SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

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6 Apr – 10 Apr 2026

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AI

AI breakthrough cuts energy use by 100x while boosting accuracy

"AI is consuming staggering amounts of energy—already over 10% of U.S. electricity—and the demand is only accelerating. Now, researchers have unveiled a radically more efficient approach that could slash AI energy use by up to 100× while actually improving accuracy. By combining neural networks with human-like symbolic reasoning, their system helps robots think more logically instead of relying on brute-force trial and error.."

Source: Tufts Uni (5 Apr 2026)

AI AUTONOMOUS SYSTEMS

Evaluating the ethics of autonomous systems

"Artificial intelligence is increasingly being used to help optimize decision-making in high-stakes settings. For instance, an autonomous system can identify a power distribution strategy that minimizes costs while keeping voltages stable.

But while these AI-driven outputs may be technically optimal, are they fair? What if a low-cost power distribution strategy leaves disadvantaged neighborhoods more vulnerable to outages than higher-income areas?

To help stakeholders quickly pinpoint potential ethical dilemmas before deployment, MIT researchers developed an automated evaluation method that balances the interplay between measurable outcomes, like cost or reliability, and qualitative or subjective values, such as fairness.

The system separates objective evaluations from user-defined human values, using a large language model (LLM) as a proxy for humans to capture and incorporate stakeholder preferences.

The adaptive framework selects the best scenarios for further evaluation, streamlining a process that typically requires costly and time-consuming manual effort. These test cases can show situations where autonomous systems align well with human values, as well as scenarios that unexpectedly fall shortv of ethical criteria.."

Source: MIT (31Apr 2026)

ARCHITECTURE

Kengo Kuma & Associates Present Site-Specific Installation "Earth | Tree" at Copenhagen Contemporary

"A new study published on March 24 in Radiology, the journal of the Radiological Society of North America (RSNA), shows that both radiologists and multimodal large language models (LLMs) have difficulty telling real X-rays apart from artificial intelligence (AI)-generated "deepfake" images. The findings raise concerns about the risks posed by synthetic medical images and highlight the need for better tools and training to help protect the accuracy of medical imaging and prepare health care professionals to recognize deepfakes.

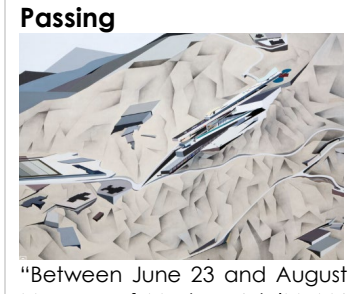
A "deepfake" is a video, photo, image or audio file that appears authentic but has been created or altered using AI.

"Our study demonstrates that these deepfake X-rays are realistic enough to deceive radiologists, the most highly trained medical image specialists, even when they were aware that AI-generated images were present," said lead study author Mickael Tordjman, M.D., post-doctoral fellow, Icahn School of Medicine at Mount Sinai, New York. "This creates a high-stakes vulnerability for fraudulent litigation if, for example, a fabricated fracture could be indistinguishable from a real one. There is also a significant cybersecurity risk if hackers were to gain access to a hospital's network and inject synthetic images to manipulate patient diagnoses or cause widespread clinical chaos by undermining the fundamental reliability of the digital medical record."."

Source: Archdaily (3 Apr 2026)

ARCHITECTURE

From Deconstructivism to Barrier-Breaking Achievements: Zaha Hadid's Legacy 10 Years After Her Passing

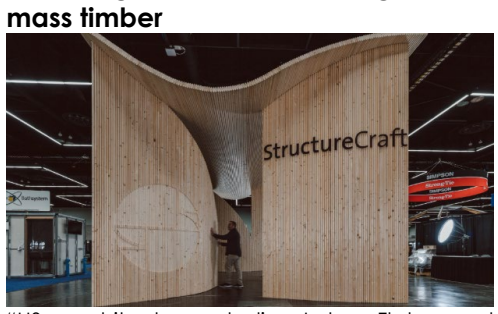


"Between June 23 and August 30, 1988, The Museum of Modern Art (MoMA) in New York held an exhibition titled Deconstructivist Architecture, as part of a program "conceived to examine current developments in architecture." Curated by Philip Johnson and Mark Wigley, it focused on the contemporary work of seven international architects: Coop Himmelblau, Peter Eisenman, Frank Gehry, Rem Koolhaas, Daniel Libeskind, Bernard Tschumi, and a young Zaha M. Hadid. At 37 years old, her work was presented to the world as an example of "the emergence of a new sensibility in architecture." The material on display was not a model or a blueprint, but a painting, The Peak, submitted for an architectural competition in Hong Kong in 1983. From this starting point, her contribution to architecture deepened along the same lines recognized at the time of her inclusion in the exhibition: the development of a distinctive, mathematical, and, in her own words, "fluid" architectural language, and her emergence as a leading female figure in a field historically dominated by men.."

Source: Archdaily (1 Apr 2026)

ARCHITECTURE

Experimental pavilion in Oregon "challenges the rectilinear logic" of mass timber



"US architecture studio Lake Flato and engineering and construction firm Structurecraft have experimented with dowel-laminated timber for a pavilion at the Mass Timber Conference in Oregon.

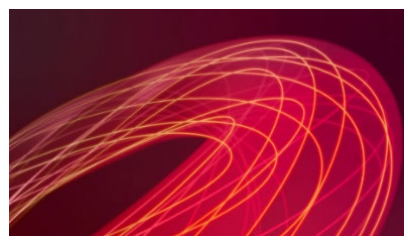
Lake Flato and Structurecraft collaborated on the pavilion, which utilises dowel-laminated timber (DLT). Originally engineered in Germany in the 1970s and 1980s, DLT has become more popular in the US market in the last decade.

"The installation introduces a bending-active shell system formed from dowel-laminated timber (DLT), which challenges the rectilinear logic that has defined mass timber construction for decades," said Lake Flato.."

Source: DEZEEN (2 Apr 2026)

ENERGY

Physicists just solved a strange fusion mystery that stumped experts



"Fusion scientists have solved a long-standing mystery inside tokamaks, the donut-shaped machines designed to harness fusion energy. For years, experiments showed that escaping plasma particles hit one side of the exhaust system far more than the other, but simulations couldn't explain why. Now, researchers have discovered that the rotation of the plasma itself plays a crucial role—working together with sideways particle drift to create the imbalance…

New research has uncovered a key piece of the puzzle. Scientists found that toroidal rotation, the motion of plasma as it circles around the tokamak, strongly influences where particles ultimately end up in the exhaust system.

Using the SOLPS-ITER modeling code, researchers simulated particle behavior under a range of conditions. Their results, published in Physical Review Letters, showed that simulations only matched real-world measurements when plasma rotation was included alongside cross-field drifts. This alignment between models and experiments is essential for designing fusion systems that can operate reliably outside the lab.."

Source: Princeton Uni (25 Mar 2026)

HEALTHCARE

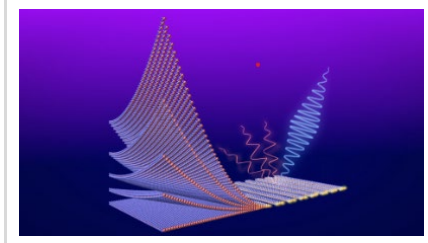
Scientists discover why flu and COVID hit older adults so hard

"A new study reveals that aging lungs may play a major role in why flu and COVID can become so dangerous for older adults. Researchers found that certain lung cells can trigger an exaggerated immune response, creating clusters of inflammatory cells that end up damaging lung tissue instead of protecting it. In experiments, activating this aging-related signal in young mice caused their lungs to behave like older ones, leading to severe illness.."

Source: University of California (3 Apr 2026)

OPTICS

Scientists trap light in a layer 1,000x thinner than hair



"Researchers have created a nanoscale structure that traps infrared light in a layer just 40 nanometers thick—over 1,000 times thinner than a human hair. By using a unique material with exceptional light-bending properties, they can confine and intensify light far beyond previous limits. This setup also dramatically boosts light conversion effects, turning infrared into visible blue light. The advance could pave the way for smaller, faster photonic technologies."

