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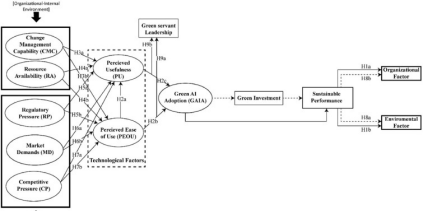
Featured Course

Smarter Thinking and Better Living in an AI World: A Conversation with Daniel Pink
23m

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AI
Green AI Helps Pakistani SMEs Go Greener — But Leadership, Investment, And Policy Still Fall Short



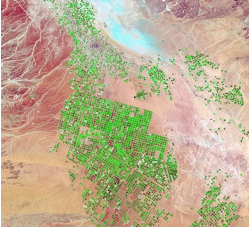
“Green Artificial Intelligence (Green AI) holds the potential to revolutionize sustainability efforts in emerging economies—but new research shows that without committed leadership, targeted investment, and stronger institutions, adoption may remain limited to a few early adopters.

In a large-scale empirical study published in Sustainable Futures (Elsevier), researchers surveyed 399 manufacturing SMEs across Pakistan’s major industrial sectors. They found that Green AI—AI designed to minimize energy use, emissions, and waste—significantly improves both operational and environmental performance, but only when critical enabling conditions are met.

“Green AI isn’t a silver bullet. Our findings show it works—but only in organizations prepared to lead, invest, and evolve,” said lead author Faizan ul Haq, Director at Bentham Science Publishers and researcher at Universiti Utara Malaysia.”

Source: [EurekAlert!](#) (5 Aug 2025)

AI
Google AI Model Mines Trillions of Images to Create Maps of Earth ‘At Any Place and Time’



"The technology giant Google has released an artificial intelligence (AI) model that acts as a 'virtual satellite' to weave together trillions of disparate observations — satellite images, radar and more — to track changes in land and shallow waters across Earth. Researchers are lauding the sheer scale of the effort while also calling on Google for more information about its tests, and warning that it will be up to individual scientists to verify any maps they obtain from the tool.

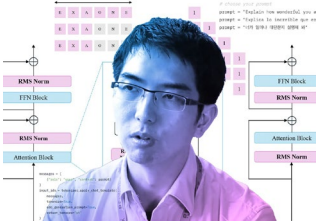
The model, called AlphaEarth Foundations, maps the world “at any place and time”, Christopher Brown, a research engineer at Google DeepMind in New York City, said at a press briefing on 28 July. Scientists might use it to identify the best places for clean-energy projects, study the ecological impacts of climate change, track deforestation and more.

Alongside the model, which was released yesterday, Google and its DeepMind AI unit have posted a paper, ahead of peer review, on the arXiv preprint server. The manuscript describes the creation of the model, its initial testing and baseline data sets covering Earth during the years 2017–24. It says that AlphaEarth beats similar AI models in terms of both accuracy and data density, and that the model saves users computing time and reduces energy use.

Nicholas Murray, a conservation biologist at James Cook University in Townsville, Australia, is the lead scientist for Global Ecosystems Atlas, an initiative to map the world's biodiversity and environments. Murray says that his team often spends “tens to hundreds of days” processing satellite data before it can even begin to make products such as maps describing changes in tidal wetlands over time. He hopes that Google's latest model — which the team is familiar with — will make that process more efficient.”

Source: [Nature](#) (31 Jul 2025)

AI
LG Launches Bid to Build an End-To-End AI Infrastructure: Exaone 4.0 Headlines New Offerings from the Korean Tech Company



"On 15 July, [LG AI Research—the AI R&D arm](#) of South Korea's [LG Group—unveiled Exaone 4.0](#), a hybrid reasoning AI model that combines general language processing with the advanced reasoning capabilities introduced through the company's earlier [Exaone Deep model](#).

[LG AI Research](#) says its [new model](#) outperforms similar models from [Alibaba](#), [Microsoft](#), and [Mistral AI](#) in industry benchmarks for science, math, and coding. However, Exaone 4.0 still falls short of [DeepSeek's best model](#).

However, LG AI Research isn't chasing the same users as most of the familiar names in AI. Unlike models such as [ChatGPT](#) and Gemini, which are primarily designed for the average person, LG AI is targeting business users. “Our primary focus is on the business-to-business (B2B) sector rather than business-to-consumer [for now],” says [Honglak Lee](#), the newly appointed co-head of LG AI Research and former research scientist at [Google Brain](#). LG launched the company in December 2020 as part of the Korean tech giant's [digital transformation](#) strategy.

To that end, LG AI Research has made Exaone 4.0 available for research and academic use [on Hugging Face](#), the global open-source AI platform. The model also now supports Spanish language use, expanding its capabilities beyond its original competencies with Korean and English.”

