

Weekly Discovery

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6 Oct - 10 Oct 2025

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AI Will We Know Artificial General Intelligence When We See It?



"Buzzwords in the field of [artificial intelligence](#) can be technical:

perceptron, convolution, transformer. These refer to specific computing approaches. A recent term sounds more mundane but has revolutionary implications: *timeline*. Ask someone in AI for their timeline, and they'll tell you when they expect the arrival of AGI—artificial general intelligence—which is sometimes defined as AI technology that can match the abilities of humans at most tasks. As AI's sophistication has scaled—thanks to faster computers, better algorithms, and more data—timelines have compressed. The leaders of major AI labs, including [OpenAI](#), [Anthropic](#), and [Google DeepMind](#), have recently said they expect [AGI](#) within a few years.

A computer system that thinks like us would enable close collaboration. Both the immediate and long-term impacts of AGI, if achieved, are unclear, but expect to see changes in the economy, scientific discovery, and [geopolitics](#). And if AGI leads to [superintelligence](#), it may even affect humanity's placement in the predatory pecking order. So it's imperative that we track the technology's progress in preparation for such disruption. Benchmarking AI's capabilities allows us to shape legal regulations, engineering goals, social norms, and business models—and to understand intelligence more broadly."

Source: [IEEE Spectrum](#) (22 Sep 2025)

AI AI Can Change How Farmers Water Their Fields from Cloud to Soil



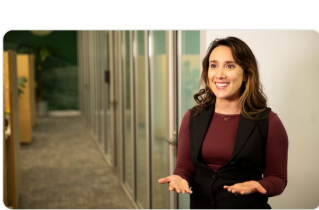
"Ananya Das and Kshiti Kangovi, Texas A&M University Class of 2026, are on a mission to help solve the global problem of water scarcity and inequity impacting millions of farmers and communities. Their solution is an AI-driven irrigation management system that integrates soil sensors, crop data and weather forecasts to tell farmers exactly when and how much to water.

The Texas A&M University multidisciplinary engineering technology (MXET) students' concept earned a \$100,000 prize at Texas A&M's recent "Building a Better Future Through Business and AI" competition.

The event challenged undergraduate students to create business proposals that leverage AI to address real-world issues. Das and Kangovi's venture was awarded first place, rising to the top of 103 proposals from students representing 37 universities.

Kangovi and Das believed their project stood out because its tackled a global issue with a solution that is practical, affordable and scalable for communities most in need."

Source: [EurekAlert!](#) (6 Oct 2025)



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ARCHITECTURE Scroll & Stroll: How Social Media Is Rewriting Architectural Cultural Tourism



"Historically—like other [cultural forms](#)—architecture has been documented, shared, and promoted primarily through print. Books, journals, and magazines carried the discipline's arguments and images, and because architectural practice relies so heavily on visual communication, printed [journals](#) created a bridge between academic publications and commercial magazines. Through the postwar decades, beautifully produced volumes curated a collective point of view, signaling what the field broadly considered discussion-worthy or exemplary.

Across major cultural centers, a handful of publications shaped this discourse: Their perspectives were typically sophisticated, professional, and carefully edited—distilling an unruly global output into a small constellation of remarkable projects. The system arguably privileged certain [practices and geographies](#), but it also amplified architecture for wider audiences. Buildings began to lodge in public imagination; [cultural travel](#)—journeys taken expressly to experience architecture—moved from rarity toward ritual."

Source: [Archdaily](#) (6 Oct 2025)

CAREERS 27 Things We Wish We'd Known When We Started Our PhDs

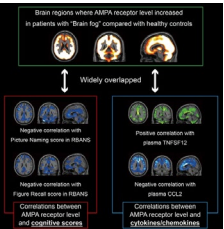


"Starting a PhD can feel like stepping into uncharted territory. Although universities offer orientation programmes and supervisors provide research guidance, some of the most valuable lessons come from those who've walked the path before.

Nature's 2025 PhD survey asked doctoral candidates worldwide what advice they would give to someone considering a similar degree (see 'Recommendations to my pre-PhD self'). Many responses gave advice on what to consider when choosing a supervisor, research topic and laboratory, and the importance of scrutinizing personal motivations for doing a PhD. These quotes are taken from survey answers and have been anonymized, although they include the author's gender, nationality, location and study year."

Source: [Nature](#) (6 Oct 2025)

COVID Uncovering the Molecular Basis of Long COVID Brain Fog



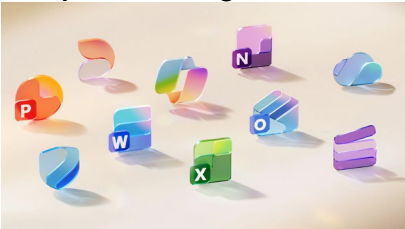
"By comparing imaging data from 30 patients with Long COVID to 80 healthy individuals, the researchers found a notable and widespread increase in the density of AMPARs across the brains of patients. This elevated receptor density was directly correlated with the severity of their cognitive impairment, suggesting a clear link between these molecular changes and the symptoms. Additionally, the concentrations of various inflammatory markers were also correlated with AMPAR levels, indicating a possible interaction between inflammation and receptor expression.

