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Weekly Discovery

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31 Mar - 4 Apr 2025

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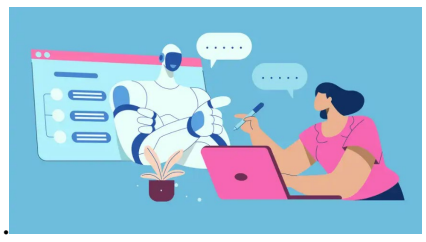
AI

Chat With Your Data: How 4 Genai Tools Stack Up



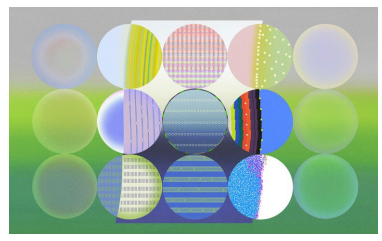
"Finding and summarizing information may not sound like the sexiest task for generative AI — until you need an article you posted on social media but can't remember the exact word or phrase you used, or you want to answer a quick how-to question without plowing through a lengthy software manual.

There are a lot of ways to set up large language models (LLM) to answer queries based exclusively on information you give them. One of the easiest, which involves no coding at all, is to use a service like Google's NotebookLM or ChatGPT Projects."

Source: computerworld (18 Mar 2025)

AI

AI Is Transforming Peer Review — And Many Scientists Are Worried



"This February, ecologist Timothée Poisot was surprised when he read through the peer reviews of a manuscript he had submitted for publication. One of the referee reports seemed to have been written with, or perhaps entirely by, artificial intelligence (AI). It contained the telltale sentence, "Here is a revised version of your review with improved clarity and structure", a strong indication that the text was generated by large language models (LLMs).

Poisot hasn't yet told the journal editor of his suspicions; he asked that the journal involved — which bans the use of LLMs in peer reviews — not be revealed in this article.

But in a blogpost about the incident, he argued strongly against automated peer review. "I submit a manuscript for review in the hope of getting comments from my peers. If this assumption is not met, the entire social contract of peer review is gone," wrote Poisot, who works at the University of Montreal in Canada.

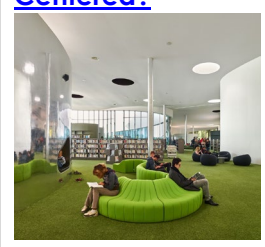
AI systems are already transforming peer review — sometimes with publishers' encouragement, and at other times in violation of their rules. Publishers and researchers alike are testing out AI products to flag errors in the text, data, code and references of manuscripts, to guide reviewers toward more-constructive feedback, and to polish their prose. Some new websites even offer entire AI-created reviews with one click.

But with these innovations come concerns. Although today's AI products are cast in the role of assistants, AI might eventually come to dominate the peer-review process, with the human reviewer's role reduced or cut out altogether. Some enthusiasts see the automation of peer review as an inevitability — but many researchers, such as Poisot, as well as journal publishers, view it as a disaster."

Source: Nature (26 Mar 2025)

ARCHITECTURE

Third Places in The United States: Commercialized or Community-Centered?



"The modern world is disconnected. Online interactions dominate the daily lives of people across the world. This shift is not just a result of the rise of the internet, but also a stark reflection of the decline of public spaces, particularly third places. Third places, once essential for promoting community and social cohesion, have evolved drastically over the past few decades. In today's commercialized landscape, third places face plenty of demands from users and designers alike, calling for a need to reconsider their accessibility and purpose.

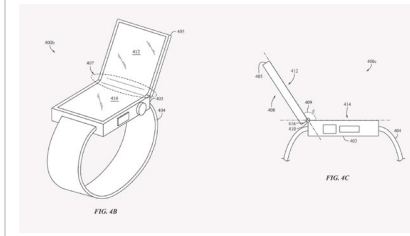
"The Great Good Place" by sociologist Ray Oldenburg featured the first mention of the term "third place", the writing being a response to the privatization of domestic life driven by urban sprawl and suburban development. Oldenburg identified these spaces as distinct from our homes and places of work, initially categorizing cafés, bars, libraries, barbershops, parks, and other locations where locals would gather to socialize outside their primary domains.

