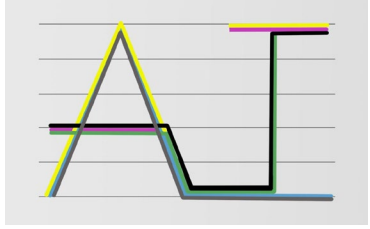


AI 15 Graphs That Explain the State of AI in 2024: The AI Index Tracks the Generative AI Boom, Model Costs, And Responsible AI Use



"Each year, the AI Index lands on virtual desks with a louder virtual thud—this year, its 393 pages are a testament to the fact that AI is coming off a really big year in 2023. For the past three years, IEEE Spectrum has read the whole damn thing and pulled out a selection of charts that sum up the current state of AI (see our coverage from 2021, 2022, and 2023).

This year's report, published by the Stanford Institute for Human-Centered Artificial Intelligence (HAI), has an expanded chapter on responsible AI and new chapters on AI in science and medicine, as well as its usual roundups of R&D, technical performance, the economy, education, policy and governance, diversity, and public opinion. This year is also the first time that Spectrum has figured into the report, with a citation of an article published here about generative AI's visual plagiarism problem."

Source: [IEEE Spectrum](#) (15 Apr 2024)

AI Australian Media Need Generative AI Policies to Help Navigate Misinformation and Disinformation



"New research into generative AI images shows only over a third of media organisations surveyed at the time of research have an image-specific AI policy in place.

The study, led by RMIT University in collaboration with Washington State University and the QUT Digital Media Research Centre, interviewed 20 photo editors or related roles from 16 leading public and commercial media organisations across Europe, Australia and the US about their perceptions of generative AI technologies in visual journalism.

Lead researcher and RMIT Senior Lecturer, Dr TJ Thomson, said while most staff interviewed were concerned about the impact of generative AI on misinformation and disinformation, factors that compound the issue, such as the scale and speed at which content is shared on social media and algorithmic bias, were out of their control."

Source: [EurekAlert!](#) (15 Apr 2024)

AI AI Now Beats Humans at Basic Tasks — New Benchmarks Are Needed, Says Major Report



"Artificial intelligence (AI) systems, such as the chatbot ChatGPT, have become so advanced that they now very nearly match or exceed human performance in tasks including reading comprehension, image classification and competition-level mathematics, according to a new report (see 'Speedy advances'). Rapid progress in the development of these systems also means that many common benchmarks and tests for assessing them are quickly becoming obsolete.

These are just a few of the top-line findings from the Artificial Intelligence Index Report 2024, which was published on 15 April by the Institute for Human-Centered Artificial Intelligence at Stanford University in California. The report charts the meteoric progress in machine-learning systems over the past decade.

In particular, the report says, new ways of assessing AI — for example, evaluating their performance on complex tasks, such as abstraction and reasoning — are more and more necessary. "A decade ago, benchmarks would serve the community for 5–10 years" whereas now they often become irrelevant in just a few years, says Nestor Maslej, a social scientist at Stanford and editor-in-chief of the AI Index. "The pace of gain has been startlingly rapid."

Source: [Nature](#) (15 Apr 2024)

AI AI Makes Retinal Imaging 100 Times Faster, Compared to Manual Method



"Researchers at the National Institutes of Health applied artificial intelligence (AI) to a technique that produces high-resolution images of cells in the eye. They report that with AI, imaging is 100 times faster and improves image contrast 3.5-fold. The advance, they say, will provide researchers with a better tool to evaluate age-related macular degeneration (AMD) and other retinal diseases.

"Artificial intelligence helps overcome a key limitation of imaging cells in the retina, which is time," said Johnny Tam, Ph.D., who leads the Clinical and Translational Imaging Section at NIH's National Eye Institute.

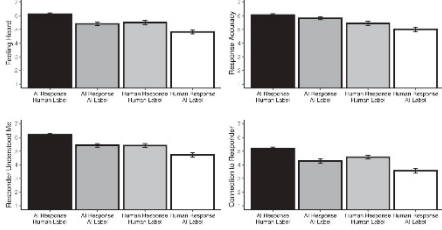
Tam is developing a technology called adaptive optics (AO) to improve imaging devices based on optical coherence tomography (OCT). Like ultrasound, OCT is noninvasive, quick, painless, and standard equipment in most eye clinics.

"Adaptive optics takes OCT-based imaging to the next level," said Tam. "It's like moving from a balcony seat to a front row seat to image the retina. With AO, we can reveal 3D retinal structures at cellular-scale resolution, enabling us to zoom in on very early signs of disease."

While adding AO to OCT provides a much better view of cells, processing AO-OCT images after they've been captured takes much longer than OCT without AO."