Source: [IEEE Spectrum](#) (3 Aug 2025)

ARCHITECTURE
Safdie Architects Breaks Ground on Singapore’s Marina Bay Sands Expansion Project

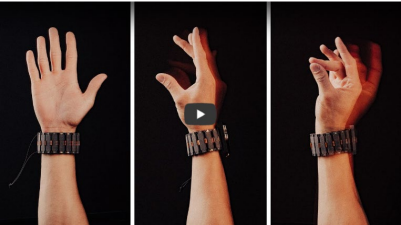


"[Safdie Architects](#) has broken ground on a [long-anticipated expansion to Marina Bay Sands](#) in [Singapore](#). Led by [Moshe Safdie](#), who also conceived the [original 2010 development](#), the new project is located on a site adjacent to the existing resort. The expansion introduces a 570-key luxury [hotel](#) and a 15,000-seat [arena](#) designed by [Populous](#), marking what is expected to be the final chapter in the evolution of the iconic complex.

Expected to be completed by 2029, the expansion introduces a curving 55-story hotel tower comprising 570 suites. Rotated at a 45-degree angle relative to the existing [towers](#), the new structure features triple-height garden terraces that grow in size as they ascend, and a [façade](#) system designed to minimize solar gain while maintaining proportional continuity with the original resort.”

Source: [Archdaily](#) (4 Aug 2025)

DESIGN
Meta Envisions Replacing Keyboard and Mouse with Smart Wristband



“Technology company [Meta](#) has said "the wrist is the key" to the future of human-computer interaction after its engineers created a [gesture-sensing](#) wristband prototype.

Detailed in the scientific journal Nature, the wristband picks up on the tiny, barely perceptible movements of muscles at the wrist to read a variety of hand gestures, ranging from tapping the thumb against different fingertips to writing out letters.

This muscle-reading technology is called surface electromyography (sEMG), and [Meta](#) believes a wrist-worn device harnessing it has the potential to overtake the keyboard, mouse and touchscreen as our primary way of interacting with computers.”

DESIGN
Student Develops Retrofit Rainwater Harvesting Kit to Reduce Household Water Bills



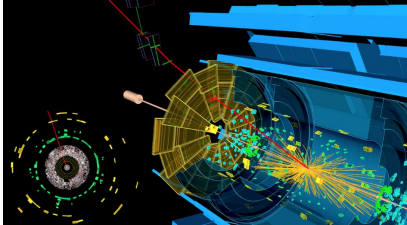
“[Northumbria University](#) graduate Hope Underwood has created a [water harvesting](#) system that can be retrofitted to domestic drainpipes to divert rainwater and use it for flushing toilets.

Underwood set out to develop a practical solution to the growing water scarcity and rising water bills in the UK, which are being exacerbated by climate change.

Designed during her final year on the Design for Industry programme at [Northumbria University](#), the Mains to Rains system comprises a modular, wall-mounted tank that collects and stores water from the downpipe so it can be used to flush the toilet.

Flushing represents the single largest source of domestic water use – roughly [30 per cent of indoor water consumed](#) – meaning most people will flush away as much water in a day as they drink in a month.”

ELECTRONICS
Engineering the Next Generation of Experimental Physics



“The Large Hadron Collider (LHC) is tough on electronics. Situated inside a 17-mile-long tunnel that runs in a circle under the border between Switzerland and France, this massive scientific instrument accelerates particles close to the speed of light before smashing them together. The collisions yield tiny maelstroms of particles and energy that hint at answers to fundamental questions about the building blocks of matter.

Those collisions produce an enormous amount of data — and enough radiation to scramble the bits and logic inside almost any piece of electronic equipment.

That presents a challenge to CERN's physicists as they attempt to probe deeper into the mysteries of the Higgs boson and other fundamental particles. Off-the-shelf components simply can't survive the harsh conditions inside the accelerator, and the market for radiation-resistant circuits is too small to entice investment from commercial chip manufacturers.

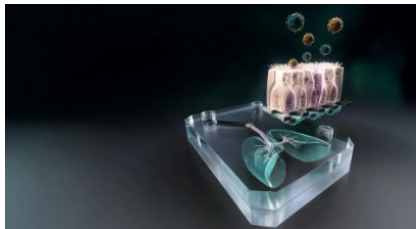

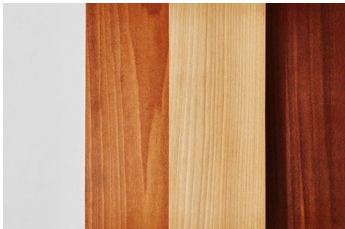
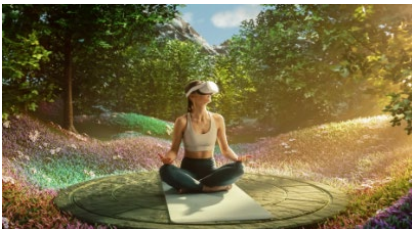
“Industry just couldn't justify the effort, so academia had to step in,” according to Peter Kinget, the Bernard J. Lechner Professor of Electrical Engineering at Columbia Engineering. “The next progress made by ATLAS will be triggered by one Columbia chip and measured by another.”

