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30 MARCH 2020 – 3 APRIL 2020

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3D PRINTING
How 3D Printing Could Save Lives In The Coronavirus Outbreak

"Digital manufacturers are stepping in to crank out nasal swabs, ventilator parts, and more as critical supply chains fail. In normal times, Formlabs sells 3D printers, but in the coming days, the company will dedicate the 250 printers in its Ohio factory to crank out up to 100,000 nasal swabs for Covid-19 tests every day."

Source: Technology Review (27 March 2020)

BATTERIES
Better, Safer Batteries

" For the first time, researchers who explore the physical and chemical properties of electrical energy storage have found a new way to improve lithium-ion batteries. They successfully increased the voltage delivery of a lithium-ion battery and its ability to suppress dangerous conditions."

Source: University of Tokyo (27 March 2020)

COMPUTING
Supercomputer Calculates Your Risk of Getting a Virus on an Airplane

"How At Risk Are You of Getting a Virus on an Airplane? New 'CALM' model on passenger movement developed using Frontera supercomputer."

Source: SciTechDaily (31 March 2020)

COVID 19
As Life Moves Online, an Older Generation Faces a Digital Divide
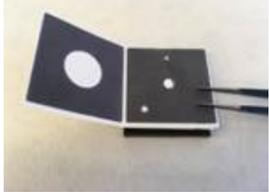

"As life has increasingly moved online during the pandemic, an older generation that grew up in an analog era is facing a digital divide. Many are struggling to keep up with friends and family through digital tools."
First time users need to complete a one-time user registration using your SUTD email address LINK

Source: New York Times (27 March 2020)

COVID 19
Wastewater Test Could Provide Early Warning Of COVID-19

"The wastewater-based epidemiology (WBE) approach could provide an effective and rapid way to predict the potential spread of novel coronavirus pneumonia (COVID-19) by picking up on biomarkers in faeces and urine from disease carriers that enter the sewer system.."

Source: EurekAlert! (30 March 2020)

ENERGY
A Key Development In The Drive For Energy-Efficient Electronics

"Scientists have made a breakthrough in the development of a new generation of electronics that will require less power and generate less heat. It involves exploiting the complex quantum properties of electrons -- in this case, the spin state of electrons."
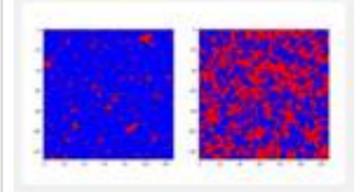
Source: Science Daily (23 March 2020)

ENERGY HARVESTING
Energy-Harvesting Design Aims To Turn Wi-Fi Signals Into Usable Power

"Terahertz waves are pervasive in our daily lives, and if harnessed, their concentrated power could potentially serve as an alternate energy source."

Source: MIT News (27 March 2020)

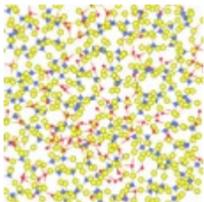
MACHINE LEARNING
Machine Learning Puts A New Spin On Spin Models

"The research team showed the approach is applicable to more complex models and found that an AI trained on one model and applied to another could reveal key similarities between distinct phases in different systems."
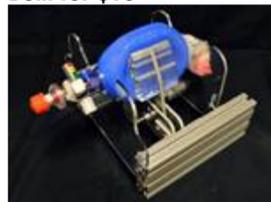
Source: EurekAlert! (28 March 2020)

MATERIAL SCIENCE
Designing Lightweight Glass For Efficient Cars, Wind Turbines

" It's hard to predict the properties of a glass from its composition because glasses are disordered structures. A new machine learning model can predict the density and stiffness of glasses. This information can be used to design better reinforcing fibers for strong and lightweight composite materials in automobiles and wind turbines. "

Source: University of Michigan (26 March 2020)

MEDICAL DEVICES
MIT will Post Free Plans Online for an Emergency Ventilator that can be Built for $10

"A rapidly assembled volunteer team of engineers, physicians, computer scientists, and others, centered at MIT, is working to implement a safe, inexpensive alternative for emergency use, which could be built quickly around the world."
Check out Dyson Designs Ventilator in 10 Days for COVID-19 Patients

Source: SciTechDaily (31 March 2020)

ROBOTICS
3 Nonsurgical Robotics Applications to Watch in Healthcare

"In response to the talent shortage and laborious processes, biopharmaceutical and testing laboratories are turning to automation to improve productivity, safety, and consistency. In turn, higher-quality, more flexible care can enhance patient outcomes."

Source: Robotics Business Review (24 March 2020)

ROBOTICS
Empathy Machine: Humans Communicate Better after Robots Show Their Vulnerable Side

"Subjects with vulnerable robots also divided their conversation more equally between each human member of the team. These participants later reported that they perceived their experience as more positive, compared with those in the control groups."
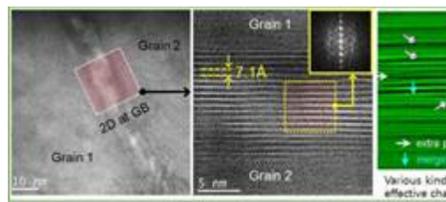
Source: Scientific American (27 March 2020)

SMART BUILDINGS
Scientists Tap Unused Energy Source To Power Smart Sensor Networks

"A team led by Penn State scientists developed a device that provides 400 percent higher power output compared to other state-of-the-art technology when working with low-level magnetic fields, like those found in our homes and buildings."

Source: EurekAlert! (31 March 2020)

SOLAR CELL
Highly Efficient and Stable Double Layer Solar Cell Developed

"Solar cells convert light into energy, but they can be inefficient and vulnerable to the environment, degrading with too much light or moisture and low temperature. An international research team has developed a new type of solar cell that can both withstand environmental hazards and is 26.7% efficient in power conversion. "

Source: KAIST (27 March 2020)

SUPPLY CHAIN
Coronavirus Is A Wake-Up Call For Supply Chain Management

"People from procurement, logistics, and supply-chain financing need to come together to talk about what key gaps need to be fixed to protect the company from disruptive events in the future and how to align the goals of procurement with the overall business objectives."

Source :Harvard Business Review (27 March 2020)

URBAN DESIGN
COVID-19 Could Prompt New Approach To Urban Design In Asia-Pacific Region, Home To Some Of The World's Most Densely Populated Cities

"There will probably be consideration of desirable population density levels, a greater utilisation of apps and smart data to track health trends, and many cities will probably start to think about their food security more closely," he said."

Source: Thomson Reuters Foundation (18 March 2020)