

# Weekly Discovery

We SHARE to inspire and ignite ideas!

10 April 2017 – 14 April 2017

## BRAIN-COMPUTER INTERFACE

### Melding Mind and Machine: How Close Are We?



Some of the brain computer interfaces (BCI) applications range from controlling a robot arm, allowing paralyzed patient to move a tablet wirelessly, and may even treat diabetes. While the developments are still in infant stage, it shows great promise.

Source: [Scientific American](#) (11 April 2017)

## COMPUTATIONAL GEOMETRY

### This Mysterious 3D Printed Grotto Challenges Boundaries of Computational Geometry and Human Perception



Experience a structure beyond human perception, Standing at 3.5 meters tall and utilizing 7 tons of sandstone, that is designed using algorithms that utilize a large amount of data. This 3d printed ornament boasts 1.35 million surfaces and is housed in the Centre Pompidou located in Paris.

Source: [ArchDaily](#) (9 April 2017)

## COMPUTER NETWORKS

### Why Hidden 'Darknets' Are More Resilient to Attacks Than the Internet

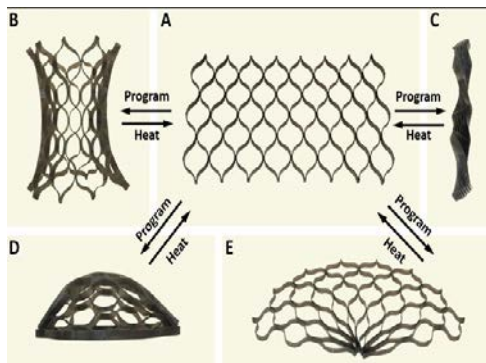


Hacking incidents are prevalent on the Internet, a recent study has shown that Darknets (assessable only through special programs) are more resilient to attack due to its decentralized nature. You can read more at [Physical Review E](#).

Source: [Livescience](#) (10 April 2017)

## 4D PRINTING

### Direct 4D printing via active composite materials



A technique that prints composite polymers three-dimensionally with high resolution, which can be readily transformed to a new permanent configuration merely by heating, is described. This method is opening a new chapter in product design, where components are simultaneously designed to possess variable configurations while in use. Thus it is promising in various fields such as medical technology, aerospace and consumer design.

Source: [Science Advances](#) (12 April 2017)

## DRONES

### The LEGO group builds drone-powered flying cloud that rains candy

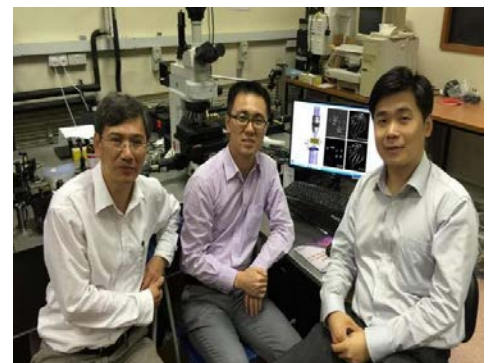


In the #LegoBuildAmazing challenge, SP young engineers remotely controlled a drone 'cloud' that unleashes candy rains, bringing kids' imagination to life and igniting more innovative ideas in the region.

Source: [Designboom](#) (8 April 2017)

## IMAGING

### Engineers develop novel lens for super-resolution imaging



Researchers from the National University of Singapore have designed a new lens which captures real-time images and is unhindered by resolution limitations in microscopy. The use of their imaging lens also does not require that the sample must be dyed or be placed close to the microscope. Thus, the imaging lens can be a useful tool for high precision failure inspection and biological research. Read more at [Advanced Materials](#).

Source: [Phys.org](#) (5 April 2017)

#### MATERIAL SCIENCE

### Leaf vein structure could hold key to extending battery life



Researchers have designed a porous material inspired by the structure of leaf veins. This material will improve the performance of rechargeable batteries through optimizing the charge and discharge process and reducing stresses within the battery electrodes, which currently restricts battery lifespan. It could also be used for gas sensing or for catalysis to disintegrate organic pollutants in water. Read more at [Nature Communications](#).

Source: [Phys.org](#) (6 April 2017)

#### TELEPORTATION

### Singapore scientists teleport lemonade over the internet

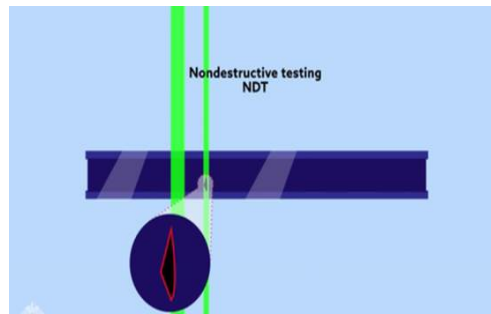


Can you trick your tongue into tasting flavours? That's what Scientists at the Keio-NUS CUTE center have been working on. There are even plans to make a spoon that replicate the taste for patients while lowering the actual amount of salt in their meals.

Source: [CNET](#) (6 April 2017)

#### NON-DESTRUCTIVE TESTING

### Video: Green Laser Sheds Light on Hidden Metal Damage



A new, cost-efficient approach of nondestructive testing that identifies damage inside metal structures, such as airplane, building and pipeline. It is also considered more sensitive than the existing techniques.

Source: [Engineering 360](#) (10 April 2017)

#### URBAN FARMING

### Sasaki Unveils Design for Sunqiao, a 100-Hectare Urban Farming District in Shanghai



A 100-hectare urban farming programme is taking off in Shanghai, bringing massive vertical farming into clusters of skyscrapers and serving as a dynamic living laboratory for innovation, interaction and education.

Source: [ArchDaily](#) (2 April 2017)

#### SUPPLY CHAIN

### Hewlett Packard: Supply chain, the great enabler



Listed by Gartner as one of the top 20 in the global supply chains ranking, HP EMEA share that customers first, operational excellence, world class financials, winning team and innovation are the 5 pillars of success.

Source: [Supply Chain Digital](#) (5 April 2017)

#### WEARABLE TECHNOLOGY

### Chiseled by light, Adidas' Futurecraft 4D could bring custom footwear to the masses



Adidas and manufacturing company Carbon has created Futurecraft 4D shoe and this collaboration mark the first time in using Digital Light Synthesis to make footwear. The technology uses oxygen permeable optics, digital light projection, and programmable liquid resins to construct the shoe.

Source: [Digital Trends](#) (7 April 2017)

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