The key function of third places was to serve as a social anchor. They were accessible and inclusive environments that demanded a neutral ground for visitors to relax, interact, spread ideas, and build connections regardless of their social status or background. Anthropologists have long studied public areas like plazas and markets as essential elements of the public sphere. These spaces have historically expressed cultural norms while shaping a shared history."

Source: Archdaily (31 Mar 2025)

DESIGN

Apple Files Patent for Foldable Apple Watch with Two Screens



"Future versions of the Apple Watch could feature a foldable display to rival the functionality of a smartphone, according to a recent patent application by Apple.

The application, originally filed in September 2023 but published by the US Patent and Trademark Office this month, describes a smartwatch that hinges open to reveal a second screen and incorporates two separate cameras.

This would allow the device to fulfill many of the functions for which users normally rely on their smartphone and enable them to go phoneless for "extended periods of time", according to Apple.

"Many individuals already forego the use of a smartphone during exercise or periods of recreation and instead use a smartwatch," the application reads.

"However, current wearable electronic devices are limited in terms of screen size and functionality relative to their smartphone counterparts."

The folding version with its larger internal display would allow the wearer to more easily browse the web and social media, play games and send messages, according to Apple.

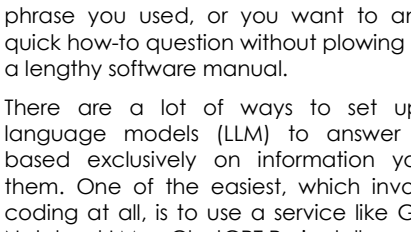
Integrated cameras – one facing outwards and the other inwards – would also allow the wearer to snap pictures and make video calls.

At the same time, the display could be folded away for portability, with essential information like the time, weather and health data displayed on the smaller exterior screen."

Source: Dezeen (26 Mar 2025)

DESIGN

Twenty Must-See Installations and Exhibitions at Milan Design Week 2025



"The Dezeen team has compiled key highlights from the overwhelming amount of things on show at Milan design week 2025, including a play about modernism, Muji's "manifesto house" and urns designed by Daniel Libeskind and David Chipperfield.

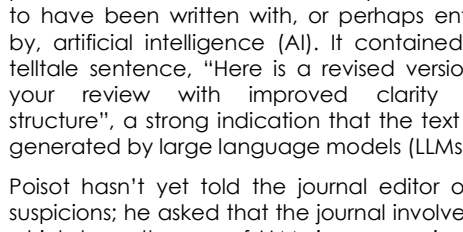
Milan design week is centred around Salone del Mobile, the world's most significant furniture fair, where highlights this year include an installation by filmmaker Paolo Sorrentino and the return of bi-annual lighting fair Euroluce.

Alongside the fair, the city will host what feels like an unprecedented number of events, from monumental installations by BIG and Es Devlin to group exhibitions by emerging designers – including one that will see participants live and sleep in a gallery throughout the week.

Below, we've rounded up the key things not to miss. For details of the hundreds of other events taking place across the city, check out Dezeen Events Guide's guide to Milan design week 2025."

MATERIALS

Smart Textiles and Surfaces – How Lightweight Elastomer Films Are Bringing Tech to Life

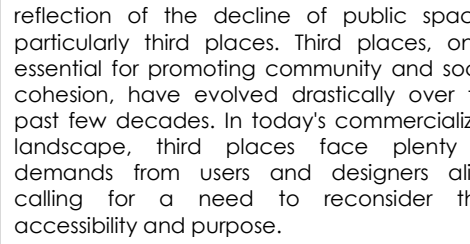


"A research team led by Professors Stefan Seelecke and Paul Motzki from Saarland University are using a highly versatile film not much thicker than household cling film to impart new capabilities to objects while saving energy in the process. When used in wearable textiles, these films can move and press against the skin providing haptic feedback that can enhance the VR gaming experience by allowing players to feel textures, impacts and other physical sensations. When the thin polymer film is integrated into an industrial glove, it can respond to how the operator's hand and fingers move, thus enabling a computer to 'understand' specific hand motions and gestures. Applied to the top of a flat glass display screen, the film can create the transient sensation of a tactile button, switch or slider under the user's finger. Lightweight loudspeakers that use far less energy than their conventional counterparts, novel signal generators and noise cancelling textiles are just some of the other prototypes being developed by the experts in intelligent materials systems at Saarland University and the Center for Mechatronics and Automation Technology in Saarbrücken (ZeMA).

