

Weekly Discovery

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12 November 2018 - 16 November 2018

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

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Cybersecurity	Digital Design & Fabrication	Advanced Manufacturing

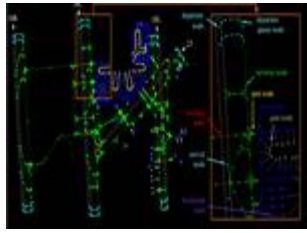
AGEING
When No One Retires



"More and more Americans want to work longer - or have to, given that many aren't saving adequately for retirement. Soon, the workforce will include people from as many as five generations ranging in age from teenagers to 80-somethings."

Source: [Harvard Business Review](#) (8 November 2018)

AIRPORT OPERATIONS
Modelling and Simulating Airport Surface Operations with Gate Conflicts



"The Surface Operations Simulator and Scheduler (SOSS) is a fast-time simulation of the airport surface used to rapidly develop and test new surface scheduling concepts. Gate conflicts present a challenge for surface scheduling."

Source: [The Aeronautical Journal](#) (5 November 2018)

BIG DATA
Over Half a Million People Take Part in Largest Ever Study of Psychological Sex Differences and Autistic Traits



"Big data is important to draw conclusions that are replicable and robust. This is an example of how scientists can work with the media to achieve big data science."

Source: [University of Cambridge](#) (12 November 2018)

COMMUNICATION
Next-Generation 911—The Future of Public Safety, Forecast to 2023



"In contrast to a legacy voice-centric E9-1-1 network, NG9-1-1 supports a more diverse set of IP-based communications, including text, data, photos, and video exchanges that enhance the speed, accuracy, and preparation of first responders."

Source: [Frost & Sullivan](#) (31 October 2018)

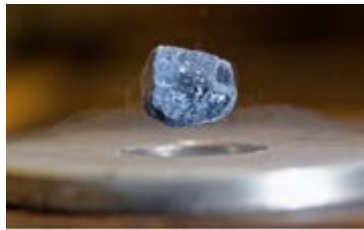
DIGITAL FABRICATION
Researchers Simplify Tiny Structures' Construction Drip by Drip



"A new study, explains how a deeper understanding of these highly dynamic, sometimes unstable forces can be harnessed to cheaply and quickly fabricate objects that normally require a more expensive and time-consuming process."

Source: [Princeton University](#) (7 November 2018)

EMERGING TECHNOLOGIES
8 Fascinating and Fearsome Frontiers of Science You Should Know About



"We called on a network of experts to tell us which corners of scientific research make them most excited and which most concerned. Six hundred and sixty replied. We think their answers will surprise you."

Source: [World Economic Forum](#) (9 November 2018)

INNOVATION
Technology Is Changing What It Means to Be Creative – Here's How



"Innovation is changing what it means to be creative. Here, some of the world's top thinkers discuss how to blend technology with creativity for the benefit of everyone."

Source: [Wired](#) (6 November 2018)

MATERIALS INFORMATICS
AI Capable of Outlining in a Single Chart Information from Thousands of Scientific Papers



Source: Taylor & Francis Online

"Scientists have developed a Computer-Aided Material Design (CAMaD) system capable of extracting information related to fabrication processes and material structures and properties - factors vital to material design - and organizing and visualizing the relationship between them."

Source: [Science Daily](#) (12 November 2018)

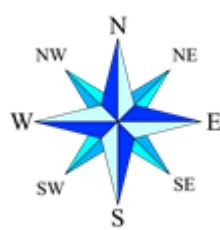
MATERIALS INNOVATION
See-Through Film Rejects 70 Percent of Incoming Solar Heat



"MIT engineers have developed a heat-rejecting film that could be applied to a building's windows to reflect up to 70 percent of the sun's incoming heat. The film is able to remain highly transparent below 32 degrees Celsius, or 89 degrees Fahrenheit."

Source: [MIT News](#) (8 November 2018)

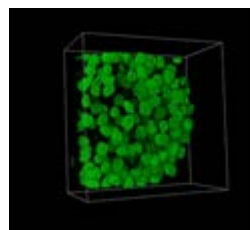
NAVIGATION
UK Scientists Build World's First Quantum Compass



"The device...can help pinpoint the exact location of anything on Earth in a way that cannot be interfered with, because it does not rely on external satellites...It's completely self-contained," said Joseph Cotter... 'It's particularly useful if you want to navigate a large ship or autonomous vehicles over long periods of time, without having to send or receive any other signals to know where you are.'"

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Source: [Financial Times](#) (10 November 2018)

OPTICS
Three-Photon Excitation for In-Depth Imaging



"By combining multiphoton absorption with light-sheet fluorescence microscopy, researchers demonstrate greater imaging depths and low photodamage for biomedical imaging."

Source: [Optics & Photonics News](#) (7 November 2018)

RENEWABLE ENERGY
Harvesting Renewable Energy from the Sun and Outer Space at the Same Time



"Scientists have demonstrated for the first time that heat from the sun and coldness from outer space can be collected simultaneously with a single device. Their research suggests that devices for harvesting solar and space energy will not compete for land space and can actually help each other function more efficiently."

Source: [Science Daily](#) (8 November 2018)

SMART DEVICES
Batteryless Smart Devices Closer to Reality



"Researchers at the University of Waterloo have taken a huge step towards making smart devices that do not use batteries or require charging."

Source: [University of Waterloo](#) (8 November 2018)

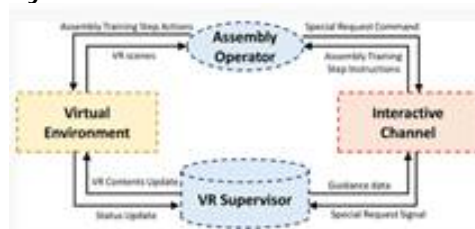
TECHNOLOGICAL DISRUPTION
Disruptors: Technology to Replace Car Salespeople



"The automotive industry is a multi-billion dollar market, and sales of new passenger cars are projected to exceed 80 million units in 2022. The distribution model of new passenger cars sales has not evolved greatly since Ford's T-Model saw the advent of mass production in the early 1900s. Can technology revolutionise sales of new passenger cars?"

Source: [Euromonitor](#) (22 October 2018)

VIRTUAL REALITY
Virtual Reality Training for Assembly of Hybrid Medical Devices



"In this paper, we proposed and evaluated a novel virtual reality (VR) training system for the assembly of hybrid medical devices. The proposed system, which is an integration of Artificial Intelligence (AI), VR and gaming concepts, is self-adaptive and autonomous."

Source: [Multimedia Tools and Applications](#) (December 2018)

WEARABLES
Bulletproof Heating Fit for a Winter Soldier



"Researchers in South Korea have developed a bulletproof heating pad which could be used to make heated body armor for police and military personnel in cold climate. Sought to make a wearable heating device by incorporating metallic nanowires into Kevlar®, the bullet-proof fiber is used in many types of body armor."

Source: [Asian Scientist](#) (9 November 2018)