SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

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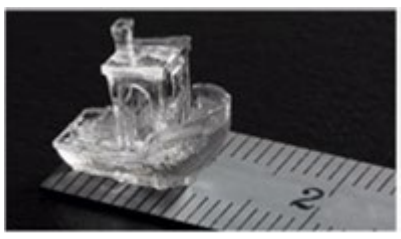
3D PRINTING

Printing Tiny, High-Precision Objects in a Matter of Seconds

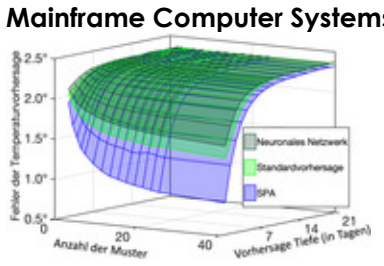


"Researchers at EPFL have developed a new, high-precision method for 3D-printing small, soft objects. The process, which takes less than 30 seconds from start to finish, has potential applications in a wide range of fields, including 3D bioprinting."

Source: EPFL (13 February 2020)

ALGORITHMS

Computer-Based Weather Forecast: New Algorithm Outperforms Mainframe Computer Systems



"Researchers at Johannes Gutenberg University Mainz (JGU) and Università della Svizzera italiana (USI) in Lugano in Switzerland have recently unveiled an algorithm that can solve complex problems with remarkable facility – even on a personal computer."

Source: Johannes Gutenberg Universitat Mainz (13 February 2020)

ALGORITHMS

Never Trust a Person's Face? New Research on Analyzing Facial Expressions

"'One is you are never going to get 100 percent accuracy,' he said. 'And the second is that deciphering a person's intent goes beyond their facial expression, and it's important that people — and the computer algorithms they create — understand that'."

Source: SciTechDaily (16 February 2020)

ARTIFICIAL INTELLIGENCE

Linking Sense of Touch to Facial Movement Inches Robots Toward 'Feeling' Pain

"A robot with a sense of touch may one day 'feel' pain, both its own physical pain and empathy for the pain of its human companions. Such touchy-feely robots are still far off, but advances in robotic touch-sensing are bringing that possibility closer to reality."

Source: Science News (16 February 2020)

CITIES

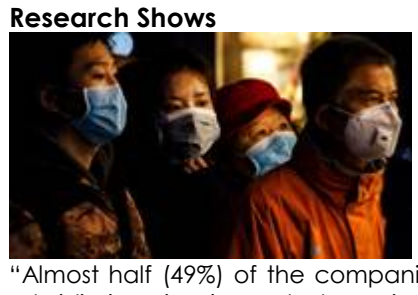
Future of Smart Cities—Key City Profiles

"The study looks to identify the unique intelligent transport strategies adopted by major smart cities from a global perspective. It focuses on various developments in this segment, including their current and future outlook. It also presents a general overview of the disruptive technologies, data and digital strategies and various smart city initiatives."

Source: Frost & Sullivan (13 February 2020)

COVID-19

Coronavirus Could Impact 5 Million Companies Worldwide, New Research Shows



"Almost half (49%) of the companies with subsidiaries in impacted regions are headquartered in Hong Kong, while the U.S. accounts for 19%, Japan 12% and Germany 5%."

Source: CNBC (17 February 2020)

COVID-19

Singapore Has 'Near-Perfect' Coronavirus Detection, Harvard Study Says

"Singapore's approach to the coronavirus outbreak is the 'gold standard' for case detection, according to a new study at Harvard University, with researchers using Singapore as a benchmark for other countries."

Source: Business Insider (18 February 2020)

CYBERSECURITY

How to Protect People Against Phishing and Other Scams

"For electronic health, teach your users basic digital hygiene, but commit your budget and time to staying a step ahead of the enemy in the technical arms race that is impossible to avoid."

Source: Scientific American (10 February 2020)

DRONES

Scientists Look to Bees to Develop Drone Technology

"The researchers are carrying out two types of experiment to "reverse engineer" bee brains — work out how honeybees and bumblebees can reliably navigate over several kilometres, learning the features that will enable them to return to their nest."

Source: Financial Times (17 February 2020)

ENERGY

Toward Net-Zero-Energy Greenhouses

"A model developed by researchers at North Carolina State University, USA, suggests that many greenhouses could become energy neutral, or even capture and sell excess energy, by using see-through solar panels to harvest energy."

Source: Optics & Photonics News (13 February 2020)

HIGHER EDUCATION

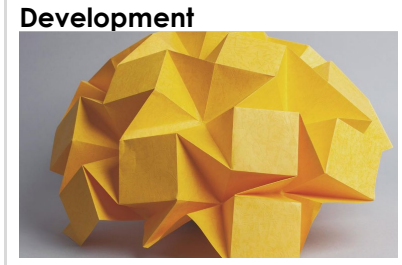
The Chronicle's Trends Report 2020

"Welcome to The Chronicle's sixth annual Trends Report … You'll find expert analysis, insights born of deep reporting, and commentary to spark thinking on your campus. Here are the major trends we've identified for 2020."
Click here and register for your Chronicle account to access the full report.

Source: The Chronicle of Higher Education (16 February 2020)

PRODUCT DEVELOPMENT

How Generative Design Could Reshape the Future of Product Development

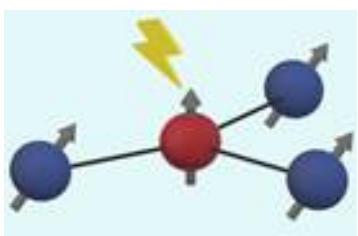


"Generative design and additive manufacturing (AM) technologies are often seen as natural partners, since AM machines cope well with the complex, organic shapes that often emerge from such algorithms."

Source: McKinsey & Company (February 2020)

QUANTUM ERROR CORRECTION

Correcting the "Jitters" in Quantum Devices



"A new study suggests a path to more efficient error correction, which may help make quantum computers and sensors more practical."
Read more in Physical Review Letters.

Source: MIT News (18 February 2020)

RENEWABLE TECHNOLOGY

Scientists Built a Genius Device That Generates Electricity 'Out of Thin Air'

'The claim may sound like an overstatement, but a new study by Yao and his team describes how the air-powered generator can indeed create electricity with nothing but the presence of air around it. It's all thanks to the electrically conductive protein nanowires produced by Geobacter (G. sulfurreducens, in this instance)."

Source: Science Alert (18 February 2020)

SOLAR POWER

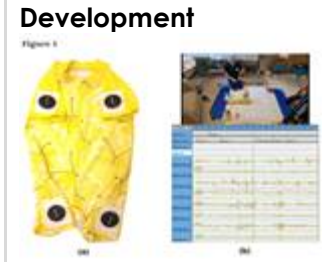
Researchers Claim Solar Efficiency Breakthrough for Flexible 'Skin'

"A flexible solar 'skin' that could be used to generate power on homes, cars and phones is a step closer to development after the technology was used to break a world record for electricity conversion, researchers say."

Source: The Guardian (17 February 2020)

WEARABLES

A Smart Jumpsuit Provides Information on Infants' Movement and Development



"A new innovation makes it possible, for the first time, to quantitatively assess children's spontaneous movement in the natural environment."

Source: Science Daily (14 February 2020)

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