

# Weekly Discovery

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8 Dec - 12 Dec 2025

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### Al Is Saving Time and Money in Research — But at What Cost?



"Scientists are increasingly using artificial intelligence (AI) to do their work. Many say the tools are saving them time and money, but others have seen the negative effects that such tools can have on research.

In a survey of more than 2,400 researchers released in October by the publishing company Wiley, 62% of respondents said they used AI for tasks related to research or publication — up from 45% in 2024, when there were 1,043 respondents. Early-career scientists and researchers in physical sciences were the most likely to use AI tools in their work, and were more likely to be early adopters of Al than were later-career researchers or those working in humanities, mathematics or

Researchers are using AI tools to help with writing, editing and translating. They are also using them to detect errors or bias in their writing, and to summarize large volumes of studies. In a sample of 2,059 respondents, 85% said Al helped with efficiency, 77% that it helped to increase the quantity of work completed, and 73% that it improved the quality of their work.

Matthew Bailes, an astrophysicist at Swinburne University of Technology in Melbourne, Australia, says Al tools are popular among astronomers, helping them to process massive data sets. His team has been using AI for about a decade to identify neutron-star signatures in their data. "When you've got 10,000 candidates, it's handy to just be able to whip through it in a few seconds, rather than manually looking at everything."

Source: Nature (5 Dec 2025)

#### AI & ROBOTICS

# **Speech-To-Reality System Creates** Objects on Demand Using Al And



"Generative AI and robotics are moving us ever closer to the day when we can ask for an object and have it created within a few minutes. In fact, MIT researchers have developed a speech-to-reality system, an Aldriven workflow that allows them to provide input to a robotic arm and "speak objects into existence," creating things like furniture in as little

connecting natural language processing, 3D generative AI, and robotic assembly," says Alexander Htet Kyaw, an MIT graduate student and Morningside Academy for Design (MAD) fellow. "These are rapidly advancing areas of research that haven't been brought together before in a way that you can actually make physical objects just from a simple speech prompt."

Read the conference proceeding here."

### **Featured Course**

Al-Powered Presentations: Crafting Compelling PowerPoints with ChatGPT and Copilot

1h 2m

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ARCHITECTURE

# The Line of Fragile Radiance: Neon Light as Atelier, Architecture, and



fragility—and temporal of neon has captivated audiences since the early 1900s. First shown commercially by French engineer Georges Claude at the 1910 Paris Show, neon spread rapidly, achieving broad popularity in the United States from the 1920s through the 1950s. Mid-century America saw it everywhere: from the casinos of the Las Vegas Strip to roadside motor inns along Route 66 and the spectacle of Times Square. By the latter half of the century, however, many signs were scrapped or left to decay, and numerous municipalities restricted neon as visually garish or power-hungrydespite the technology's comparatively modest energy use. In the U.S., renewed interest in neon arguably didn't meaningfully return until the early 2000s.

In Hong Kong, by contrast, neon was embraced with unusual enthusiasm at a time when it began to lose popularity elsewhere. Even as installation slowed in recent decades—largely due updated ordinances requiring removal of overhanging signs whose support structures failed to meet safety standards—the city's affinity for neon never fully disappeared.'

ARTIFICIAL INTELLIGENCE

### The Age of Vibe Coding: Why Logic Alone Won't Cut It Anymore



"As AI assumes more and more programming tasks, engineers should instead deepen their creativity and intuition to provide real-world value.

We once taught young people how to talk to computers. In the early days of software, success meant mastering understanding loops, and managing memory and structure. But that era is fading.

Thanks to generative AI and new paradigms of technology, the game has changed: the best technologists now are not just coders. They are creators of systems that infer, adapt, and respond better. The rise of what I call vibe coding, a blend of aspirations, logic, creativity, and human intuition, is fast becoming one of the most vital skills that young people must learn in the age of intelligent machines."

Source: Techxplore (8 Dec 2025)

# Source: Archdaily (7 Dec 2025)

### Among Psychologists, Al Use Is Up, **But So Are Concerns**

Source: <u>Design News</u> (9 Dec 2025)



psychologists experimented with artificial intelligence tools in their practices in the past year, but almost all cite concerns about how the technology may affect their patients and society, according to the American Psychological Association's 2025 Practitioner Pulse Survey.

This annual survey, conducted by APA and its companion organization, APA Services, Inc., was completed by 1,742 psychologists in September 2025. It found that 56% of psychologists reported using AI tools to assist with their work at least once in the past 12 months, up from 29% in 2024. And close to three in 10 psychologists (29%) said they used Al on at least a monthly basis - more than twice as many who said the same in 2024 (11%). These technologies can support psychologists in various ways, from providing administrative support to augmenting clinical

However, as psychologists grow more familiar with AI, they are also becoming more attuned to its potential risks. More than nine in 10 psychologists (92%) cited concerns about the use of Al tools in psychology, most commonly potential data breaches (67% vs. 59% in 2024), unanticipated social harms (64% vs. 54%), biases in the input and output (63% vs. 54%), a lack of rigorous testing to mitigate risks (61% vs. 51%) and inaccurate output or "hallucinations" (60% vs.44%)."