But how do they bring these films to life? 'Each side of the film is coated with an electrically conducting layer', explains Paul Motzki, Professor of Smart Material Systems for Innovative Production at Saarland University and Scientific Director/CEO at ZeMA. When the researchers apply an electric voltage to the polymer film, these electrically conducting layers attract each other, compressing the polymer and causing it to expand out sideways,

RESEARCH

Is AI The New Research Scientist? Not So, According to A Human-Led Study.



"In a comprehensive study examining the capabilities of artificial intelligence in academic research, University of Florida researchers have found that while AI can be a valuable assistant, it falls short of replacing human scientists in many critical areas.

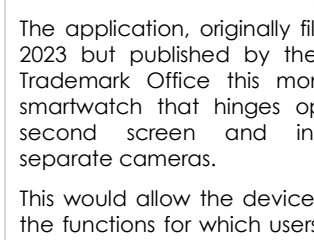
The research, detailed in a paper titled "AI and the advent of the cyborg behavioral scientist," tested how well popular generative AI models including OpenAI's ChatGPT, Microsoft's Copilot and Google's Gemini could handle various stages of the research process.

The team put these AI systems through six stages of academic research – starting with ideation, literature review and research design, followed by documenting results, extending the research and the final manuscript production – while limiting any human intervention on their part.

What they discovered was a mixed bag of capabilities and limitations, presumably good news for research scientists wondering if AI will take their job."

ROBOTS

The Tiniest Flying Robot Soars Thanks to Magnets: The Prototype, With Less Than a Centimeter Wingspan, Has No Onboard Power Source



"A new prototype is laying claim to the title of smallest, lightest untethered flying robot.

At less than a centimeter in wingspan, the wirelessly powered robot is currently very limited in how far it can travel away from the magnetic fields that drive its flight. However, the scientists who developed it suggest there are ways to boost its range, which could lead to potential applications such as search and rescue operations, inspecting damaged machinery in industrial settings, and even plant pollination.

One strategy to shrink flying robots involves removing their batteries and supplying them electricity using tethers. However, tethered flying robots face problems operating freely in complex environments. This has led some researchers to explore wireless methods of powering robot flight.

"The dream was to make flying robots to fly anywhere and anytime without using an electrical wire for the power source," says Liwei Lin, a professor of mechanical engineering at University of California at Berkeley. Lin and his fellow researchers detailed their findings in Science Advances."

thus increasing its surface area. 'By varying the applied electric field, we can control the motion of the film, essentially creating a lightweight but highly efficient actuator,' says Paul Motzki. The researchers are able to precisely control the motion of these coated films, known as dielectric elastomers (DE), and can get them to perform slow or rapid flexing movements or to vibrate at a desired frequency. Or they can make the film hold a fixed stationary position without requiring the continuous supply of electrical energy."

Source: Dezeen (31 Mar 2025)

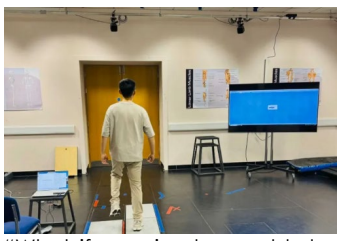
Source: uni-saarland (27 Mar 2025)

Source: UFL (27 Mar 2025)

Source: IEEE Spectrum (28 Mar 2025)

TECH

Smart Insoles That Could Change the Game for Sports and Health



"What if your insoles could do more than just cushion your feet? Imagine a pair that could track your movements, help athletes avoid injuries, or even assist doctors in monitoring recovery.

A new study by scientists at the University of Portsmouth and technology company TG0, funded by Innovate UK via a Knowledge Transfer Partnership (KTP), has brought us closer to making this idea a reality.

