

# Weekly Discovery

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9 SEPTEMBER 2019 - 13 SEPTEMBER 2019

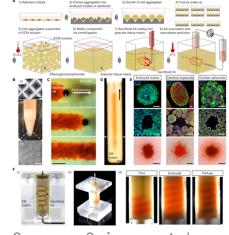
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<b>Cybersecurity</b>	<b>Digital Design &amp; Fabrication</b>	<b>Advanced Manufacturing</b>

## 3D PRINTING

### A Swifter Way Towards 3D-Printed Organs



Source: [Science Advances](#)

"Rather than trying to 3D-print an entire organ's worth of cells, SWIFT focuses on only printing the vessels necessary to support a living tissue construct that contains large quantities of OBBs, which may ultimately be used therapeutically to repair and replace human organs with lab-grown versions containing patients' own cells."

Also read at [Science Advances](#).

Source: [Science Daily](#) (6 September 2019)

## 5G

### Using Nature to Produce a Revolutionary Optical Material



"An international team of researchers has reported a new way to safeguard drones, surveillance cameras and other equipment against laser attacks, which can disable or destroy the equipment. The capability is known as optical limiting."

Source: [University of Houston](#) (5 September 2019)

## ACTIVE LEARNING

### Lessons in Learning



"The [study](#), published Sept. 4 in the Proceedings of the National Academy of Sciences, shows that, though students felt as if they learned more through traditional lectures, they actually learned more when taking part in classrooms that employed so-called active-learning strategies."

Source: [The Harvard Gazette](#) (4 September 2019)

## CARBON EMISSIONS

### Logging Study Reveals Huge Hidden Emissions of the Forestry Industry



"The wood industry is a massive source of uncounted carbon emissions, according to a pioneering study in North Carolina. The same is probably true globally."

Source: [New Scientist](#) (10 September 2019)

## DATA SCIENCE

### New Method of Analyzing Networks Reveals Hidden Patterns in Data



"A new way of measuring how relationships in a network change over time can reveal important details about the network, according to researchers at Penn State and the Korean Rural Economic Institute. For example, when applied to the world economy, the method detected the greatest amount of network change during 2008-2009, the time of the global financial crisis."

Source: [Phys.org](#) (10 September 2019)

## NEW MATERIAL

### Petra Bathroom Collection Is Made from Stain-Resistant Concrete



"It is a new material, a mixture of cement enriched with carefully selected aggregates,' the designers explained. 'The new form of concrete is a conglomerate with high-performing technical and structural characteristics, even when used in very thin layers,' they added. 'And, very importantly, it's a water-based material so is completely eco-friendly'."

Source: [Dezeen](#) (7 September 2019)

## PHYSICS

### A New Magnetic Swirl, or Skyrmion, Could Upgrade Data Storage



"Scientists have created a new version of the atomic whirlpools, known as antiferromagnetic skyrmions, the new structures have some advantages that could make them easier to work with than previously found varieties."

Read more at [Nature Materials](#).

Source: [Science News](#) (6 September 2019)

## PROSTHESIS

### Bionic 'Feeling' Leg Makes Walking Easier, Reduces Phantom Limb Pain



"... a bionic leg that brings similar advances to the lower body. The prosthesis sends sensor input from the foot and knee to a nerve in an amputee's thigh, allowing users to feel the bending of the knee, as well as pressure and vibrations of the foot on the ground. And those sensations, it turns out, make a big difference to the health of the wearer."

In addition, read at [Nature Medicine](#).

Source: [IEEE Spectrum](#) (9 September 2019)

## PSYCHOLOGY TECH

### How to Cure Your Kids' Addiction to Technology



Credit: Omri Cohen

"I am trying to empower people and help them take responsibility for their own lives, with much compassion ... We have terrible feelings that we don't want to experience. So a little bit of escaping is fine, but if we become dependent on it, that's a problem that bandages won't solve."

