Department of Data Science

Weekly Data Science Bytes

Big Tech may be breaking the bank for AI, but investors love it

- Big Tech is spending more than ever on artificial intelligence – but the returns are rising too, and investors are buying in.
- AI played a bigger role in driving demand across internet search, digital advertising and cloud computing in the April-June quarter, powering revenue growth at technology giants Microsoft, Meta, Amazon and Alphabet .
- Betting that momentum will sustain, Microsoft, Alphabet and Amazon are ramping up spending to ease capacity shortages that have limited their ability to meet soaring AI services demand, even after several quarters of multi-billion-dollar outlays.

Source: https://indianexpress.com/article/technology/big-tech-may-be-breaking-the-bank-for-ai-but-investors-love-it-10162926/

Mark Zuckerberg says AI 'Superintelligence' vision will help people achieve personal goals but what does that mean?

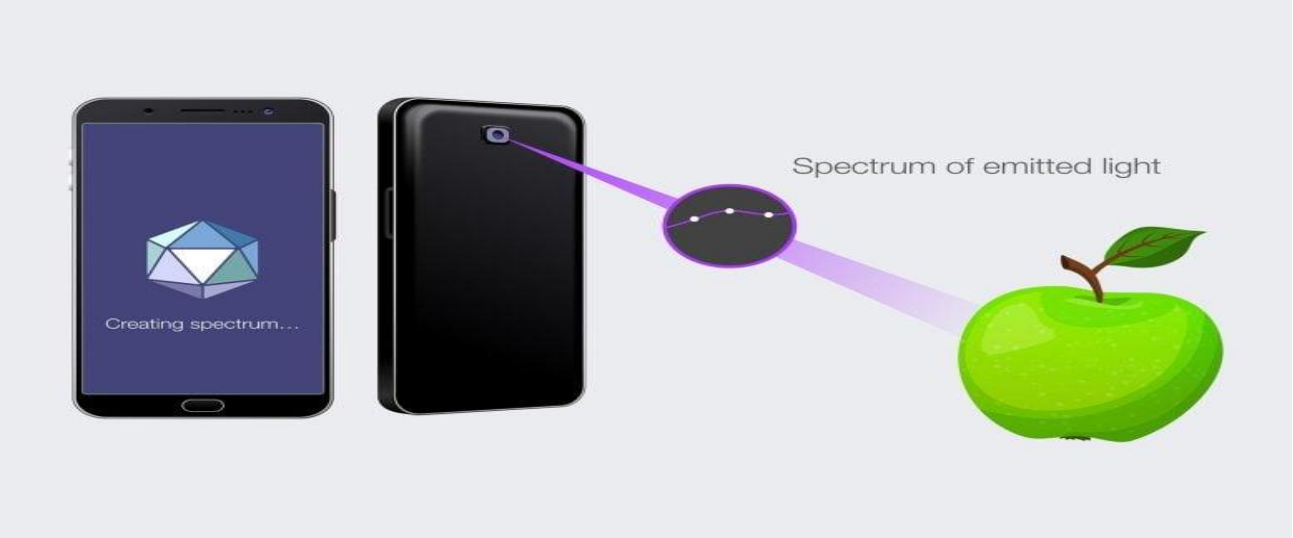
- "Meta's vision is to bring personal superintelligence to everyone. We believe in putting this power in people's hands to direct it toward what they value in their own lives," he said in a blog post published on Wednesday, July 30. "This is distinct from others in the industry who believe superintelligence should be directed centrally towards automating all valuable work, and then humanity will live on a dole of its output," he said.

Zuckerberg's vision for AI involves "personal superintelligence"

- Zuckerberg has made it clear that his approach to artificial intelligence differs from others in Silicon Valley. The work that Meta's Superintelligence Labs and its newly recruited superintelligence team will focus on is developing AI to improve people's personal lives – not to automate work, which has become a growing concern as more companies lay off employees due to AI adoption in the workplace.

Source: https://indianexpress.com/article/technology/mark-zuckerberg-says-his-superintelligence-ai-will-help-people-achieve-personal-goals-but-what-does-that-mean-10160874/

This Tiny Device Could Turn Your Phone Into a Lab-Grade Spectrometer



- Researchers have developed a groundbreaking spectrometer that is significantly smaller than existing models, yet still capable of precisely detecting light wavelengths across a broad range—from ultraviolet to near-infrared. This advancement opens the door to compact, handheld spectroscopy tools and could lead to the creation of high-resolution imaging spectrometers built from arrays of these miniature sensors.

- "Spectrometers are critical tools for helping us understand the chemical and physical properties of various materials based on how light changes when it interacts with those materials," says Brendan O'Connor, corresponding author of a paper on the work and a professor of mechanical and aerospace engineering at North Carolina State University. "They are used in applications that range from manufacturing to biomedical diagnostics. However, the smallest spectrometers on the market are still fairly bulky.

