SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

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2 Feb - 6 Feb 2026

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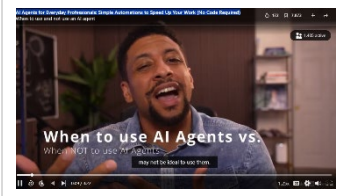

Featured Course

AI Agents for Everyday Professionals: Simple Automations to Speed Up Your Work (No Code Required)

25m

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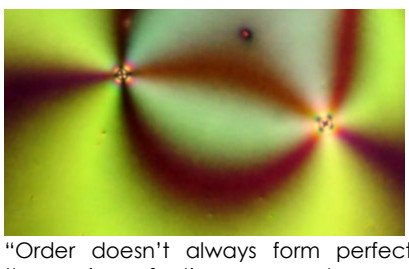
AI

Scientists use AI to crack the code of nature's most complex patterns 1,000x faster



"Order doesn't always form perfectly—and those imperfections can be surprisingly powerful. In materials like liquid crystals, tiny "defects" emerge when symmetry breaks, shaping everything from cosmic structures to everyday technologies. Now, researchers have developed an AI-powered method that can predict how these defects will form and evolve in milliseconds instead of hours. By learning directly from data, the system accurately maps molecular alignments and complex defect behavior, even in situations where defects merge or split."

Source: Chungnam National University (29 Jan 2026)

AI

AI that talks to itself learns faster and smarter

"Talking to yourself may feel uniquely human, but it turns out this habit can also help machines learn. Internal dialogue helps people organize ideas, weigh choices, and make sense of emotions. New research shows that a similar process can improve how artificial intelligence learns and adapts. In a study published in Neural Computation, researchers from the Okinawa Institute of Science and Technology (OIST) found that AI systems perform better across many tasks when they are trained to use inner speech alongside short-term memory.

The findings suggest that learning is shaped not only by the structure of an AI system, but also by how it interacts with itself during training. As first author Dr. Jeffrey Quei?er, Staff Scientist in OIST's Cognitive Neurorobotics Research Unit, explains, "This study highlights the importance of self-interactions in how we learn. By structuring training data in a way that teaches our system to talk to itself, we show that learning is shaped not only by the architecture of our AI systems, but by the interaction dynamics embedded within our training procedures."

Source: OIST (28 Jan 2026)

ARCHITECTURE

Architects "must rethink how and why we build" in 2026

"Tough times lie ahead for architects and 2026 must be the year to reshape the profession, industry leaders have warned.

Dezeen asked architects from leading and emerging studios about what trends they predict will define the profession this year, including Dutch studio OMA, Chinese studio MAD, New York-based Selldorf Architects, London studio Nimtim Architects and Indian firm Earthscape Studio.

The challenges of designing in a period of economic uncertainty – and what that means for the role of the architect – emerged as major themes.

"Architecture, as we know it, is in crisis"

OMA partner Reinier de Graaf warned that the architecture profession is at breaking point.

In line with the subject of his upcoming book, Architecture Against Architecture, he argued that a myriad of issues are plaguing the industry including the impact of artificial intelligence (AI), a lack of collective ownership, and the morality of working on certain projects."

Source: Dezeen (7 Jan 2026)

BATTERIES

3D-Printed Batteries Put Power in Every Nook and Cranny: Former F1 engineer prints batteries to fit almost anywhere

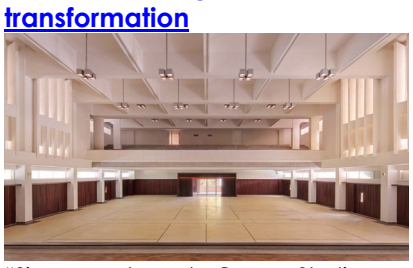
"A superpowered Formula 1 car, a buzzing drone, a soldier's pack, and a wearable smart device have this in common: They all need batteries. Ideally, those batteries could fit into oddly shaped nooks, curves, and voids, something that today's cylindrical or rectangular cells struggle to do. Engineer Gabe Elias, who helped design the Mercedes-AMG Petronas racers that won seven consecutive F1 championships, cofounded a startup to 3D print batteries onto surfaces, flowing into those unused spaces in all kinds of devices and vehicles.

The company recently won a US $1.25 million, 18-month contract with the U.S. Air Force to prove its tech's potential. It joins competitors such as Sakuú, in Silicon Valley, and Germany's Blackstone Technology, in a race to popularize printed batteries that can conform to various shapes. Soon after Elias cofounded Material Hybrid Manufacturing in 2023, his group realized that their initial pitch—printing batteries in new shapes for passenger cars—was stuck in neutral. EVs, especially bigger ones, don't have pressing space constraints for batteries. Electric SUVs and pickup trucks from Rivian, where Elias also worked, can fit 7,776 cylindrical batteries into a brawny, 135 kilowatt-hour pack."

