

# Weekly Discovery

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9 – 13 August 2021

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Artificial Intelligence & Data Science	Aviation	Cities
HealthCare	Robotics & Automation	Design & Innovation
Cybersecurity	Digital Design & Fabrication	Advanced Manufacturing

AI  
**Brain Connectivity Can Build Better AI**



"A new study shows that artificial intelligence networks based on human brain connectivity can perform cognitive tasks efficiently."

Source: [MCGill](#) (9 August 2021)

BIOTECH  
**Bio-inspired, Blood-Repelling Tissue Glue Could Seal Wounds Quickly**



"Inspired by the sticky substance that barnacles use to cling to rocks, MIT engineers have designed a strong, biocompatible glue that can seal injured tissues and stop bleeding."

Source: [MIT](#) (9 August 2021)

BUILDING  
**Slam The Door Shut: Improving Building Energy By Evaluating Building Airflow**



"Scientists identify the contribution of air leakage pathways such as building envelopes and residential entrance doors to heating energy demands in multi-family high-rise buildings."

Source: [EurekAlert!](#) (9 August 2021)

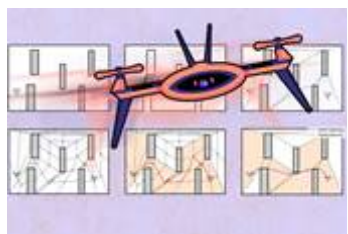
COVID 19  
**Biosensor Permits Ultra-Fast And Cheap Detection Of SARS-Cov-2**



"The result of the analysis can be ready in 30 minutes, for a laboratory-scale cost of less than 1 US Dollar per genosensor. The components of the impedance analyzer, a durable part of the device, cost less than USD 200. The device already exists at the laboratory scale, and the technology can be transferred to any company with the wherewithal to mass-produce it."

Source: [eurekAlert](#) (10 August 2021)

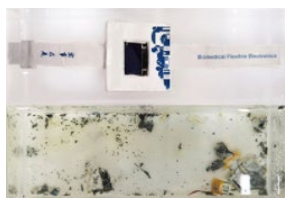
DRONES  
**System Trains Drones To Fly Around Obstacles At High Speeds**



"...aerospace engineers at MIT have devised an algorithm that helps drones find the fastest route around obstacles without crashing. The new algorithm combines simulations of a drone flying through a virtual obstacle course with data from experiments of a real drone flying through the same course in a physical space."

Source: [MIT](#) (10 August 2021)

ELECTRONICS RECYCLING  
**A Dissolvable Smartwatch Makes For Easier Electronics Recycling**



"To simplify small electronics recycling, researchers reporting in ACS Applied Materials & Interfaces have developed a two-metal nanocomposite for circuits that disintegrates when submerged in water. They demonstrated the circuits in a prototype transient device — a functional smartwatch that dissolved within 40 hours."

Source: [ACS](#) (4 August 2021)

MATERIALS  
**Researchers Design 3D Kirigami Building Blocks To Make Dynamic Metamaterials**



"A new approach to producing metamaterials draws on kirigami techniques to make three-dimensional, reconfigurable building blocks that can be used to create complex, dynamic structures. Because the design approach is modular, these structures are easy to both assemble and disassemble."

Source: [NC State News](#) (9 August 2021)

MATERIALS  
**Ultrathin Glass Films Exhibit Exotic Liquid Phase**



"Researchers in the US have discovered an entirely new liquid phase that arises as ultrathin films of glass are deposited directly onto cooled substrates. Led by Zahra Fakhraei at the University of Pennsylvania, the researchers used an intense X-ray source to reveal extremely dense, highly stable structures within the films, which transitioned to more conventional bulk liquids above a certain temperature."

Source: [PHYSICSWORLD](#) (9 August 2021)

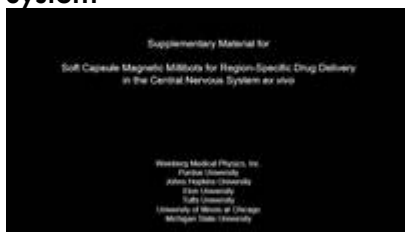
ROBOTICS  
**Decoding How Salamanders Walk**



"To decode the salamander's movement, researchers led by Professor Akio Ishiguro of the Research Institute of Electrical Communication at Tohoku University modeled the salamander's nervous system mathematically and physically simulated the model."

Source: [Tohoku University](#) (30 July 2021)

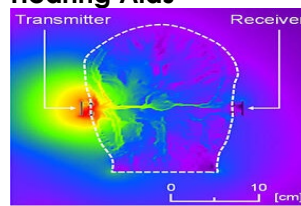
ROBOTICS  
**Tiny 'Maniac' Robots Could Deliver Drugs Directly To Central Nervous System**



"Study shows that magnetic millibots can climb slopes, move against fluid flow and precisely deliver substances to neural tissue"

Source: [EurekAlert!](#) (10 August 2021)

WEARABLE TECHNOLOGY  
**All in Your Head: Exploring Human-Body Communications with Binaural Hearing Aids**



"Scientists from the Tokyo University of Science, Japan, delved deep into human-body communications, in which human tissue is used as the transmission medium for electromagnetic signals. Their findings pave the way to more efficient and safer head-worn devices, such as binaural hearing aids and earphones."

Source: [Tokyo University of Science](#) (5 August 2021)

WEARABLE TECHNOLOGY  
**This Touchy-Feely Glove Senses And Maps Tactile Stimuli**



"The design could help restore motor function after stroke, enhance virtual gaming experiences."

Source: [MIT](#) (5 August 2021)

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