Source: https://scitechdaily.com/this-tiny-device-could-turn-your-phone-into-a-lab-grade-spectrometer/

New Tech Uses Twisted Light to Reveal Hidden Images

- Light, too, can have a kind of handedness. When light is circularly polarized, its electric field rotates as it moves forward, forming either a left-handed or right-handed spiral. Chiral materials respond differently to each type of polarized light.

- By shining circularly polarized light on a substance and measuring how each spiral is absorbed, reflected, or delayed, scientists can learn about the material's own chirality. But because these interactions are extremely subtle, controlling chirality with precision has been a long-standing challenge.

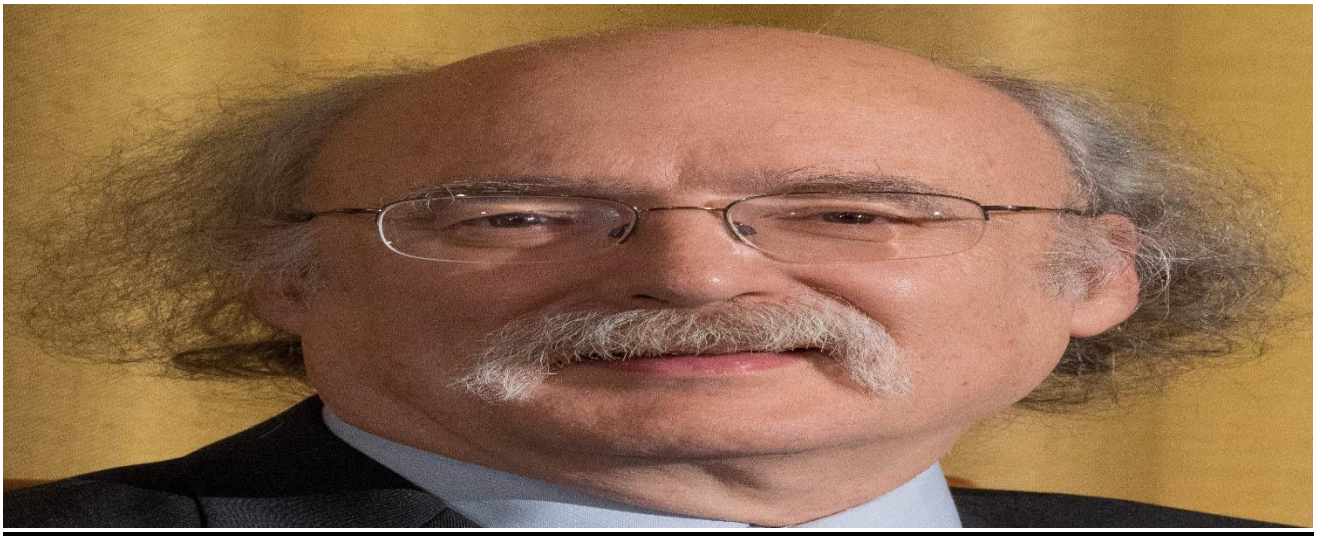
Source: https://scitechdaily.com/new-tech-uses-twisted-light-to-reveal-hidden-images/

How come Grok can say whatever it wants?

- In 2016, Microsoft introduced a chatbot on Twitter (now X) called Tay, marketed as "The AI with zero chill". It was designed to emulate the conversational style of a 19-year-old American girl; meant to engage users in casual, human-like interactions. However, like any technology, it had vulnerabilities. In Tay's case, it could be manipulated into parroting statements fed to it.

Source: https://frontline.thehindu.com/science-and-technology/grok-chatbot-tay-microsoft-elon-musk-india-censorship-free-speech-shift/article69344524.ece

Quantum India Summit 2025: India must build labs, train talent to stay in Quantum tech race, says Nobel Laureate Duncan Haldane



- Even as quantum computing continues to be a work in progress, countries like India must not wait on the sidelines, said Nobel-winning physicist Prof Duncan Haldane. Delivering a keynote address at the Quantum India Summit 2025, titled "The Modern Quantum Mechanics is 100 Years Old;
- Why All the Excitement Today," the Princeton professor and 2016 Physics Nobel Laureate said the future of quantum technology won't be shaped by govts and large corporations alone, but also by smaller players, who focus on real-world, niche applications like quantum sensing.
- Haldane said while full-scale quantum computers are still being developed by the likes of IBM, Google, and national labs, the immediate opportunity lies in areas like high-precision magnetic sensing, brain imaging, AI-powered geolocation, and even gravitational field mapping.

Source:http://timesofindia.indiatimes.com/articleshow/123028969.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst