Three Pitfalls To Avoid In Machine Learning**



"We cannot predict all the difficulties that will arise with each analysis. But, as a minimum, researchers bringing machine learning to their fields should familiarize themselves with the common pitfalls and the practices they can use to detect and avoid them."

Source: [Nature](#) (30 Jul 2019)

**NEURAL NETWORK**  
**A Two-Track Algorithm To Detect Deepfake Images**



Photo: iStock

"The neural network has been trained by letting it examine thousands of both deepfake and genuine images, so it has learned some of the qualities that make fakes at stand out at the single-pixel level."

Source: [IEEE Spectrum](#) (29 July 2019)

**ROBOTICS**  
**A New Deep-Sea Robot Can Shape-Shift Into An Autonomous Submarine**



"A new autonomous robot called Aquanaut may be the closest thing we have to a real-life Transformer."

Source: [Futurism](#) (29 July 2019)

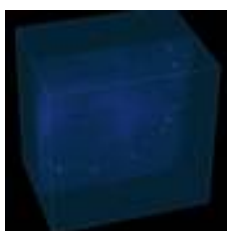
**SMART CELLS**  
**Smart Cells That Behave Like Tiny Autonomous Robots**



"Medicine has a "Goldilocks" problem. Many therapies are safe and effective only when administered at just the right time and in very precise doses."

Source: [Innovation Toronto](#) (27 July 2019)

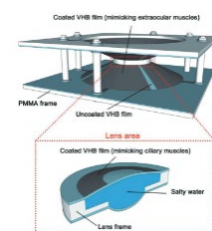
**SMART SENSING**  
**Stanford Camera Can Watch Moving Objects Around Corners**



"By analyzing single particles of light, this camera system can reconstruct room-size scenes and moving objects that are hidden around a corner. This work could someday help autonomous cars and robots see better."

Source: [Stanford News](#) (29 July 2019)

**SOFT ROBOTICS**  
**Scientists Created A Pair Of Contacts That Zoom In When You Blink**



"To create the lens, the scientists measured the signals that are generated when your eyes make specific movements like blinking or moving left or right and created a soft contact lens that responds to the electric impulses your eye makes when it performs those movements."

Source: [Emerging Tech](#) (29 July 2019)

**WATER SYSTEMS**  
**Researcher's Innovative Approach To Flood Mapping Supports Emergency Management And Water Officials**



"Kastens' model (called FLDPLN, or "Floodplain") maps potential inundation as a function of stage height using basic hydrologic principles and gridded elevation data."

Source: [University of Kansas](#) (25 July 2019)