Taken together, the study's findings represent a crucial step forward in addressing many unresolved issues regarding Long COVID. The systemic increase in AMPARs provides a direct biological explanation for the cognitive symptoms, highlighting a target for potential treatments. For example, drugs that suppress AMPAR activity could be a viable approach to mitigate brain fog. Interestingly, the team's analysis also demonstrated that imaging data can be used to distinguish patients from healthy controls with 100% sensitivity and 91% specificity. "By applying our newly developed AMPA receptor PET imaging technology, we aim to provide a novel perspective and innovative solutions to the pressing medical challenge that is Long COVID," remarks Prof. Takahashi.

While further efforts will be needed to find a definitive solution for Long COVID, this work is a promising step in the right direction. "Our findings clearly demonstrate that Long COVID brain fog should be recognized as a legitimate clinical condition. This could encourage the healthcare industry to accelerate the development of diagnostic and therapeutic approaches for this disorder," concludes Prof. Takahashi."

Source: [Yokohama](#) (1 Oct 2025)

DESIGN Microsoft Office Rebrand Demonstrates "How AI Is Shifting the Discipline of Design"



"Fluid curves and zingy gradients characterise the updated [logos](#) for [Microsoft's](#) Office applications, which have been redesigned for the first time since 2018.

The project involved "a subtle refresh" of Microsoft's 10 core [Office](#) icons for everyday applications ranging from email to Word and PowerPoint.

Each icon is similar to its predecessor, but updated with curvier shapes that wrap around each other and more vivid colours presented in gradients on each [graphic](#).

The Word icon, for example, is now composed of three stacked rectangles rather than four, simplified to improve legibility and reduce "visual noise". Other icons feature subtle rearrangements of their softened shapes.

Microsoft also decided to maintain the icons' letter plates to make the graphics "instantly recognisable".

Jon Friedman, corporate vice president of design and research for Microsoft 365, said that the "small but significant" rebrand shows "how AI is shifting the discipline of design and the nature of product development."

Source: [Dezeen](#) (6 Oct 2025)

DESIGN Adapt/Evolve In New York Showcases "Empathy" In Designing for Accessibility



"The Fashion Institute of Technology in New York has brought together work across various disciplines for an exhibition on [accessible and inclusive design](#), including a colourful rolling closet that neatly displays donated clothing.

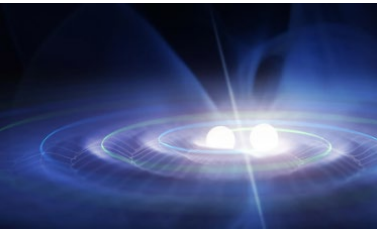
The [Adapt/Evolve exhibition](#) is located in [the Art and Design Gallery](#) at [the Fashion Institute of Technology](#) (FIT) and showcases more than 60 objects created to ease the daily needs of those with disabilities or limited mobility.

The exhibition and symposium were organised by a small team including FIT assistant professors of interior design Ethan Lu and Barbara Weinreich, librarian Carli Spina, and curator of the Art and Design Gallery, Fawz Kabra.

It includes a broad range of work by current students and alumni, such as fashion designer Helya Mohammadian of [Slick Chicks](#), who showcased a collection of adaptive clothing, as well as professional groups such as design studio [QFS](#), which displayed a series of office furniture designed to accommodate people with limited mobility."

Source: [Dezeen](#) (7 Oct 2025)

GRAVATATIONAL DETECTOR A Tiny Detector Could Unveil Gravitational Waves We've Never Seen Before



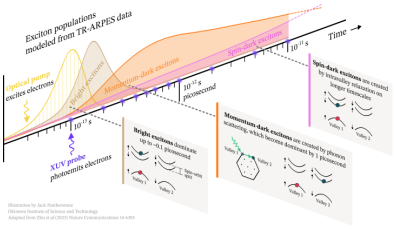
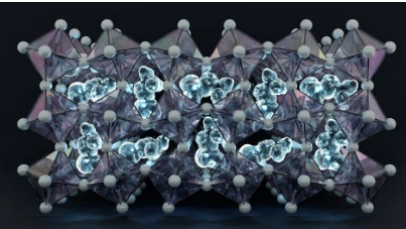
" Scientists have unveiled a new approach to detecting gravitational waves in the milli-Hertz frequency range, providing access to astrophysical and cosmological phenomena that are not detectable with current instruments.

Gravitational waves—ripples in spacetime predicted by Einstein—have been observed at high frequencies by ground-based interferometers such as LIGO and Virgo, and at ultra-low frequencies by pulsar timing arrays. However, the mid-band range has remained a scientific blind spot.

