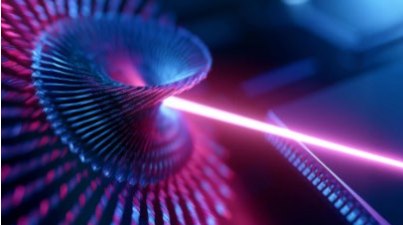


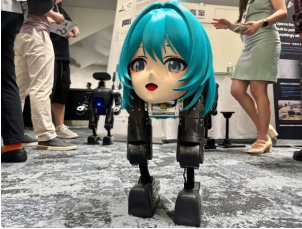


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AI Small AI Models Gain Traction Around the World In places with unreliable networks and no data-center infrastructure, smaller is better  “The RxScanner is a handheld spectrometer that scans a pill with infrared light, then sends the item’s molecular profile to an AI model equipped with a pharmaceutical database. In seconds, the AI identifies the medication from its molecular profile—or reports that it’s phony. Pharmacies were using the system in more than a dozen countries, including Ghana, Kenya, Myanmar, and Alonge’s native Nigeria. But that morning in South Africa, it didn’t work. “I was shocked,” Alonge says. The spectrometer connected to the AI model—but the data center was 14,000 kilometers away and bandwidth was limited. “Our server was in the United States, and just to get the result of a single scan was taking me over 5 minutes.” So Alonge immediately asked his engineers to shrink the AI model down to a smaller, low-power, unconnected version that could run entirely on his Android phone. They produced it 2 hours later, and that saved the demo. More importantly, the work birthed a new version of his device, which can authenticate a pill in places without broadband, computers, or even reliable electricity. It also turned Alonge into an advocate for this kind of “small AI.”” Source: IEEE Spectrum] (6 July 2026)	ARCHITECTURE LMTLS creates wooden "gorge" inside New York skincare store  New York- and Seoul-based studio LMTLS Architecture has carved a steep canyon of wooden layers through the Soho flagship store for Korean skincare brand SKIN1004. LMTLS Architecture's second flagship for SKIN1004 – after the first in the South Korean capital – occupies a two-storey building with a long, narrow layout typical of the New York City neighbourhood. The 9,900-square-foot (920-square-metre) retail space is intended as an immersive environment that pushes beyond traditional retail and gives "tangible spatial form to the brand's enduring philosophy", according to LMTLS partner Beomki Lee. "Its central ambition is to create a setting in which visitors can breathe in and genuinely connect with the brand's ethos through a rich interplay of event spaces, exhibition zones, and experiential areas," he said. Source: Dezeen (24 June 2026)	ARCHITECTURE Construction Begins on Frank Gehry's Dar al Funoon Abu Dhabi Performing Arts Center  “Dar al Funoon Abu Dhabi, the new performing arts institution designed by the late architect Frank Gehry, is among his final works. Translating to "House of the Arts," the landmark building, commissioned by Abu Dhabi's Department of Culture and Tourism, was designed as a global hub for the performing arts and is expected to open in 2030. The project adds to Gehry's work in the emirate, which also includes the upcoming Guggenheim Abu Dhabi, and follows the city's designation as a UNESCO Creative City of Music in 2021. Located on Saadiyat Island, a destination recognized as a cultural district in the United Arab Emirates, the new institution is expected to offer 365 days and nights of events, performances, and activities. The House of the Arts was designed to permanently host opera, ballet, theatre, and other live performances from acclaimed and emerging artists from the region and around the world, staged at different scales, from intimate productions to major performances. The institution is also envisioned as a platform for long-term artistic residencies, touring partnerships, and co-productions with international arts companies.." Source: Archdaily (6 July 2026)	ARCHITECTURE Seven self-build housing projects to inspire your own  "Considering building your own custom-made house? Here are eight examples of successful residential self-build projects from the Dezeen archives to get your creative juices flowing." Source: Dezeen (4 July 2026)
CLIMATE A popular climate fix could accidentally trigger massive changes to global weather  “As carbon dioxide (CO2) emissions continue to climb, interest in geoengineering is growing as governments, researchers, and environmental advocates search for ways to limit the worst effects of climate change. These large scale climate interventions could influence rainfall, agriculture, and ecosystems around the world, making their potential benefits and risks equally significant. A new study found that not all geoengineering ideas are created equal. Brightening marine clouds over the eastern Pacific could dramatically weaken the El Niño cycle, triggering major changes to global weather patterns, while stratospheric aerosol injection left the system largely unchanged. Researchers say the results are a reminder that efforts to cool the planet could produce unexpected consequences if they are deployed without a full understanding of how Earth's climate works.”	ENERGY Retired EV Batteries Get Second Life on the Grid Combining old packs creates megawatt-scale energy storage  “Spent batteries from older electric vehicles are starting to pile up, but a handful of companies are repurposing them in a novel way: as energy storage for the grid. These batteries are retired from EVs after their capacity falls to 70 to 80 percent; that's too low to satisfy drivers, but leaves enough juice for many stationary-storage applications. With some clever engineering, hundreds of retired battery packs can be assembled into megawatt-scale energy-storage systems. ...Los Angeles-based B2U Storage Solutions announced it would repurpose used batteries from Waymo robotaxis for stationary grid storage. Two weeks later, Carson City, Nev.-based Redwood Materials unveiled a plan to combine about 100 used batteries from General Motors vehicles to provide 1.5 megawatts to one of the automaker's plants in Michigan. And a week after that, Vancouver-based Moment Energy completed construction of what it says is the world's largest EV battery-repurposing facility. The efforts address two significant needs in the energy industry: Grid operators need somewhere to store valuable excess energy from renewables, and the auto industry needs somewhere for old EV batteries to land. Second-	QUANTUM Scientists make quantum time flow backward in stunning physics breakthrough  “Scientists have developed a new way to control quantum systems that can make their behavior appear more consistent with time moving backward rather than forward. The research, published in Physical Review X, introduces quantum control protocols that reshape a system's "arrow of time," the concept that time naturally moves in only one direction. The approach could eventually support new methods for extracting energy from quantum systems and preparing quantum states. A quantum system, such as a group of qubits, follows the rules of quantum mechanics rather than classical physics. Using the newly developed control protocols, researchers can suppress the usual emergence of the arrow of time or even reverse its apparent direction, making quantum processes look as though they are unfolding backward. As a demonstration of the technique, the team also created a measurement engine that can harvest energy from the act of making quantum measurements.."	QUANTUM Tiny magnetic waves could unlock quantum computers the size of a penny  “A team of physicists has overcome a major obstacle in quantum computing by dramatically increasing the lifetime of magnons, tiny magnetic waves that can carry quantum information. The researchers extended their lifespan from just a few hundred nanoseconds to as long as 18 microseconds, nearly 100 times longer than previously achieved. The advance could eventually help make ultra-compact quantum computers, potentially as small as a 1-cent coin. The international research team, led by Andrii Chumak of the University of Vienna, also uncovered an important insight. They found that the lifespan of magnons is not ultimately limited by the laws of physics, but by the quality of the material they travel through. Their findings were published in Science Advances.”