Source: University of Warsaw (5 Apr 2026)

OPTICS

Laser-powered wireless hits 360 Gbps and uses half the energy of Wi-Fi

QUANTUM

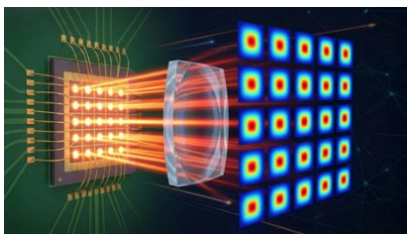
'It's a real shock': quantum-computing breakthroughs pose imminent risks to cybersecurity

QUANTUM

Scientists built a quantum battery that breaks the rules of charging

QUANTUM

A 200-year-old light trick just transformed quantum encryption



“A new breakthrough in wireless technology could dramatically boost internet speeds while cutting energy use—by switching from radio waves to light. Researchers have developed a tiny chip packed with dozens of miniature lasers that can transmit massive amounts of data simultaneously, reaching speeds over 360 gigabits per second in early tests…

In a study published in Advanced Photonics Nexus, researchers developed a compact optical wireless transmitter that delivers both extremely high speeds and improved energy efficiency. The system is built around a tiny chip containing an array of semiconductor lasers, combined with an optical design that carefully controls how light is distributed. Together, these components create a scalable platform for high-capacity indoor wireless communication."

Source: SPIE (2 Apr 2026)

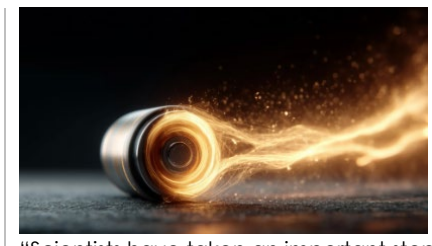
“The world could be caught off guard by quantum hackers before the end of this decade — much sooner than expected. This is the take-home message of two studies posted independently on 30 March, one a white paper by a team at Google1 and the other a preprint from Oratomic2, a start-up company in Pasadena, California.

Digital technologies that rely on encryption and authentication methods — such as credit-card systems, cryptocurrencies and Internet communications — have long been known to be vulnerable to future quantum computers. That's because the machines will be capable of cracking security measures faster than even the largest conventional supercomputers can.

But the assumption among researchers and cybersecurity companies working on quantum-proof encryption technologies has been that these machines would not become a serious threat to digital security for at least ten years.

The studies, both of which suggest that quantum computers capable of cracking current encryption systems could soon become available, have created a sense of “renewed urgency”, says Jintai Ding, a mathematician at Tsinghua University in Beijing. The findings have prompted “many discussions among people I know, ranging from academics to bankers and to people who care about cryptocurrencies", says Ding..”

Source: Nature (2 Apr 2026)



“Scientists have taken an important step toward next-generation energy technology by developing a proof-of-concept quantum battery that can charge, store, and release energy. This early prototype represents the closest progress so far toward building a fully functional quantum battery.

Unlike conventional batteries that depend on chemical reactions, quantum batteries rely on the unusual principles of quantum physics. They use effects such as superposition and interactions between light and electrons, which could allow for much faster charging and greater energy storage capacity..”

Source: RMIT (4 Apr 2026)

“As digital communication accelerates and cyber threats continue to rise, researchers are working to develop more secure ways to transmit information. One of the most promising approaches is quantum cryptography, which uses individual photons to generate encryption keys. A research team from the Faculty of Physics at the University of Warsaw has created and tested a new quantum key distribution (QKD) system within existing city fiber networks. Their approach uses high-dimensional encoding and is based on a well-known optical phenomenon called the Talbot effect. The findings were published in Optica Quantum, Optica, and Physical Review Applied.

"Our research focuses on quantum key distribution (QKD) -- a technology that uses single photons to establish a secure cryptographic key between two parties," says Dr. Michał Karpiński, head of the Quantum Photonics Laboratory at the Faculty of Physics, University of Warsaw. "Traditionally, QKD employs so-called qubits -- the simplest units of quantum information. While this method is already well tested, it does not always meet the requirements of more demanding applications. That's why researchers are now working on multidimensional encoding. Instead of qubits, which yield one of two measurement outcomes, we use more complex quantum states that can take on multiple values."."

Source: University of Warsaw (1 Apr 2026)