Developed by researchers at the Universities of Birmingham and Sussex, the new detector concept uses cutting-edge optical cavity and atomic clock technologies to sense gravitational waves in the elusive milli-Hertz frequency band (10⁻⁵ – 1 Hz).

Publishing their proposal today (Oct. 3) in Classical and Quantum Gravity, the scientist reveal a detector that uses advances in optical resonator technology, originally developed for optical atomic clocks, to measure tiny phase shifts in laser light caused by passing gravitational waves. Unlike large-scale interferometers, these detectors are compact, relatively immune to seismic and Newtonian noise."

Source: [Birmingham](#) (3 Oct 2025)

PLASTIC The Chronic Risks from Single-Use Plastic Water Bottles Are Dangerously Understudied, New Concordia Research Shows  "...Published in the Journal of Hazardous Materials, looks at the science around the health risks posed by single-use plastic water bottles. They are serious, she says, and seriously understudied. In her review of over 140 scientific articles, Sajedi writes that individuals on average ingest between 39,000 and 52,000 microplastic particles per year, and bottled water users consume 90,000 more particles than tap water consumers. The particles are usually invisible to the naked eye. A microplastic particle can range between one micron—a thousandth of a millimetre—to five millimetres; nanoplastics are smaller than one micron. They emerge as bottles are made, stored, transported and broken down over their lifespans. Because they are often made from low-quality plastic, they shed tiny pieces every time they are manipulated and exposed to sunlight and temperature fluctuations. And unlike other types of plastic particles, which enter human bodies through the food chain, these are ingested directly from the source. As Sajedi notes, the health consequences can be severe. Once inside the body, these small plastics can cross biological boundaries, enter the bloodstream and reach vital organs. This can lead to chronic inflammation, oxidative stress on cells, hormonal disruption, impaired reproduction, neurological damage and various kinds of cancer. However, the long-term effects remain poorly understood due to a lack of widespread testing and standardized methods of measurement and detection." Source: Concordia (9 Sep 2025)	QUANTUM Shining A Light on Dark Valleytronics  "In a world-first, researchers from the Femtosecond Spectroscopy Unit at the Okinawa Institute of Science and Technology (OIST) have directly observed the evolution of the elusive dark excitons in atomically thin materials, laying the foundation for new breakthroughs in both classical and quantum information technologies. Their findings have been published in Nature Communications. Professor Keshav Dani, head of the unit, highlights the significance: "Dark excitons have great potential as information carriers, because they are inherently less likely to interact with light, and hence less prone to degradation of their quantum properties. However, this invisibility also makes them very challenging to study and manipulate. Building on a previous breakthrough at OIST in 2020, we have opened a route to the creation, observation, and manipulation of dark excitons." "In the general field of electronics, one manipulates electron charge to process information," explains Xing Zhu, co-first author and PhD student in the unit. "In the field of spintronics, we exploit the spin of electrons to carry information. Going further, in valleytronics, the crystal structure of unique materials enables us to encode information into distinct momentum states of the electrons, known as valleys." The ability to use the valley dimension of dark excitons to carry information positions them as promising candidates for quantum technologies. Dark excitons are by nature more resistant to environmental factors like thermal background than the current generation of qubits, potentially requiring less extreme cooling and making them less prone to decoherence, where the unique quantum state breaks down." Source: OIST (25 Sep 2025)	ROBOTS UVA Engineering Team Develops New Way to Build Soft Robots That Can Walk on Water  "Imagine a tiny robot, no bigger than a leaf, gliding across a pond's surface like a water strider. One day, devices like this could track pollutants, collect water samples or scout flooded areas too risky for people. Baoxing Xu, professor of mechanical and aerospace engineering at the University of Virginia's School of Engineering and Applied Science, is pioneering a way to build them. In a new study published in Science Advances, Xu's research introduces HydroSpread, a first-of-its-kind fabrication method that has great potential to impact the growing field of soft robotics. This innovation allows scientists to make soft, floating devices directly on water, a technology that could be utilized in fields from health care to electronics to environmental monitoring." Source: Virginia (25 Sep 2025)	SOLAR This Ultra-Thin Solar Tech Could Power Everything from Phones to Skyscrapers  "A team in Sweden has unraveled the hidden structure of a promising solar material using machine learning and advanced simulations. Their findings could unlock durable, ultra-efficient solar cells for a rapidly electrifying world... Global electricity use is increasing rapidly and must be addressed sustainably. Developing new materials could give us much more efficient solar cell materials than at present; materials so thin and flexible that they could encase anything from mobile phones or entire buildings. Using computer simulation and machine learning, researchers at Chalmers University of Technology in Sweden have now taken an important step towards understanding and handling halide perovskites, among the most promising but notoriously enigmatic materials." Source: CHALMERS (2 Oct 2025)
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