SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

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23 November – 27 November 2026

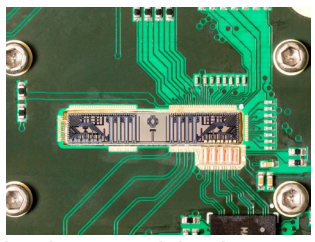
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AI • OPTICS • COMPUTING

AI Is Giving Optical Computing Another Shot



AI workloads are reviving interest in computing systems that manipulate light rather than electrical signals. The article examines potential throughput and energy advantages alongside conversion and precision challenges.

IEEE Spectrum | 17 Nov 2026

AI • NEUROSCIENCE • COMPUTING

AI may not work like the human brain after all, scientists discover

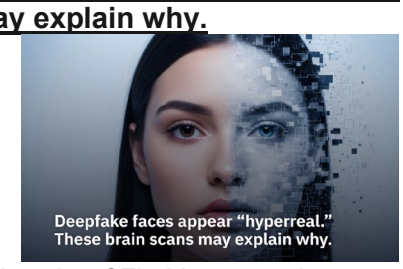


Researchers compared how artificial neural networks and people process visual information. Differences in the models' forward and backward predictions challenge assumptions that successful AI vision necessarily resembles human brain computation.

York University | 21 Nov 2026

AI • CYBERSECURITY • DEEPFAKE DETECTION

Deepfake faces appear "hyperreal." These brain scans may explain why.



University of Florida researchers studied human responses and brain activity when viewing synthetic faces that can appear unusually realistic. The work examines vulnerabilities in human deepfake detection and the need for better provenance tools.

University of Florida | 17 Nov 2026

AI • ETHICS • STANDARDS

IEEE Celebrates 10 Years of Incorporating Ethics Into AI Systems

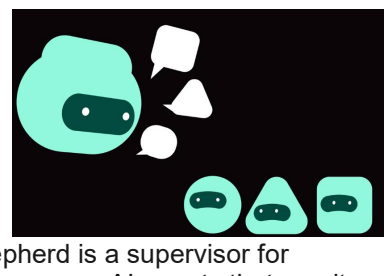


IEEE reviews a decade of work on ethics in autonomous and intelligent systems, including standards, governance and engineering practices. The retrospective highlights the continuing challenge of translating principles into system design.

IEEE Spectrum | 17 Nov 2026

AI • CYBERSECURITY • AGENTIC SYSTEMS

Meet Shepherd, the Meta-Agent Keeping Rogue AI In Check



Shepherd is a supervisor for autonomous AI agents that monitors planned actions and supports safer execution through checks and rollback mechanisms. The approach targets the risks of allowing agents to act in complex software environments.

IEEE Spectrum | 20 Nov 2026

ARCHITECTURE • TIMBER • COMMUNITY DESIGN

Shigeru Ban unveils proposal for tent-like church in Rome



Shigeru Ban Architects and Vittorio Petrucci propose a timber-framed church in Rome whose simple, tent-like form references a temporary shelter. The design seeks to create a community landmark in the underused Ostia area.

Dezeen | 19 Nov 2026

ARCHITECTURE • SUSTAINABILITY • REUSE

When Does Shipping Container Architecture Make Sense?



A technical overview explores when reused shipping containers are a practical building system. It compares modular advantages with insulation demands, narrow widths and structural interventions required when walls are removed.

ArchDaily | 19 Nov 2026

ARCHITECTURE • SUSTAINABILITY • GLOBAL DESIGN

World Building of The Year and Interior of The Year revealed at World Architecture Festival 2026



The festival recognized international projects spanning public buildings, interiors and climate-conscious construction. The awards include attention to timber structures, energy-sensitive design and projects with strong social outcomes.

ArchDaily | 23 Nov 2026

ENGINEERING • COMMUNICATIONS • SMART RAIL

How Railways Are Developing 5G Networks for Self-Driving Trains



Rail operators are evaluating 5G-based rail communications as a successor to older railway radio systems. Robust coverage, low latency and resilience are critical to safely supporting automated train operation.

IEEE Spectrum | 20 Nov 2026

MATERIALS • SUSTAINABILITY • BUILDING LIFECYCLE

Why Material Lifespan Matters More Than Ever

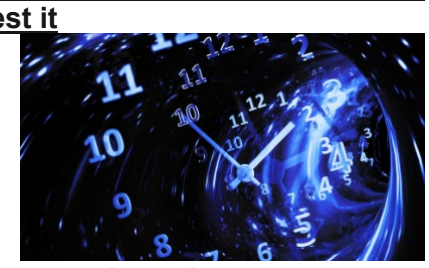


An assessment of material durability argues that embodied carbon alone is not enough to evaluate sustainability. Maintenance, replacement and disposal over a building's life can dominate the footprint of seemingly low-impact products.

ArchDaily | 23 Nov 2026

QUANTUM • OPTICS • SENSORS

Time may be far stranger than we realize. Scientists have a way to test it



A proposed experiment uses quantum-controlled ion clocks to test whether different proper times can coexist in superposition. The work remains theoretical, but it provides a potential route to probing time at the quantum scale.

Kyushu University | 21 Nov 2026

SUSTAINABILITY • MATERIALS • CARBON CAPTURE

This remarkable new material could solve a major carbon capture problem



A novel carbon capture sorbent remains effective under high humidity, addressing a common challenge for industrial CO2 removal. Performance under practical flue-gas mixtures, energy demands and long-term stability require further assessment.

ScienceDaily | 17 Nov 2026

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