SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

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9 Feb - 13 Feb 2026

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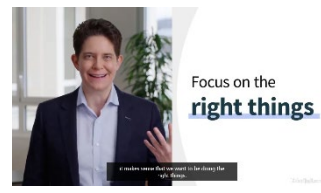

Featured Course

How to Make Strategic Thinking a Habit

37m

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ACCESSIBLE DESIGN

Onecourt Helps Blind and Low-Vision Fans Track the Super Bowl Live

"During this year's Super Bowl on Sunday, some blind and low-vision fans will be able to experience football more directly thanks to tactile devices that vibrate to indicate the position of the ball on the field.

The devices, which are designed by Seattle startup OneCourt, vibrate in different ways for different plays like tackles, touchdowns, and field goals.

Fans can lay their hands flat on the tablet and feel the ball move through a relief map of the field, as well as press an info button to hear the score, the down, and the time remaining.

"One really unique feature that we are showcasing at the Super Bowl is real-time radio, which will stream through the device," OneCourt CEO Jerred Mace told Dezeen."

Source: Dezeen (6 Feb 2026)

AI

Open-Source AI Tool Beats Giant LLMs in Literature Reviews — And Gets Citations Right

"Researchers have published the recipe for an artificial-intelligence model that reviews the scientific literature better than some major large language models (LLMs) are able to, and gets the citations correct as often as human experts do.

OpenScholar — which combines a language model with a database of 45 million open-access articles — links the information it sources directly back to the literature, to stop the system from making up or 'hallucinating' citations.

Several commercial AI-based literature-review tools already exist that use similar techniques, but few have been released as open source, says Akari Asai, an AI researcher at Carnegie Mellon University in Pittsburgh, Pennsylvania, and a co-author of the work, published in *Nature* on 4 February1. Being open source means that researchers can not only try OpenScholar for free in an online demonstration, but also deploy it on their own machine and use the method in the paper to boost the literature-review skills of any LLM, says Asai."

Source: Nature (4 Feb 2026)

ARCHITECTURE

Moving Capitals Across Global Contexts: From Strategic Planning to Environmental Necessity

"Across history, the relocation of capital cities has often been associated with moments of political rupture, regime change, or symbolic nation-building. From Brasília to Islamabad, new capitals were frequently conceived as instruments of centralized power, territorial control, or ideological projection. In recent decades, however, a different set of drivers has begun to shape these decisions. Rather than security or representation alone, contemporary capital relocations are increasingly tied to structural pressures such as demographic concentration, infrastructural saturation, environmental risk, and long-term resource management. As metropolitan regions expand beyond their capacity to sustain population growth and administrative functions, governments are turning to spatial reconfiguration as a means of addressing systemic urban imbalance."

Source: Archdaily (6 Feb 2026)

ARCHITECTURE

Turner Works expands London warehouse complex to house creative hub

"Architecture studio Turner Works has used "robust, hardworking" materials in its extension of an old textile manufacturing site in London's Harringay Warehouse District, transforming it into the Florentia Village creative hub.

Commissioned by developer General Projects, Turner Works added a 9290-square-metre extension to the 1970s clothes manufacturing facility to create a home for 50 creative businesses in north London.

In line with the site's industrial character, Turner Works added four steel structures in a space previously occupied by storage containers, more than doubling the complex's original footprint.

Florentia Village now offers businesses flexible workshops, studios and industrial units ranging from 46 to 1,400 square metres, alongside community spaces and a cafe, arranged around courtyards and walkways."

Source: Dezeen (6 Feb 2026)

BIOMEDICAL

At-Home Brain Stimulation for Depression Is Just the Start Flow's Headset Is the First Tdcs Device Approved by The FDA

"For years, a small group of technology enthusiasts have been applying gentle electrical current to their brains in an effort to gain cognitive benefits, improve sleep, or aid memory. While brain stimulation, also referred to as neuromodulation, can take many forms, transcranial direct current stimulation (tDCS) emerged as a reasonably safe, affordable choice for at-home experimentation for a range of purposes.

These devices have often been home-brewed or sold as wellness tools, but in her research into the do-it-yourself tDCS community, Anna Wexler, a medical ethicist at the University of Pennsylvania, found that in addition to brain boosting, many practitioners were self-medicating, using electrotherapy to treat symptoms of depression and anxiety. Until recently, there were no medical tDCS devices with U.S. Food and Drug Administration approval."