Source: [NEI](#) (10 Apr 2024)

AI Artificial Intelligence Can Help People Feel Heard, New USC Study Finds



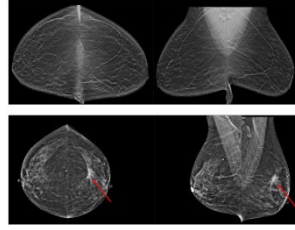
"A new study published in the Proceedings of the National Academy of Sciences (PNAS) found AI-generated messages made recipients feel more "heard" than messages generated by untrained humans, and that AI was better at detecting emotions than these individuals. However, recipients reported feeling less heard when they learned a message came from AI.

As AI becomes more ubiquitous in daily life, understanding its potential and limitations in meeting human psychological needs becomes more pertinent. With dwindling empathetic connections in a fast-paced world, many are finding their human needs for feeling heard and validated increasingly unmet.

The research conducted by Yidan Yin, Nan Jia, and Cheryl J. Wasklak from the USC Marshall School of Business addresses a pivotal question: Can AI, which lacks human consciousness and emotional experience, succeed in making people feel heard and understood?"

Source: [USC](#) (11 Apr 2024)

AI AI-Assisted Breast-Cancer Screening May Reduce Unnecessary Testing



"Using artificial intelligence (AI) to supplement radiologists' evaluations of mammograms may improve breast-cancer screening by reducing false positives without missing cases of cancer, according to a study by researchers at Washington University School of Medicine in St. Louis and Whiterabbit.ai, a Silicon Valley-based technology startup.

The researchers developed an algorithm that identified normal mammograms with very high sensitivity. They then ran a simulation on patient data to see what would have happened if all of the very low-risk mammograms had been taken off radiologists' plates, freeing the doctors to concentrate on the more questionable scans. The simulation revealed that fewer people would have been called back for additional testing but that the same number of cancer cases would have been detected.

"False positives are when you call a patient back for additional testing, and it turns out to be benign," explained senior author Richard L. Wahl, MD, a professor of radiology at Washington University's Mallinckrodt Institute of Radiology (MIR) and a professor of radiation oncology. "That causes a lot of unnecessary anxiety for patients and consumes medical resources. This simulation study showed that very low-risk mammograms can be reliably identified by AI to reduce false positives and improve workflows."

Source: [WUSTL](#) (10 Apr 2024)

ARCHITECTURE Landscape Architects Lead Bhutan's Mindfulness City



"The Mindfulness City will be a sustainable city. To be mindful is to be aware — to perform best," said Giulia Frittoli, partner and head of landscape at BIG. The Kingdom of Bhutan is a landlocked Buddhist country in the eastern Himalayas, nestled between China and India. It covers 14,000 square miles and has a population of nearly 800,000.

The Royal Office of Bhutan asked BIG, Arup, and Cistri to develop a plan for a new Mindfulness City in Gelephu in southern Bhutan, near the border with India. The city will span 386 square miles and include a new international airport, railway connections, hydroelectric dam, university, spiritual center, and public spaces.

"This site was selected because it is one of the flattest areas of Bhutan." The site was also chosen to minimize impact on the forest, which covers 70 percent of the country, making the country a biodiversity hotspot.

"Bhutan has this extra respect for nature. Forests are protected in its constitution," Frittoli said. And the site's flat character enables Bhutan to build a new airport. "As an international gateway, it is an ideal location."

The planning and design team's novel plan aims to not only preserve the forest but also make room for rivers and elephants. "We started with a landscape point of view before an urban point of view. We started from the environment," Frittoli said."

Source: [Archdaily](#) (10 Apr 2024)

DESIGN Terra AI "Compass" Enables Users to Take Phone-Free Walks



"Artificial intelligence and a "gorpcore" aesthetic combine in Terra — a "compass" created by design studios Modem Works and Panter & Tourron to enable people to go on walks without their phone.

Terra is a pocket-sized gadget that guides its user along a route using haptic feedback and a subtle arrow interface like a compass needle.

The routes are bespoke and created by AI in response to the user's prompts. "Two-hour Marais stroll with patisserie visit" and "Kyoto architecture tour, back by 4pm" are two examples from the Terra website.

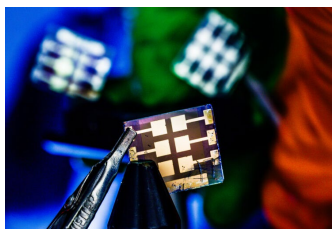
Modem Works and Panter & Tourron created Terra for people who want to go for walks and either not take their phone or at least not have to look at it. Panter & Tourron founder Stefano Panterotto described it as a "non-device" that "lets you wander without the distractions of your phone."

"In a world overwhelmed by the constant distractions of our smartphones, the need for a mindful connection with our surroundings has never been more pressing," he said.

Open-source and manufacturable by 3D printing, Terra eschews the norms of electronic products in some ways. Its physical form is small but rugged-looking, designed with reference to New Age objects and "gorpcore" — the trend of wearing outdoor recreation gear as a style statement."

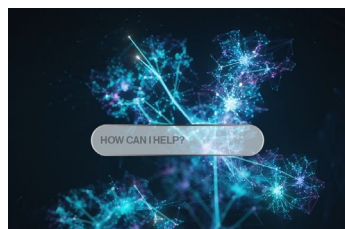
Source: [Dezeen](#) (5 Apr 2024)

DISPLAYS Breakthrough For Next-Generation Digital Displays



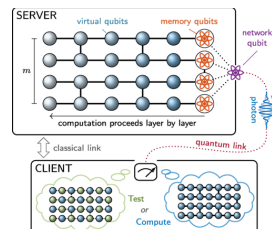
"Researchers at Linköping University, Sweden, have developed a digital display screen where the LEDs themselves react to touch, light, fingerprints and the user's pulse, among other things. Their results, published in Nature Electronics, could be the start of a whole new generation of displays for phones, computers

HEALTH A Faster, Better Way to Prevent an AI Chatbot From Giving Toxic Responses



"A user could ask ChatGPT to write a computer program or summarize an article, and the AI chatbot would likely be able to generate useful code or write a cogent synopsis. However, someone could also ask for instructions to build a bomb, and the chatbot might be able to provide those, too.

QUANTUM COMPUTING Breakthrough Promises Secure Quantum Computing at Home



"We have shown for the first time that quantum computing in the cloud can be accessed in a scalable, practical way which will also give people complete security and privacy of data, plus the ability to verify its authenticity," said Professor David Lucas, who co-heads the Oxford University Physics research team and is lead scientist at the UK

SUSTAINABILITY Tourism Gentrification in The United States: How Short Term Rentals Impact American Cities



"Airbnb has undoubtedly disrupted the hospitality industry, inspiring an ecosystem of companies leveraging the sharing economy such as co-living startups. While these companies have achieved impressive financial success, they have been purported to produce problematic effects at the scale of the city. Airbnb, in particular, is alleged to

and tablets.

Researchers at LIU have now developed a completely new type of display where all sensor functions are also found in the display's LEDs without the need of any additional sensors.

The LEDs are made of a crystalline material called perovskite. Its excellent ability of light absorption and emission is the key that enables the newly developed screen.

In addition to the screen reacting to touch, light, fingerprints and the user's pulse, the device can also be charged through the screen thanks to the perovskites' ability to also act as solar cells."

Source: [LIU](#) (10 Apr 2024)

To prevent this and other safety issues, companies that build large language models typically safeguard them using a process called red-teaming. Teams of human testers write prompts aimed at triggering unsafe or toxic text from the model being tested. These prompts are used to teach the chatbot to avoid such responses.

But this only works effectively if engineers know which toxic prompts to use. If human testers miss some prompts, which is likely given the number of possibilities, a chatbot regarded as safe might still be capable of generating unsafe answers.

Researchers from Improbable AI Lab at MIT and the MIT-IBM Watson AI Lab used machine learning to improve red-teaming. They developed a technique to train a red-team large language model to automatically generate diverse prompts that trigger a wider range of undesirable responses from the chatbot being tested.

They do this by teaching the red-team model to be curious when it writes prompts, and to focus on novel prompts that evoke toxic responses from the target model.""

Source: [MIT](#) (10 Apr 2024)

Quantum Computing and Simulation Hub, led from Oxford University Physics.

In the new study, the researchers use an approach dubbed "blind quantum computing", which connects two totally separate quantum computing entities – potentially an individual at home or in an office accessing a cloud server – in a completely secure way. Importantly, their new methods could be scaled up to large quantum computations.

"Using blind quantum computing, clients can access remote quantum computers to process confidential data with secret algorithms and even verify the results are correct, without revealing any useful information. Realising this concept is a big step forward in both quantum computing and keeping our information safe online" said study lead Dr Peter Drmota, of Oxford University Physics."

Source: [OXFORD](#) (11 Apr 2024)

have driven an increase in rental prices in cities already grappling with housing affordability challenges. Much like the case of Uber's impact on urban mobility, Airbnb's rapid growth has caused significant challenges for local governments, demanding comprehensive regulation and a re-evaluation of its functioning at the city scale.

In 2008, Airbnb was established to revolutionize the hospitality industry. Founded in San Francisco, the startup quickly became a global company, greatly contributing to the growth of the sharing economy. Today, over 500,000 properties are listed on Airbnb in the United States alone, creating new opportunities for the way spaces are rented out and leased. Airbnb has empowered individuals to monetize their unused living spaces while providing travelers with an authentic alternative to traditional hotels. The company's disruptive business model has also had a deep impact on ideas around the utilization of real estate assets in the modern era."

Source: [Archdaily](#) (15 Apr 2024)

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