Weekly Discovery

We SHARE to inspire and ignite ideas!

19 March 2018 - 23 March 2018

SPECIAL FEATURE by SUTD LIBRARY

ROBOTS IN CONSTRUCTION

With the growing use of robotics in various industries, the construction industry is not an exception. We now see use of robotics in the construction industry in bricklaying, arc welding, 3D printing of structures, drones to oversee construction work and many more. There are pros and cons in the usage of robots in the construction industry. Articles below will provide an insight on what they are and also the trends and developments, including some real-life examples of how robots are being used and the benefits and impact of the use of robots in the industry.

DOWNLOAD

ARTIFICIAL INTELLIGENCE FUNDING

Investors Share Their Predictions for AI and Machine Learning in 2018

Machine learning is on the rise. Check out where the next investment opportunities lie in the sector for 2018, forecasted by venture capitalists.

Source: Venture Beat (15 March 2018)

ARTIFICIAL INTELLIGENCE

Microsoft Reaches a Historic Milestone, Using AI to Match Human Performance in Translating News from Chinese to English

The first machine translation system that translates Chinese to English with 95% accuracy. Training techniques employed include dual learning, deliberation networks and joint training. Also read the Microsoft publication.

Source: Microsoft (14 March 2018)

BIOTECHNOLOGY

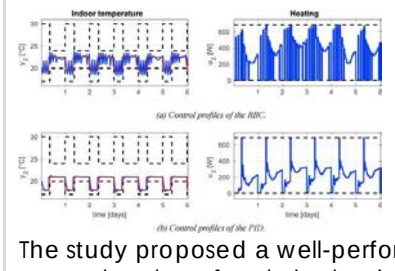
Bacterial Tape Recorder

Scientists created an application which enables bacteria to record cellular signals. The innovation could find its place in detecting body abnormalities to improve health and measuring ocean pollution levels.

Source: Scientific American (March 2018)
Available @ SUTD Library (Call Number Q1 SCI)

BUILDING CONTROL

Approximate Model Predictive Building Control via Machine Learning



The study proposed a well-performing approximation of optimisation-based controllers that can be applied to existing hardware by using advanced machine learning algorithms for a multiple input/output building control system.

Source: Applied Energy (15 May 2018)

CARBON MATERIAL

Process Converts Wood into a Squishy Sensor

Scientists treated Balsa wood to form a lattice carbon structure that is light, flexible, durable and a conductor. It may be used in flexible electronics in the future. Also read more at Chem.

Source: C&EN (18 March 2018)

CYBERSECURITY INDUSTRY

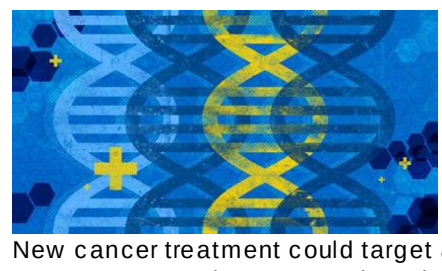
Cybersecurity by the Numbers: Market Estimates, Forecasts, and Surveys

A comprehensive listing of 34 points on cybersecurity issues. Among these are ransomware attacks, cybersecurity skills shortage, worldwide enterprise security spending. Detailed figures included.

Source: Forbes (15 March 2018)

DRUG DELIVERY

Programming DNA to Deliver Cancer Drugs

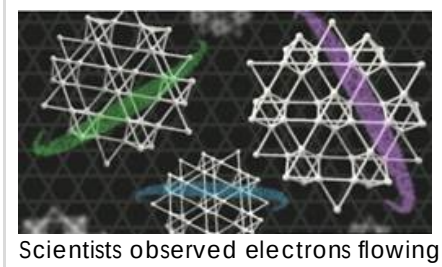


New cancer treatment could target any DNA sequence chosen, attach and control any protein by programming strands of DNA into switches that turn proteins on and off. Read more at Nature.

Source: EurekAlert! (19 March 2018)

MATERIALS SCIENCE

Japanese Basket Pattern Inspires New Material



Scientists observed electrons flowing through symmetric pattern resembling Kagome baskets, they will deviate and return into the lattice without losing energy, resulting in quantum materials.

Source: BBC News (20 March 2018)

MEDICAL DEVICE

Startup Points Toward Minimally Invasive Heart Repair

A catheter device rectifies organ defects using soft and flexible materials instead of invasive alternatives. This technique could enable easy access to organs and avoid intrusive treatment like open-heart surgery.

Source: The Harvard Gazette (15 March 2018)

MEDICAL TECHNOLOGY

New 3D Tissue Heart Model Could Save Expecting Mothers

Can doctors predict how their prescribed drugs will affect embryo toxicity and fetal development? Read more details on a 3D tissue model mimicking early stage heart development could make this possible at Nature Protocols.

Source: Interesting Engineering (17 March 2018)

NEUROIMAGING

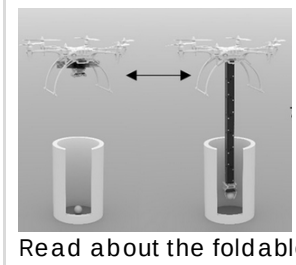
Brain Scans in the Courts: Prosecutor's Dream or Civil Rights Nightmare?

It is possible to detect if a person is lying by observing the brain's response via MRI or EEG technologies. However their use in a legal setting is not yet possible as more testing is needed, it violates personal rights and is not accepted in court.

Source: Inside Science (14 March 2018)

ROBOTICS

An Origami-Inspired, Self-Locking Robotic Arm That Can Be Folded Flat



Read about the foldable arm developed for unmanned aerial vehicles and robots. It combines origami folding techniques with locking mechanism to provide a stiff and rigid arm capable of performing tasks.

Source: Science Robotics (14 March 2018)

SHARING ECONOMY

The Superhost. Biopolitics, Home and Community in the Airbnb Dream-World of Global Hospitality.

Photograph by JOHN MACDOUGALL AFP

This comprehensive research explains the sharing economies of global spaces using Airbnb. Besides giving an indepth analysis, it shares insights on the changes Airbnb has brought about to the global perception of Living Spaces.

Source: Geoforum (May 2018)

SMART CLOTHING

Form and Function

70% of the globally worn functional sportswear is manufactured in Taiwan. These smart clothing provide higher levels of comfort and contribute to healthier lifestyle. Read on and explore the latest smart textile technologies.

Source: Taiwan Review (Mar / Apr 2018)
Available @ SUTD Library (Call Number DS701 F74 TAI)

SUPERCOMPUTERS

Riding the HPC Wave: Supercomputers in the Search for Oil

Supercomputers can play an integral part in just about every single step of oil and gas production process, from exploration to production and processing, as well as rig design and cybersecurity.

Source: Asian Scientist: Supercomputing Asia (January 2018)
Available @ SUTD Library (Call Number Q80 ASI)

VIRTUAL REALITY

Interactive Virtual Reality Enhances Physicians' Treatment Planning of Complex Conditions

A live 360-degree view of internal anatomy on screen, enabled by virtual reality, makes effective pre-operative planning now possible when treating a patient.

Source: Society of Interventional Radiology (18 March 2018)

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