Source: IEEE Spectrum (5 Feb 2026)

EDUCATION

Why Rethinking Wellness Could Help Students and Teachers Thrive

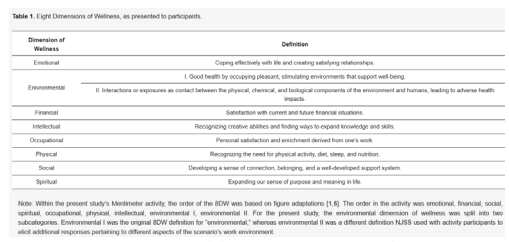


Table 1. Eight Dimensions of Wellness, as presented to participants.

Dimension of Wellness	Definition
Emotional	Coping effectively with life and creating satisfying relationships.
Environmental	I. Good health by occupying pleasant, stimulating environments that support well-being.
	II. Interactions or exposures as contact between the physical, chemical, and biological components of the environment and humans, leading to adverse health impacts.
Financial	Satisfaction with current and future financial situations.
Intellectual	Recognizing creative abilities and finding ways to expand knowledge and skills.
Occupational	Personal satisfaction and enrichment derived from one's work.
Physical	Recognizing the need for physical activity, diet, sleep, and nutrition.
Social	Developing a sense of connection, belonging, and a well-developed support system.
Spiritual	Expanding our sense of purpose and meaning in life.

Note: Within the present study's Mentimeter activity, the order of the 8DW was based on figure adaptations [1,8]. The order in the activity was emotional, financial, social, spiritual, occupational, physical, intellectual, environmental I, environmental II. For the present study, the environmental dimension of wellness was split into two subcategories. Environmental I was the original 8DW definition for "environmental," whereas environmental II was a different definition NJSS used with activity participants to elicit additional responses pertaining to different aspects of the scenario's work environment.

"Teachers supervising students in school-sponsored work sites tend to prioritize emotional and social well-being in the workplace, according to research from Rutgers Health.

The study, published in *Occupational Health*, examined how educators approach student wellness and the factors they prioritize when preparing students to enter the workforce.

Led by Maryanne Campbell, assistant director of the New Jersey Safe Schools Program at the Rutgers School of Public Health, researchers evaluated a pilot activity based on the U.S. Substance Abuse and Mental Health Services Administration's Eight Dimensions of Wellness model. The activity was offered as an optional module during the required New Jersey Safe Schools Program training for secondary school work-based learning supervision."

Source: Eurekalert! (6 Feb 2026)

ENVIORNMENT

An Invisible Chemical Rain Is Falling Across the Planet

"Chemicals introduced to shield the ozone layer are now tied to an unexpected environmental consequence. A new study shows that these substances have helped spread large amounts of a long-lasting and potentially harmful forever chemical across the planet.

Researchers in atmospheric science, led by a team at Lancaster University, have calculated for the first time how much of this pollution has accumulated worldwide. Their analysis estimates that chemicals used to replace CFCs, along with certain anesthetic gases, led to roughly a third of a million tonnes (335,500 tonnes) of trifluoroacetic acid (TFA) being deposited from the atmosphere onto Earth's surface between 2000 and 2022."

Source: Lancaster University (6 Feb 2026)

HEALTH CARE

Cheap AI Chatbots Transform Medical Diagnoses in Places with Limited Care

"Large language models (LLMs) can pass postgraduate medical examinations and help clinicians to make diagnoses, at least in controlled benchmarking tests. But are they useful in real-world settings, which have too few physicians to check the answers, as well as long patient lists and limited resources?

Two studies published in *Nature Health* on 6 February suggest that they are up to the task. The work reveals that cheap-to-use LLMs can boost diagnostic success rates, even outperforming trained clinicians, in health-care settings in Rwanda and Pakistan.

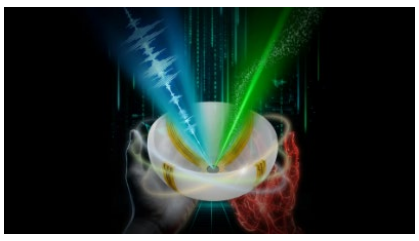
In Rwanda, chatbot answers outscored those of local clinicians across every metric assessed. And in Pakistan, physicians using LLMs to aid their diagnosis achieved a mean diagnostic reasoning score of 71%, versus 43% for those using conventional resources.