Source: IEEE Spectrum (3 Feb 2026)

DESIGN

Open Studio highlights "quiet material richness" in Singapore school hall transformation



"Singapore-based Open Studio exclusively reveals how it turned New Bahru Hall, a 1960s school hall, into a pickleball court, juxtaposing its original teak panelling and mosaic flooring with galvanised-steel details.

New Bahru Hall was transformed as part of the renovation of a breeze-block-clad former school into a shopping and dining location that also has serviced apartments.

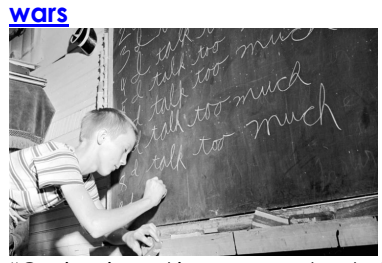
Working for hospitality firm The Lo & Behold Group, Open Studio turned the former school hall into a pickleball court that can also host live performances and cultural and artistic events.

Architects and Open Studio founders Lam Jun Nan and Jax Tan wanted to preserve and highlight the space's original features."

Source: Dezeen (3 Feb 2026)

EDUCATION

How learning handwriting trains the brain: the science behind the cursive wars



"Cursive is making a comeback. The looping handwriting style defined by flowing, connected letters had faded from curricula in places such as the United States, Finland and Switzerland as schools increasingly embraced digital tools. New Jersey has now become the latest US state to bring penmanship back into the classroom, requiring schools to teach cursive to children in grades 3 to 5 (roughly ages 8 to 11). It joins about two dozen states that in the past decade have introduced similar rules (in some other countries, such as France and Brazil, schools never stopped teaching cursive).

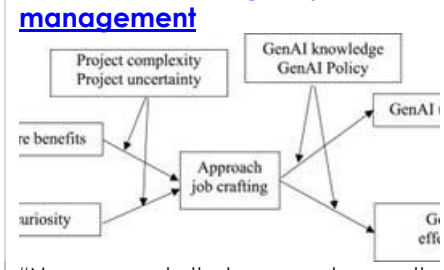
When former New Jersey governor Phil Murphy signed the bill last week, during his last days in office, he said that learning cursive could offer cognitive benefits for students.

Research has consistently shown that handwriting is more challenging and stimulating to the brain than is typing. But evidence that cursive offers an advantage over print handwriting — in which letters are written separately — is limited."

Source: Nature (2 Feb 2026)

GEN AI

How mindfulness can support GenAI use in transforming project management



"New research that surveyed more than 440 project managers worldwide has highlighted the critical connection between mindfulness and the adoption of generative artificial intelligence (GenAI) in the workplace.

Lead author of the study, Dr Eden Li from the School of Business and Law at Edith Cowan University (ECU) said that effective GenAI adoption requires not only technical skills but also mindfulness to navigate its complexities and challenges.

GenAI is powered by advanced algorithms that generate original content. It is transforming how we gather information, create knowledge, and operate businesses, with global investment projected to reach $151.1 billion by 2027. Global annual investment in projects is estimated at $48 trillion, with forecasts suggesting that by 2030, up to 80 per cent of project management tasks could be handled by AI technologies.

"The integration of GenAI holds great potential to transform the project management profession, which can bring both substantial benefits and significant disruption," Dr Li said.

Through a two-wave, time-lagged design survey, the research revealed how mindfulness supports project managers in leveraging GenAI technologies to innovate work practices."

Source: Eurekalert! (4 Feb 2026)

MATERIALS

Scientists engineer unsinkable metal tubes

"The superhydrophobic design could lead to resilient ships, floating platforms, and renewable energy innovations.

More than a century after the Titanic sank, engineers still have hopes of someday creating "unsinkable" ships. In a step toward reaching that lofty goal, researchers at the University of Rochester's Institute of Optics have developed a new process that turns ordinary metal tubes unsinkable—meaning they will stay afloat no matter how long they are forced into water or how heavily they are damaged.

Chunlei Guo, a professor of optics and of physics and a senior scientist at URochester's Laboratory for Laser Energetics, and his team describe their process for creating aluminum tubes with remarkable floating abilities in a study published in Advanced Functional Materials. By etching the interior of aluminum tubes, the researchers create micro- and nano-pits on the surface that turn it superhydrophobic, repelling water and staying dry."

