

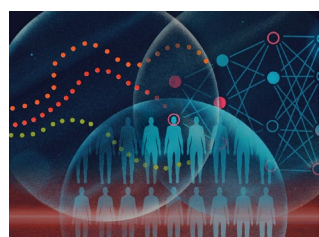


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AI  
**Will AI ruin the social sciences — or revolutionize them?**



"When psychologist Raluca Rilla asked volunteers to complete a survey last year, she got the following response to one of her questions: "I don't experience confusion in the same way humans do."

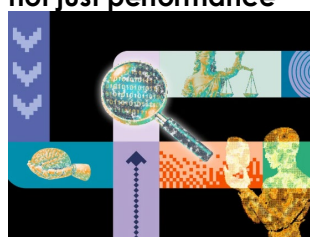
Rilla, a PhD student at the Max Planck Institute for Human Development in Berlin, suspects that this is the obvious tip of a large and worrying iceberg — one that could scupper academic research on how people think and behave. She and her colleagues estimate that up to 45% of responses they receive to such surveys are now copied and pasted from the output of large language models (LLMs)<sup>1</sup>. In some cases, participants might simply be polishing their language. In others, Rilla thinks that the entire operation — signing up, reading the questions and submitting responses — is handled by a machine. Such answers, and the academic studies built on them, are unlikely to reflect the reality of human nature.

Experimental psychology is not alone in wrestling with the impact of LLMs on research. From political science and economics to opinion polling, researchers across the social sciences are sounding the alarm after finding the fingerprints of artificial intelligence and considering the implications.

Even if AI input into polls can be throttled, there's a concern at the analysis stage, says David Lazer, a political and computer scientist at Northeastern University in Boston, Massachusetts: AI-assisted analyses in social science might flood journals with spurious findings by rapidly whipping up studies. One journal has already chronicled a vast increase in the number of manuscripts it has received that were wholly or mostly prepared using AI tools<sup>2</sup>.

Source: [Nature](#) (2 June 2026)

AI  
**Why Aren't We Measuring How AI Affects Humans? Expert calls for metrics on AI models' societal impact, not just performance**



"As AI systems become more capable, a lot of resources and effort are being put toward measuring their abilities. Researchers look at technical evaluation metrics, subject AIs to reasoning tests, track their throughput, and much more. But there's one key metric that often gets overlooked, and it's arguably the most important of all: What is AI doing to humans?"

Imran Khan leads psychosocial evaluation of AI at the nonprofit Center for Humane Technology. In a recent essay published on the organization's Substack, Khan points out that we're deploying AI tools capable of reshaping our cognition, relationships, and behavior, but with little systematic effort to measure the downstream impacts they're having on us.

The push to look more closely at AI's psychosocial effects is similar to debates that emerged around social media and its harms, but Khan believes AI could have even broader and more intimate effects. The focus on measuring AI performance and progress misses the question of whether the technology is ultimately helping humans flourish—or eroding some of our most fundamental capacities.

IEEE Spectrum spoke with Khan about why AI evaluation is so narrowly focused, what meaningful measurement of human outcomes might look like, and whether the AI industry has incentives to ask these questions at all."

Source: [IEEE Spectrum](#) (3 June 2026)

ARCHITECTURE  
**Is Concrete Ruining the Promise of Mass Timber?**



"Mass timber has shifted from an experimental niche to a central part of the contemporary debate surrounding sustainable construction. The combination of lower embodied carbon, prefabricated systems, and faster construction timelines has helped position solutions such as CLT (cross-laminated timber) and DLT (dowel-laminated timber) as viable alternatives to concrete and steel in residential buildings, offices, schools, and public facilities around the world. Added to this are the predictability of construction processes and the environmental qualities associated with wood, often linked to user comfort and spatial experience.

Working with a relatively new construction technology also requires changes in the design mindset itself. In mass timber building, behind the structural efficiency and aesthetic appeal of exposed wood lies a complex technical reality involving both structural design and the systems that make up the building assembly. Unlike heavy concrete systems, timber structures have lower mass and a distinct vibrational behavior, allowing airborne and impact sound to propagate more easily between floors. The issue becomes critical in residential buildings, hotels, and mixed-use projects, where floor assemblies must meet rigorous acoustic insulation requirements, particularly regarding STC (Sound Transmission Class) and IIC (Impact Insulation Class) ratings.

As these limitations became more evident with the growing adoption of mass timber, companies like USG began developing floor systems specifically designed for timber construction, seeking to balance acoustic performance, reduced structural weight, and lower embodied carbon. Without additional treatment, exposed CLT floors often struggle to achieve satisfactory acoustic performance levels for contemporary occupancy standards, directly affecting the occupant experience. Exposed timber ceilings may create visually warm and inviting environments, but if footsteps, impacts, and conversations easily travel between floors, spatial quality quickly deteriorates.