"The papers highlight how LLMs might be able to support clinicians in lower- and middle-income countries to improve the level of care," says Caroline Green, director of research at the Institute for Ethics in AI at the University of Oxford, UK."

Source: Nature (6 Feb 2026)

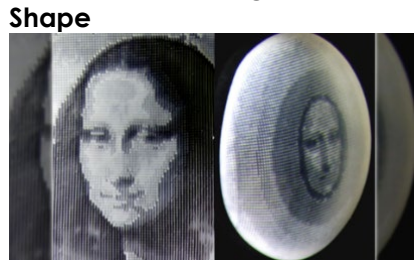
IMAGING

A New Scan Lets Scientists See Inside the Human Body In 3D Color



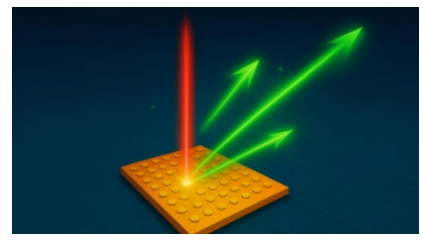
MATERIALS

Scientists Create Smart Synthetic Skin That Can Hide Images and Change Shape



PHYSICS

This Paper-Thin Chip Turns Invisible Light into a Steerable Beam



QUANTUM

Physicists Solve a Quantum Mystery That Stumped Scientists for Decades

"Researchers at Caltech and USC have created a new medical imaging approach that quickly produces 3D color images showing both the physical structure of soft tissue and how blood vessels are working. The technique has already been used to image several parts of the human body. Scientists say it could lead to better breast cancer imaging, improved tracking of nerve damage linked to diabetes, and new ways to study the brain."

Source: Caltech(6 Feb 2026)

"Synthetic materials are widely used across science, engineering, and industry, but most are designed to perform only a narrow range of tasks. A research team at Penn State set out to change that. Led by Hongtao Sun, assistant professor of industrial and manufacturing engineering (IME), the group developed a new fabrication technique that can produce multifunctional "smart synthetic skin." These adaptable materials can be programmed to perform a wide variety of tasks, including hiding or revealing information, enabling adaptive camouflage, and supporting soft robotic systems.

Using this new approach, the researchers created a programmable smart skin made from hydrogel, a soft, water-rich material. Unlike conventional synthetic materials with fixed behaviors, this smart skin can be tuned to respond in multiple ways. Its appearance, mechanical behavior, surface texture, and ability to change shape can all be adjusted when the material is exposed to external triggers such as heat, solvents, or physical stress."

Source: Penn State (6 Feb 2026)

"Researchers have built a paper-thin chip that converts infrared light into visible light and directs it precisely, all without mechanical motion. The design overcomes a long-standing efficiency-versus-control problem in light-shaping materials. This opens the door to tiny, highly efficient light sources integrated directly onto chips.

Creating extremely small devices that can precisely guide and control light is a key challenge for many emerging technologies. Scientists at the Advanced Science Research Center at the CUNY Graduate Center (CUNY ASRC) have now made an important advance by developing a metasurface that can convert invisible infrared light into visible light and direct it in specific directions without relying on any moving parts. Their findings are described in a new study published in the journal eLight.

The new metasurface takes the form of an ultra thin chip covered with tiny structures that are smaller than the wavelength of light itself. When an infrared laser strikes the surface, the chip shifts the light to a higher color (or frequency) and releases it as a tightly focused beam. The direction of that beam can be adjusted simply by changing the polarization of the incoming light."

Source: Advanced Science Research Center (5 Feb 2026)

"Physicists have developed a new theory that brings together two major areas of modern quantum physics. The work explains how a single unusual particle behaves inside a crowded quantum environment known as a many-body system. In this setting, the particle can act either as something that moves freely or as something that remains nearly fixed within a vast collection of fermions, often called a Fermi sea. Researchers at the Institute for Theoretical Physics at Heidelberg University created this framework to explain how quasiparticles form and to link two quantum states that were previously thought to be incompatible. They say the results could strongly influence ongoing experiments in quantum matter."

Source: Heidelberg University (8 Feb 2026)