Source: Eurekalert! (9 Dec 2025)

## Es Devlin Erects Monumental Rotating Library on Miami beach



"British designer Es Devlin has created Library of Us, a massive rotating library for books that have informed her work over the years at Miami art week.

Library of Us was installed on the beachfront of the Faena Beach hotel in Miami Beach as part of the Faena Arts program.

Set on a metallic plinth, it has a compass-like form, with a triangular shelf rotating on a circular pool of water surrounded by a circular desk with chairs for reading.

The 2,500 books in the library were placed with spacing between them, allowing for light to pass through and will be illuminated at night during the city's annual art week hinged on fair Art Basel.

The installation was designed to showcase Devlin's own impressions of the act of reading, especially of reading in a social capacity, referencing the "temporary community of readers" at a library.

"I have always experienced libraries as silent, intensely vibrant places where minds and imaginations soar, while clutched like kites by their seated bodies," said Devlin."

### **Twelve Top Architects and Designers Share Advice for the Younger** Generation



"To round off our Performance Review series, we asked leading architects and designers for their words of wisdom, including **Daniel** Libeskind, Sabine Marcelis and Lina Ghotmeh.

The design and architecture industries are complex, and making a living from them can be daunting.

How should you navigate the industry as a fledgling?

This is the question we posed to industry leaders - people who themselves have built successful businesses.'

### Concrete With a Human Touch: Can We Make Infrastructure That Repairs Itself?



'But what if concrete could heal itself like human skin, keeping our structures, roads and bridges strong and saving millions of dollars?

Concrete is the most widely used construction material, known for its durability and low maintenance. Yet it's still susceptible to cracking.

This challenge has led researchers to eagerly explore what can be done to heal these cracks. In their research, the researchers are researching how self-healing concrete can make infrastructure more durable."

Source: Dezeen (2 Dec 2025)

Source: Dezeen (28 Nov 2025)

Source: The Conversation (8 Dec 2025)

**ROBOTICS** 

HEALTHCARE This Tiny Implant Sends Secret Messages to the Brain

**HEALTHCARE Prognostic Tool Could Help Clinicians Identify High-Risk Cancer Patients** 

**Proactive Hearing Assistant Filters** Through Voices in a Crowd: Its Dual **Model Identifies Conversation** Partners in Real Time

HEARING AID

**Watch This Tiny Robot Somersault** Through the Air Like an Insect



"In a major step forward for neurobiology and bioelectronics, scientists at Northwestern University have created a wireless device that uses light to transmit information directly into the brain. The technology bypasses traditional sensory routes in the body and instead delivers signals straight to neurons.

The device is soft and flexible, fitting beneath the scalp while resting on the skull. From this position, it sends carefully controlled light patterns through the bone to activate specific groups of neurons across the cortex.

Read more in their article on  $\underline{\text{Nature}}$  here."



"Aggressive T-cell lymphoma is a rare and devastating form of blood cancer with a very low five-year survival rate. Patients often relapse after receiving initial therapy, making it especially challenging for clinicians to keep this destructive disease in check.

In a new study, researchers from MIT, in collaboration with researchers involved in the PETAL consortium at Massachusetts General Hospital, identified a practical and powerful prognostic marker that could help clinicians identify high-risk patients early, and potentially tailor treatment strategies to improve survival."



"Inside a crowded bar, even the best noise-canceling <u>earbuds</u> struggle. They can either shut the whole world out or let everything in, but they can't do what humans do naturally: focus on the voices that matter while ignoring everything else. A new study from researchers at the University of Washington <u>proposes a third way—a</u> "proactive hearing assistant" that automatically figures out who you're talking to using AI and enhances only their voices in real time, without taps or gestures.

"We were asking a very simple question," says Shyam Gollakota, head of the Mobile Intelligence Lab at the University of Washington and coauthor of the study. "If you're in a bar with a hundred people, how does the Al know who you are talking to?"

The team's answer blends audio engineering with conversational science. Building on previous research by Gollakota's lab, the system uses Al trained to detect the subtle turn-taking patterns humans instinctively follow to alternate speaking turns with minimal overlap. That conversational rhythm becomes the cue for identifying who is in the exchange. Voices that don't follow the pattern are filtered out."



"The world's most daring stunt pilot would struggle to outmaneuver a fruit fly. Aerial insects are some of the nimblest creatures on the planet, expertly pulling off rapid turns, abrupt stops, and midair flips with an agility engineers have long strived to bestow on similar-size flying robots or drones.

Now, a group of scientists at the Massachusetts Institute of Technology (MIT) has taken a major step toward that goal. Their tiny winged robot, described today in Science Advances, is faster and more acrobatic than any of its predecessors—even approaching the agility of real insects.

Read more <u>here</u>."

Source: <u>IEEE Spectrum</u> (8 Dec 2025) Source: <u>Science</u> (3 Dec 2025)

Source: <u>Science Daily</u> (8 Dec 2025)

Source: MIT News (8 Dec 2025)

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