One of the most common solutions to this issue has been applying concrete toppings over timber structural panels. While this adds mass, improves acoustic insulation, and contributes to fire performance, the strategy introduces a new set of contradictions."

Source: [Archdaily](#) (1 June 2026)

ELECTRONICS  
**New 3D silicon chip breakthrough could extend Moore's Law for years**



"For decades, the computing industry has followed a simple formula: make transistors smaller and pack more of them onto a chip. That strategy fueled the extraordinary rise in computing power predicted by Moore's law. But as components approach atomic scales, engineers are increasingly running into the physical limits of silicon and the effects of quantum mechanics.

Many researchers believe the next major advance will come not from shrinking devices further, but from building upward.

A team led by University of Illinois Grainger College of Engineering materials science and engineering professor Qing Cao has demonstrated a new method for stacking multiple layers of silicon electronics directly on top of one another. The approach could dramatically increase computing density, improve performance, and reduce energy consumption while extending the progress that has driven the semiconductor industry for more than half a century."

Source: [University of Illinois](#) (30 May 2026)

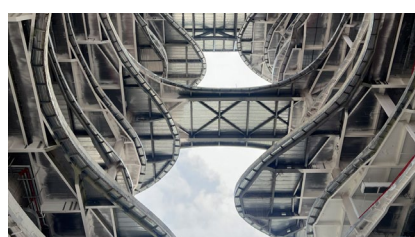
MATERIALS  
**Scientists break 30-year superconductivity record at normal pressure**



"University of Houston researchers have achieved a major superconductivity breakthrough by setting a new temperature record for superconductors operating under ambient pressure conditions. The advance could eventually help create more efficient electrical grids, improved energy storage systems, faster electronics, and new technologies for fusion energy and medical imaging.

Scientists from the Texas Center for Superconductivity (TcSUH) and the University of Houston department of physics reached a

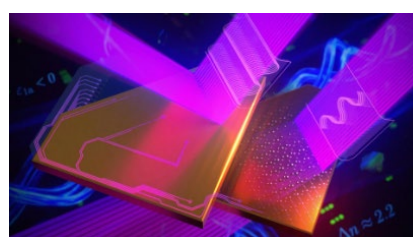
MATERIALS  
**Twisted graphene reveals a hidden superconductivity switch**



"Researchers have uncovered evidence that superconductivity can be controlled by changing a material's surrounding environment, a breakthrough that could eventually lead to more efficient electronics and powerful quantum technologies.

Superconductivity allows certain materials to carry electricity with zero energy loss when cooled below a critical temperature. Even though scientists have studied the phenomenon for decades, many of its underlying mechanisms remain poorly understood. Gaining deeper insight into how superconductivity forms could

MATERIALS  
**This strange crystal acts like metal and glass at the same time**



"Creating nearly invisible wearable technologies such as smart contact lenses and ultrathin augmented reality (AR) glasses will require a radical redesign of conventional optical components. Instead of relying on bulky lenses and hardware, researchers are exploring materials that can manipulate light at the atomic scale.

A team from XPANCEO, working with scientists from the National University of Singapore and the University of Chemistry and Technology, Prague, has reported a major advance in that effort. Their study focuses on a layered crystal

PHOTONICS  
**Laser breakthrough rewrites the rules of photonics manufacturing - PODCAST**



"Laser breakthrough rewrites the rules of photonics manufacturing

A new technology created by Heriot-Watt University is poised to upend one of the most stubborn bottlenecks in modern manufacturing.

FreeForm Photonics is set to commercialise a laser-based process that builds alignment directly into optical glass components, removing the painstaking manual calibration

superconducting transition temperature (Tc) of 151 Kelvin (about minus 122 degrees Celsius). That is now the highest Tc ever reported for a superconductor functioning at ambient pressure since superconductivity was first discovered in 1911."

help researchers design better materials and improve future electronic and quantum devices."

called molybdenum oxychloride (MoOCl<sub>2</sub>), which displays a collection of unusual optical properties that could help dramatically shrink future optical devices. "

that currently accounts for more than half of all photonics production costs.

The result is a manufacturing pathway that is faster, cheaper and precise to sub-micron tolerances, a scale far smaller than the width of a human hair. It also removes the complexity that has long made photonic systems prohibitively expensive to scale.

The implications stretch across some of the most consequential technologies of the coming decade. Sectors like Quantum computing systems, next-generation medical diagnostics and the optical communications infrastructure underpinning the modern internet. These all depend on photonic components that are currently largely assembled by hand.

Dr Calum Ross, Research Fellow in the School of Engineering and Physical Sciences at Heriot-Watt University, said: "By integrating passive alignment features into the glass components themselves, we are fundamentally changing what it takes to manufacture high-performance optics. The potential applications range from fibre optic sensing in the harshest industrial environments to enabling the quantum computing systems that the world is racing to build."