life battery companies could satisfy both needs, if they can get the engineering worked out."			
Source: University of California (3 July 2026)	Source: IEEE Spectrum (02 July 2026)	Source: Los Alamos National Laboratory (3 July 2026)	Source: University of Vienna (3 July 2026)
QUANTUM Quantum mechanics once baffled scientists. Now it's changing the world  "For decades, scientists recognized only two major types of magnets. One is the familiar ferromagnet, the kind found in refrigerator magnets and countless everyday devices. The other is the antiferromagnet, whose magnetic properties are hidden at the atomic level but have attracted growing interest because of their potential use in advanced technologies. "More recently, researchers identified a third category known as altermagnets. First proposed within the last decade, these materials may combine some of the most useful characteristics of both ferromagnets and antiferromagnets, potentially opening the door to faster, more energy-efficient electronics. Now, physicists at the University at Buffalo have proposed a new quantum sensing approach that could make altermagnets much easier to identify. The proposed method, described in Physical Review Letters, would detect how a suspected altermagnet affects a tiny magnetic defect inside a nearby diamond. By monitoring how the defect's magnetic signal relaxes over time, researchers may be able to identify telltale signs of altermagnetism." Source: Texas A&M University (5 July 2026)	ROBOTS Lehigh University engineers discover 'unexpected motion' in drug-delivery robots  "A multi-institution research team led by Ebru Demir (pictured, left), an assistant professor of mechanical engineering and mechanics in Lehigh University's P.C. Rossin College of Engineering and Applied Science, utilized millimeter-scale swimming robots to uncover unexpected backward motion in complex fluids. While the experimental robots were larger than true microscale devices, the team successfully matched the physics of microscopic swimming by scaling up the viscosity of their test fluids, providing foundational insights for the future control of microscale drug-delivery systems.." Source: Lehigh University (6 July 2026)	ROBOTS Japan Pioneered Humanoid Robots— Can It Now Catch China? Japan must shift its approach to robotics stay competitive  "In the future, the relationship between humans and robots will deepen, and the distinction between them will probably disappear." This prediction, from one of the attendees at the recent Humanoids Summit in Tokyo, might have been unremarkable had it not come directly from an android that was first introduced to the world 20 years ago. Geminoid HI-6 is the sixth-generation of a robot originally designed in 2006. The mechanical twin of Osaka University professor Hiroshi Ishiguro, Geminoid HI-6 is now equipped with a large language model trained on Ishiguro's own writings and interviews. It has advanced conversational skills and can even have a chat with its creator, an eerie spectacle. But at the Humanoids Summit, Geminoid was one of the few humanoid robots from Japan, the country that pioneered the form factor. While the event in Tokyo only had about 40 robots on display, Chinese systems outnumbered Japanese by roughly three to one. Some Japanese robotics firms were even using Chinese robots in their own technology demonstrations, something that would have been unthinkable in the recent past—one Japanese engineer described the situation as "sad." The conference was a stark reminder of how Japan has ceded its early lead in humanoid robot development to overseas competitors, and the challenge it now faces to secure a place in an ecosystem increasingly dominated by general-purpose robots powered by AI." Source: IEEE Spectrum (4 July 2026)	ROBOTS How camera-equipped homing pigeons could improve robotic vision in flight  "Contrary to common assumptions, pigeons do not lock their eyes in place during flight. Instead, they make slow, subtle eye movements that may help them gather more information about their surroundings. That is the key finding of a new study led by Dr. Anthony Lapsansky (AL), who conducted the research as a postdoctoral fellow at UBC, and Dr. Doug Altshuler (DA), professor in the department of zoology. In this Q&A, they discuss what the findings reveal about animal vision and autonomous flight..." Source: University of British Columbia (6 July 2026)

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