

Weekly Discovery

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2 Nov – 6 Nov 2020

The Library publishes **9 alerts** focusing on Topics relevant to **growth and research areas** to SUTD.

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

3D PRINTING
Printing Plastic Webs to Protect the Cellphone Screens of the Future



"A spider web-inspired solution made possible using 3D printing"

Source: [EurekaAlert!](#) (2 November 2020)

ARTIFICIAL INTELLIGENCE
Artificial Intelligence Model Detects Asymptomatic Covid-19 Infections Through Cellphone-Recorded Coughs



MIT researchers reports on an AI model that distinguishes asymptomatic people from healthy individuals through forced-cough recordings, which people voluntarily submitted through web browsers and devices such as cellphones and laptops.

Source: [MIT News](#) (29 October 2020)

CARBON
Building European Cities With Wood Would Sequester And Store Half Of Cement Industry's Current Carbon Emissions



"A recent study shows that if 80 percent of new residential buildings in Europe were made of wood, and wood were used in the structures, cladding, surfaces, and furnishings of houses, all together the buildings would store 55 million tons of carbon dioxide a year. That is equivalent to about 47 percent of the annual emissions of Europe's cement industry."

Source: [Aalto University](#) (2 November 2020)

CITIES
On World Cities Day UN-Habitat Releases 2020 Report on The Value of Sustainable Urbanizations



The World Cities Report 2020 on the topic the value of sustainable urbanization emphasizes the role of the New Urban Agenda, the UN's 20-year plan for sustainable urbanization. Read full report [here](#).

Source: [Arch Daily](#) (31 October 2020)

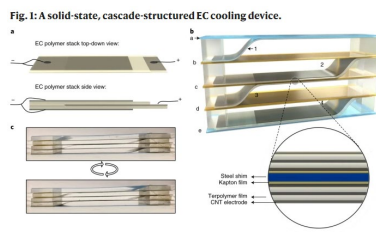
CITIES
The 2020 Deloitte City Mobility Index



"Gauging global readiness for the future of mobility What does smart urban mobility look like, city by city? How are global cities faring so far? Learn what cities can do to embrace the future of mobility in the coming decades."

Source: [Deloitte](#) (2020)

COOLING DEVICE
A Cascade Electrocaloric Cooling Device For Large Temperature Lift



We demonstrate a cascade EC cooling device that increases the temperature change, with enhanced cooling power and cooling efficiency at the same time. The device integrates multiple units of EC polymer elements and an electrostatic actuation mechanism, all operating in synergy.

Source: [Nature](#) (26 Oct 2020)

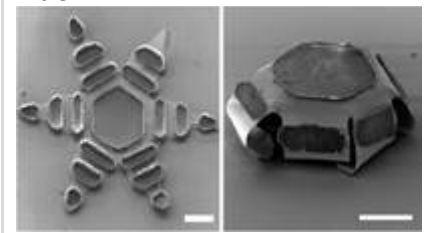
DRONES
Raptor-Inspired Drone With Morphing Wing and Tail for Unprecedented Flight Agility



"EPFL engineers have developed a drone with a feathered wing and tail that give it unprecedented flight agility."

Source: [SciTechDaily](#) (1 November 2020)

HEALTHCARE
Johns Hopkins Researchers Engineer Tiny, Shape-Changing Machines That Deliver Medicine Efficiently to the GI Tract



"Inspired by a parasitic worm that digs its sharp teeth into its host's intestines, Johns Hopkins researchers have designed tiny, star-shaped microdevices that can latch onto intestinal mucosa and release drugs into the body."

Source: [Johns Hopkins](#) (3 November 2020)

MANAGEMENT
Research: How Virtual Teams Can Better Share Knowledge



"It's often taken as an article of faith that it suffers when employees work remotely. But we've found successful practices to facilitate this kind of sharing that can be ported, possibly with greater efficacy, to remote teams."

Source: [Harvard Business Review](#) (2 November 2020)

MATERIAL SCIENCE
Advanced Facade Material For Urban Heat Island Mitigation



"A joint research team proposed two analytical models to evaluate the reflection directional characteristics of retro-reflective (RR) materials applied to building envelopes for urban heat island (UHI) mitigation, based on the measured data of optical experiments.

Source: [EurekaAlert!](#) (29 October 2020)

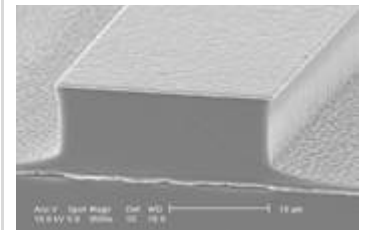
NAVIGATION SYSTEM
An Underwater Navigation System Powered By Sound



"MIT researchers built a battery-free pinpointing system dubbed Underwater Backscatter Localization (UBL). Rather than emitting its own acoustic signals, UBL reflects modulated signals from its environment. That provides researchers with positioning information, at net-zero energy."

Source: [MIT News](#) (2 November 2020)

PHYSICS
Researchers Develop A High-Power, Portable Terahertz Laser



Researchers at MIT and the University of Waterloo have developed a high-power, portable version of a device called a quantum cascade laser, which can generate terahertz radiation outside of a laboratory setting. Read more in [Nature](#).

Source: [MIT News](#) (2 November 2020)

ROBOTICS
Dog Training Methods Help Researchers Teach Robots To Learn New Tricks



With a training technique commonly used to teach dogs to sit and stay, computer scientists showed a robot how to teach itself several new tricks, including stacking blocks. With the method, the robot was able to learn in days what typically takes a month.

Source: [John Hopkins University](#) (26 October 2020)

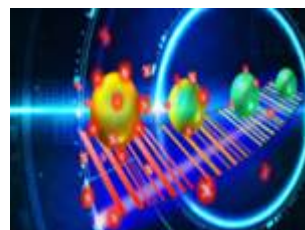
SOLAR
'Transparent Solar Cells' Can Take Us Towards A New Era Of Personalized Energy



"Solar power has shown immense potential as a futuristic, 'clean' source of energy. No wonder environmentalists worldwide have been looking for ways to advance the current solar cell technology. Now, scientists have put forth an innovative design for the development of a high-power transparent solar cell. This innovation brings us closer to realizing our goal of a sustainable green future with off-the-grid living."

Source: [Science Daily](#) (2 November 2020)

TECHNOLOGY
Dynamic Photonic Barcodes Record Energy Transfer At The Biointerface



"Cavity-enhanced radiative energy transfer converts biomolecular information from a single droplet into trillions of distinctive photonic barcodes."

Source: [EurekaAlert!](#) (30 October 2020)

WEARABLES
This Startup Spots Stress in Real-Time to Help Prevent Depression and Other Conditions



"Philia Labs' wearable measures physiological indicators to help manage stress."

Source: [IEEE Spectrum](#) (30 October 2020)