Video

Source: Rochester (27 Jan 2026)

QUANTUM

Scientists found a way to cool quantum computers using noise

QUANTUM

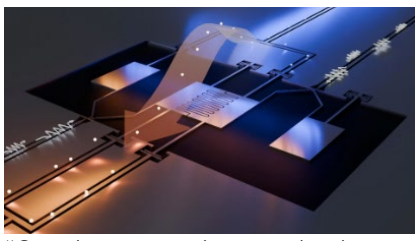
Scientists say quantum tech has reached its transistor moment

RESEARCH DATA

AI chatbots are infiltrating social-science surveys — and getting better at avoiding detection

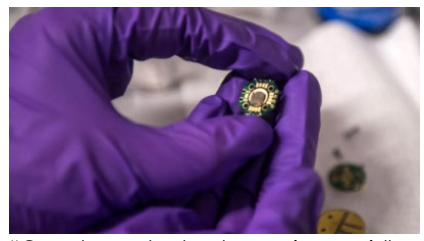
SUSTAINABILITY

A breakthrough that turns exhaust CO2 into useful materials



"Quantum computers need extreme cold to work, but the very systems that keep them cold also create noise that can destroy fragile quantum information. Scientists in Sweden have now flipped that problem on its head by building a tiny quantum refrigerator that actually uses noise to drive cooling instead of fighting it. By carefully steering heat at unimaginably small scales, the device can act as a refrigerator, heat engine, or energy amplifier inside quantum circuits."

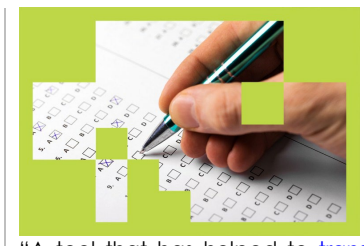
Source: Chalmers University of Technology (29 Jan 2026)



"Quantum technology is rapidly moving beyond controlled laboratory experiments and into practical use. According to a new paper published in Science, the field has reached a critical phase that mirrors the early era of classical computing before the invention of the transistor reshaped modern technology.

The paper was written by researchers from the University of Chicago, Stanford University, the Massachusetts Institute of Technology, the University of Innsbruck in Austria, and the Delft University of Technology in the Netherlands. It examines the current state of quantum information hardware and highlights the key opportunities and obstacles involved in building scalable quantum computers, communication networks, and sensing systems."

Source: University of Chicago (27 Jan 2026)

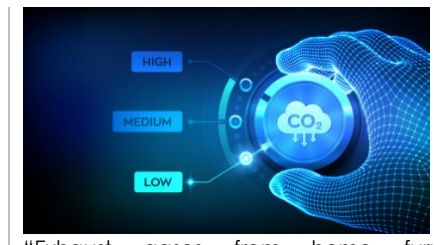


"A tool that has helped to transform modern social-science research is under threat thanks to artificial intelligence. Researchers are warning that a wave of chatbots impersonating people could corrupt or invalidate the online surveys that power thousands of studies every year. They are urging the companies that run the surveys to do more to address the problem.

Since the early 2000s, online surveys that allow people to participate in research studies from the comfort of their own desktops have been used in fields such as ecology, psychology, economics and politics. They have become "essential infrastructure" of the social sciences, says Felix Chopra, a behavioural economist at the Frankfurt School of Finance and Management in Germany, who uses such surveys in his research.

People get paid to participate in online surveys — anywhere from pennies to US$100 or more per hour. And an industry was created to administer the surveys and manage vast pools of potential respondents. Between 2015 and 2024, the use of online surveys in published studies increased four-fold, and with that explosion came people trying to game the system, from simply giving fake answers to deploying bots that impersonate individuals; the industry has had to build in checks and tools to root out fraud."

Source: Nature (28 Jan 2026)



"Exhaust gases from home furnaces, fireplaces, and industrial facilities release carbon dioxide (CO2) into the air, contributing to pollution. Scientists reporting in ACS Energy Letters have developed a new type of electrode designed to address this problem by capturing CO2 directly from the air and turning it into a useful chemical called formic acid. In testing, the system outperformed existing electrode technologies when exposed to simulated flue gas and when operating at CO2 levels similar to those found in the atmosphere.

"This work shows that carbon capture and conversion do not need to be treated as separate steps. By integrating both functions into a single electrode, we demonstrate a simpler pathway for CO2 utilization under realistic gas conditions," explains Wonyong Choi, a corresponding author on the study."

Source: American Chemical Society (29 Jan 2026)