Source: [University of Houston](#) (27 May 2026)

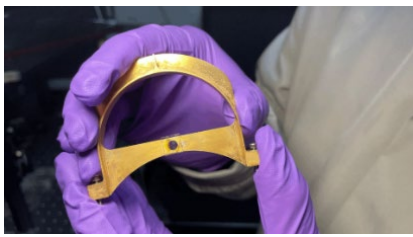
Source: [Ohio State University](#) (29 May 2026)

Source: [XPANCEO](#) (1 June 2026)

Source: [Heriot-Watt University](#) (31 May 2026)

#### QUANTUM

### Stanford quantum computing breakthrough uses twisted light to work without extreme cooling



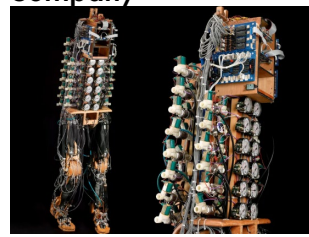
"Quantum computers today are notoriously difficult and expensive to operate. Most require temperatures near absolute zero, about -459 degrees Fahrenheit, to maintain the fragile quantum states needed for computation and communication.

Now, researchers at Stanford University have developed a nanoscale optical device that functions at room temperature while linking the quantum properties of light and electrons. The advance could help pave the way for smaller, lower-cost quantum technologies capable of transmitting information across long distances."

Source: [Stanford University](#) (30 May 2026)

#### ROBOTS

### This DIY Bipedal Robot Used Pneumatic "Air-Muscles" Instead of Motors Shadow Walker's creators went on to found a pioneering robotics company



"In 1987, Richard Greenhill, a British photographer who was fascinated by (but had no actual training in) robotics, decided he wanted to build a life-size humanoid that could do useful things, like carrying luggage. He was working at a startup called Intergalactic Robots, but he couldn't convince anyone there to build such a machine, so he set about building one himself, in his attic.

To help with his project, he organized a weekly get-together of a dozen or so like-minded folks. Every Wednesday night, his wife, Sally, would make a big pot of spaghetti, and the group would tinker with components scavenged from old printers and picked up from junkyards. They called themselves the Shadow Group. They eventually constructed several different robots, but their main project was the two-legged Shadow Walker.

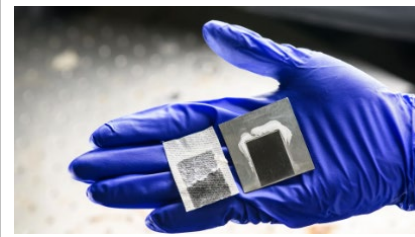
Greenhill's friend David Buckley, a robotics and animatronics expert he'd met at Intergalactic, sketched out a rough design based on medical textbooks of human bone structure and muscle movement. The robot's skeleton, made of maple, was greatly simplified—only one bone in the lower leg and a single wide toe on each foot. The ankle's double-axis design allowed for two degrees of movement. The knee had no complicating kneecap.

Greenhill didn't want the robot to use motors, so its movement was controlled using compressed air to extend and contract 28 "air-muscles"—his version of a McKibben muscle, invented in the 1950s to mimic musculature with pneumatics. The muscles were connected to the bones across eight joints (hips, knees, ankles, toes), which provided 12 degrees of freedom."

Source: [IEEE Spectrum](#) (31 May 2026)

#### SOLAR DESALINATION

### New solar desalination breakthrough makes fresh water without toxic brine



"In Professor Chunlei Guo's lab at the University of Rochester, researchers developed a solar desalination device featuring laser-etched superwicking black metal, a technology that produces fresh water from seawater while capturing salts and minerals instead of generating harmful brine waste.

According to the United Nations, 2.2 billion people still do not have access to safely managed drinking water. To help meet growing demand, many regions, from California to parts of the Middle East, rely on desalination plants that convert seawater into fresh water.

Traditional desalination methods such as reverse osmosis and thermal distillation can be expensive and energy intensive. They often require chemical treatments before and after processing the water and generate large volumes of concentrated saltwater known as brine. When discharged back into the ocean, brine can damage marine ecosystems by increasing salinity and reducing oxygen levels.."

Source: [University of Rochester](#) (31 May 2026)

#### SUSTAINABILITY

### Humanity has already exceeded Earth's limits, study warns



"Earth may already be past its sustainable breaking point — and scientists warn the consequences are starting to unfold now.

A new study warns that humanity is placing more pressure on Earth than the planet can sustainably handle, raising concerns about future food security, climate stability, and human well being. Researchers say the situation is serious, but they also believe that slowing population growth and changing patterns of consumption could still help reduce long term risks.

The research, published in Environmental Research Letters, concludes that humanity has already surpassed Earth's sustainable carrying capacity. Scientists say continued population growth combined with current levels of resource use will place even greater strain on ecosystems and societies around the world.."

Source: [Flinders University](#) (27 May 2026)

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