

Weekly Discovery

We SHARE to inspire and ignite ideas!

28 November 2016 – 2 December 2016



SPECIAL HIGHLIGHT

MACHINE LEARNING

Machine Learning is a form of artificial intelligence that uses algorithms to learn and provide insights without explicitly being programmed. The term was first coined by Arthur Samuel some 57 years ago which was evolved from the study of pattern recognition and computational learning theory. It had since made tremendous advancements and researchers are leveraging on machine learning in the field of robotics, computational biology, speech recognition, space exploration and even presidential election predictions.

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COMPUTER APPLICATION

Baidu Says Its New Face Recognition Tech Is Better Than Humans At Checking IDs



A new [facial recognition technology](#) using AI is able to scan huge facial databases within 1 second, with an accuracy of 99.77%. Plus, it can be run on a PC or a high end hand phone, though with lower accuracy.

Source: [Fast Company](#) (17 November 2016)

EMERGING MARKETS

Mapping Frontier Economies

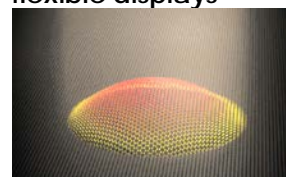


Frontier economies are overtaking the emerging-market giants like Brazil, Russia and China. Find out how they compete with the giants, who have become increasingly expensive for multinationals to operate, in the global economy by combining huge potential with big risks.

Source: [Harvard Business Review](#) (December 2016)

GRAPHENE APPLICATION

Get ready for TV screens you can ROLL UP: Scientists create colour-changing graphene bubbles for flexible displays

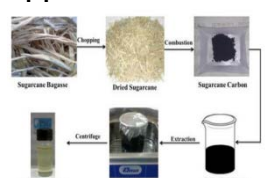


Dutch scientists have discovered a kind of graphene bubble that can alter its colour and can be precisely controlled. Tomorrow's TV screens could consist of these graphene bubbles, which would be more flexible, durable and energy efficient than current LED technology.

Source: [DailyMail](#) (25 November 2016)

GREEN TECHNOLOGY

Turning sugar waste into light, and job opportunities

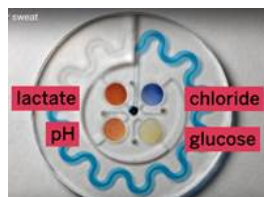


A technique to synthesize fluorescent carbon quantum dots of nanoscale proportions from sugarcane waste. Benefits include removing agricultural waste from the environment and the utility of the fluorescent carbon quantum dots used in biosensors, light-emitting diodes and in drug delivery. Find out more at [Applied Surface Science](#).

Source: [Sciencedaily](#) (24 November 2016)

HEALTHCARE MONITORING

Watch a new skin sensor measure your health while you exercise



Information on dehydration level could be soon be available via smartphone app connected to an adhesive patch on your body that measures the composition of your sweat. Besides supplying the health information, with a little fine-tuning the patch can be utilized as a doping test in athletic events.

Source: [Science](#) (23 November 2016)

MALWARE

Malware turns PCs into eavesdropping devices



Without the presence of a microphone on the device, researchers have found that malware can still turn the headphone jack coupled with the headphone into an eavesdropping device. One counter measure would be an anti-malware application to block unauthorized speaker-to-mic re-tasking operation.

Source: [Sciencedaily](#) (22 November 2016)

MATERIALS

Team develops thin foam that keeps vehicles, buildings cooler, quieter



Discover a unique insulation foam for vehicles and buildings made from aerogel composites. Compared to traditional insulation foam, it is more than twice as effective in insulating against heat and is thinner. It can eliminate 30% more external noise than typical soundproofing materials and is eco-friendly.

Source: [Sciencedaily](#) (23 November 2016)

SENSORS

Sensors in Medical Diagnostics and Health Monitoring



This [report](#) updates on the various developments and strategic insights in sensors for medical devices and treatment. These include biosensors for customized antibiotic treatment, nano gas sensors for breath analysis, liquid crystal-based chemical sensors for detecting respiratory diseases, and nanosensors for portable health monitoring. Key Patents are included, too.

Source: [Frost & Sullivan](#) (25 November 2016)

SPACE OPTIMIZATION

New 3-D structure shows optimal way to divide space

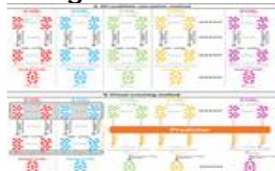


A [3D structure](#) comprised of 40 polyhedrons was developed to optimize space. This structure is unique as it does not fall within any current known category of spacing optimizing structures. In the future it may be used to develop products related to material structures, medical devices and even architectural design. Also read more at [New Journal of Physics](#).

Source: [Phys.org](#) (25 November 2016)

VIRTUAL SCREENING

Prediction of interface structures and energies via virtual screening



Virtual screening method based on machine learning to predict the interface structures and energies can help us to understand the nature of any interface. This method is many times more efficient than any of the current methods used today.

Source: [Science Advances](#) (25 November 2016)

WATER RESOURCE MANAGEMENT

Sun + sea = drinking water? Chinese scientists have the answer



To cope with global water shortage, scientists have developed a solar desalination device using nanotech materials that can utilize only the sunlight to produce 1.5 L fresh water hourly from sea water. More details on this technology can be found at [PNAS](#).

Source: [South China Morning Post](#) (25 November 2016)

WEB DEVELOPMENT

12 Timeless UI Patterns Analyzed



This [article](#) will guide you through the pros and cons of 12 classic user interface layout patterns, providing abundant examples, as well as solutions for improvement and tips for optimization.

Source: [Thenextweb.com](#) (25 November 2016)