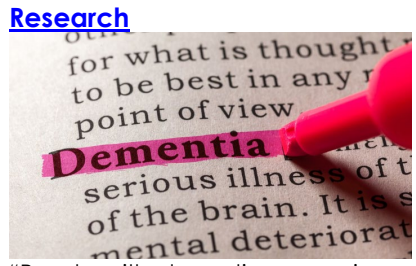
The team of researchers, led by Dr Dalin Zhou from the School of Computing, have successfully designed a new smart insole system that can accurately measure the body's interaction with the ground, opening new possibilities in sports science and healthcare by estimating ground reaction forces (GRFs).

This data is crucial in sports science, rehabilitation, and even injury prevention, but until now, capturing it outside of a lab was nearly impossible."

Source: Port AC (26 Mar 2025)

TECHNOLOGY

Digital Technology and AI Can Support Workers with Dementia – New Research



"People with dementia can enjoy productive and rewarding working lives in the digital era, contrary to the widespread stereotype that dementia is incompatible with the use of modern technology, according to new research from the University of Bath.

The study - Working lives with dementia: A digital futures perspective – argues that the digital revolution risks exacerbating inequalities amongst those with diverse needs but that organisations can and should develop, adapt and deploy digital technology and the working environment to help those with dementia to continue in employment.

"The bottom line is that we have an ageing population and workforce in which dementia will feature and which should, and can be, accommodated by the judicious use of digital technology and adapting working conditions. The reality is, this is not dealt with in any meaningful way right now – there are very rarely strategies in place," said Dr James Fletcher of the University of Bath School of Management.

"There is widespread prejudice that those with dementia cannot cope with, or benefit from, digital technology, and they often get bundled into the same category as the oldest people. But it's worth putting some perspective on this – an experienced 60-year-old employee with early stage dementia will have grown up through the digital, internet and social media revolutions – and with the right support, they will still have much to offer," Dr Fletcher said."

Source: bath (28 Mar 2025)

VR

Researchers Develop Virtual Reality-Based System to Improve Psychiatric Diagnosis

"Researchers have developed a virtual reality-based system that shows promise in improving the differentiation between common mental health conditions, potentially paving the way for earlier and more personalised treatment. The work is published in the March edition of the peer-reviewed journal European Neuropsychopharmacology, with a subsequent (31 March) comment also being published in the same journal.

Accurate diagnosis remains one of the biggest challenges in psychiatry, with more than half of psychiatric patients changing their diagnosis within 10 years. Most psychiatric diagnoses rely on patients reporting their symptoms, but many mental health conditions share overlapping features. For example, apathy, hallucinations, and cognitive problems may be present in both schizophrenia and bipolar disorder, making it difficult to distinguish between the two. Misdiagnosis can lead to suboptimal treatment and poorer outcomes.

Now, a group of Danish scientists have combined virtual reality with physiological measurements (such as skin conductivity) to explore a more objective method for identifying different mental health conditions.

Lead researcher Professor Kamilla Miskowiak (University of Copenhagen) said, "This is an important step forward. Until now, diagnosis has largely depended on self-reporting of symptoms, but our findings suggest that virtual reality scenarios combined with physiological measures may help differentiate between similar conditions. This is an area where psychiatry has long faced difficulties.""

Source: Eurekalert! (31 Mar 2025)

WEARABLES

Feeling The Future: New Wearable Tech Simulates Realistic Touch

"When it comes to haptic feedback, most technologies are limited to simple vibrations. But our skin is loaded with tiny sensors that detect pressure, vibration, stretching and more.

Now, Northwestern University engineers have unveiled a new technology that creates precise movements to mimic these complex sensations.

While sitting on the skin, the compact, lightweight, wireless device applies force in any direction to generate a variety of sensations, including vibrations, stretching, pressure, sliding and twisting. The device, detailed in a study published in the journal Science, also can combine sensations and operate fast or slow to simulate a more nuanced, realistic sense of touch.

Powered by a small rechargeable battery, the device uses Bluetooth to wirelessly connect to virtual reality headsets and smartphones. It also is small and efficient, so it could be placed anywhere on the body, combined with other actuators in arrays or integrated into current wearable electronics.

The researchers envision their device eventually could enhance virtual experiences, help individuals with visual impairments navigate their surroundings, reproduce the feeling of different textures on flat screens for online shopping, provide tactile feedback for remote health care visits and even enable people with hearing impairments to "feel" music."

Source: northwestern (27 Mar 2025)