Source: [Haaretz](#) (6 September 2019)

## RENEWABLE ENERGY

### ASEAN Renewable Energy Market, Forecast to 2023



"The 'ASEAN Renewable Energy Market, Forecast to 2023' focuses on the past, current, and future growth potential of Renewable Energy (RE) in the ASEAN region. The focus of this study is on three major technologies: solar PV, wind power, and bioenergy (biomass and biogas) ..."

Source: [Frost & Sullivan](#) (6 September 2019)

## ROBOT-ASSISTED SURGERY

### Robot Helps Perform First Long-Distance Heart Surgery

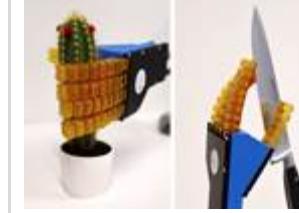


"A surgeon in India performed the first remote heart operation on a patient 20 miles away. The procedure, known as percutaneous coronary intervention, can help to open blood vessels in patients with atherosclerosis. Innovations in telemedicine and robot-assisted surgery have widely benefited patients who previously lacked access to the healthcare system."

Source: [Popular Mechanics](#) (6 September 2019)

## ROBOTICS

### Soft Self-Healing Materials for Robots That Cannot Be Destroyed



"As the name SHERO suggests, the goal of the project is to develop soft materials that can completely recover from the kinds of damage that robots are likely to suffer in day to day operations, as well as the occasional more extreme accident."

Source: [IEEE Spectrum](#) (5 September 2019)

## SUPPLY CHAIN

### The Mobile Supply Chain: Six Trends to Watch

	Currently Supporting	Planning to Support	No Plans to Support
(Proof of delivery	65.8%	18.9%	11.7%
GPS navigation and real time routing	63.1%	28.1%	9.0%
Delivery tracking and scheduling	61.3%	23.1%	12.6%
Parcel delivery and tracking	58.5%	27.9%	7.2%
Signature capture	55.0%	28.8%	9.9%
Electronic signature and capture	51.4%	36.9%	9.4%
Route optimization	46.0%	45.1%	6.3%
Scan proof of vehicle	43.2%	33.3%	15.5%
Identify OBD (on board, damage) situations and initiate claims process	42.3%	32.4%	14.4%
Fleet management (remote monitoring, maintenance)	41.4%	42.3%	9.9%
Velocity-blocking (block apps at high speeds)	40.5%	33.3%	14.4%
Baggage tracking	36.0%	27.0%	20.7%
Geo-blocking (block apps in given areas)	29.7%	42.3%	16.2%

"As the mobile supply chain comes into clearer view, expect to see even more innovations making their way into the area outside of the warehouse and DC four walls. And while we're already seeing significant progress in this area, technological advancement never sleeps, which means there's always more around the next corner."

Source: [Logistics Management](#) (4 September 2019)

## SUSTAINABLE MATERIALS

### The Vegan Fabrics That Fashion Is Betting On



"A new crop of innovative bio materials may offer part of the solution, replacing wasteful textiles like cotton and leather."

Source: [BBC News](#) (10 September 2019)

## TRANSPORT

### MAD + HyperloopTT Design Transportation Infrastructure That Supports Urban Farming



"MAD Architects, led by Ma Yansong, has collaborated with Hyperloop Transportation Technologies (HyperloopTT) on the development of an elevated, rapid transport system. MAD's design seeks to demonstrate how man-made structures can merge with nature through a new urban infrastructure."

Source: [designboom](#) (10 September 2019)

## WATER

### Major Environmental Challenge as Microplastics Are Harming Our Drinking Water



"According to a latest study, the microplastics in the waste streams causing potentially catastrophic consequences for human health and our aquatic systems. Scientists investigated nano and microplastics in water and wastewater treatment processes. The group found that little bits of plastic break down further during treatment process, reducing the presentation of treatment plants and affecting on water quality."

Source: [Tech Explorist](#) (9 September 2019)

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