Kinget leads the team that designed specialized silicon chips that collect data in one of the harshest and most important environments in particle physics. Their most recent paper describing this project was

HEALTH
Your Sleep Schedule Could Be Making You Sick, Says Massive New Study



"A global study of over 88,000 adults reveals that poor sleep habits—like going to bed inconsistently or having disrupted circadian rhythms—are tied to dramatically higher risks for dozens of diseases, including liver cirrhosis and gangrene. Contrary to common belief, sleeping more than 9 hours wasn't found to be harmful when measured objectively, exposing flaws in previous research. Scientists now say it's time to redefine "good sleep" to include regularity, not just duration, as biological mechanisms like inflammation may underlie these powerful sleep-disease links."

Source: Dezeen (25 Jul 2025)		Source: Dezeen (4 Aug 2025)		published July 1 in the IEEE Open Journal of the Solid-State Circuits Society."		Source: Colombia (24 Jul 2025)		Source: Health Data Science (29 Jul 2025)	
<div>HEALTH TECH</div> <div>This Tiny Lung-On-A-Chip Could Predict—And Fight—The Next Pandemic</div> <div></div> <div><p>"Scientists at Kyoto University have developed a groundbreaking "lung-on-a-chip" that can mimic the distinct regions of human lungs—airways and alveoli—to study how viruses like COVID-19 affect them differently. Powered by isogenic induced pluripotent stem cells (iPSCs), the system offers a high-fidelity way to model personalized immune responses and test drug effectiveness. This innovation opens the door to precision medicine, deeper understanding of emerging viruses, and even modeling of other organs in the future."</p></div>		<div>LIGHTNING</div> <div>A Bolt Is Born! Atmospheric Events Underpinning Lightning Strikes Explained</div> <div></div> <div><p>"In the study published today (July 28) in the Journal of Geophysical Research, the authors described how they determined strong electric fields in thunderclouds accelerate electrons that crash into molecules like nitrogen and oxygen, producing X-rays and initiating a deluge of additional electrons and high-energy photons — the perfect storm from which lightning bolts are born.</p><p>"Our findings provide the first precise, quantitative explanation for how lightning initiates in nature," Pasko said. "It connects the dots between X-rays, electric fields and the physics of electron avalanches."</p><p>The team used mathematical modeling to confirm and explain field observations of photoelectric phenomena in Earth's atmosphere — when relativistic energy electrons, which are seeded by cosmic rays entering the atmosphere from outer space, multiply in thunderstorm electric fields and emit brief high-energy photon bursts. This phenomenon, known as a terrestrial gamma-ray flash, comprises the invisible, naturally occurring bursts of X-rays and accompanying radio emissions.</p><p>"By simulating conditions with our model that replicated the conditions observed in the field, we offered a complete explanation for the X-rays and radio emissions that are present within thunderclouds," Pasko said. "We demonstrated how electrons, accelerated by strong electric fields in thunderclouds, produce X-rays as they collide with air molecules like nitrogen and oxygen, and create an avalanche of electrons that produce high-energy photons that initiate lightning."</p><p>Zaid Pervez, a doctoral student in electrical engineering, used the model to match field observations — collected by other research groups using ground-based sensors, satellites and high-altitude spy planes — to the conditions in the simulated thunderclouds."</p></div>		<div>MATERIALS</div> <div>Superwood Is a Chemically Modified Wood That Is Stronger Than Steel</div> <div></div> <div><p>"American start-up InventWood claims to have "reinvented wood from the inside out" with a patented process that restructures the material's molecules to make it ten times stronger than regular wood.</p><p>InventWood developed Superwood as a more sustainable, lightweight alternative to concrete and steel in architectural applications.</p><p>The company claims that the material is up to ten times stronger than regular wood and six times lighter than steel, as well as being resistant to water, insects, mould and mildew."</p></div>		<div>VR</div> <div>Pain Relief Without Pills? VR Nature Scenes Trigger the Brain's Healing Switch</div> <div></div> <div><p>"Stepping into a virtual forest or waterfall scene through VR could be the future of pain management. A new study shows that immersive virtual nature dramatically reduces pain sensitivity almost as effectively as medication. Researchers at the University of Exeter found that the more present participants felt in these 360-degree nature experiences, the stronger the pain-relieving effects. Brain scans confirmed that immersive VR scenes activated pain-modulating pathways, revealing that our brains can be coaxed into suppressing pain by simply feeling like we're in nature."</p></div>			
Source: Kyoto University (29 Jul 2025)		Source: PSU (28 Jul 2025)		Source: Dezeen (1 Aug 2025)		Source: Exeter (31 Jul 2025)			

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