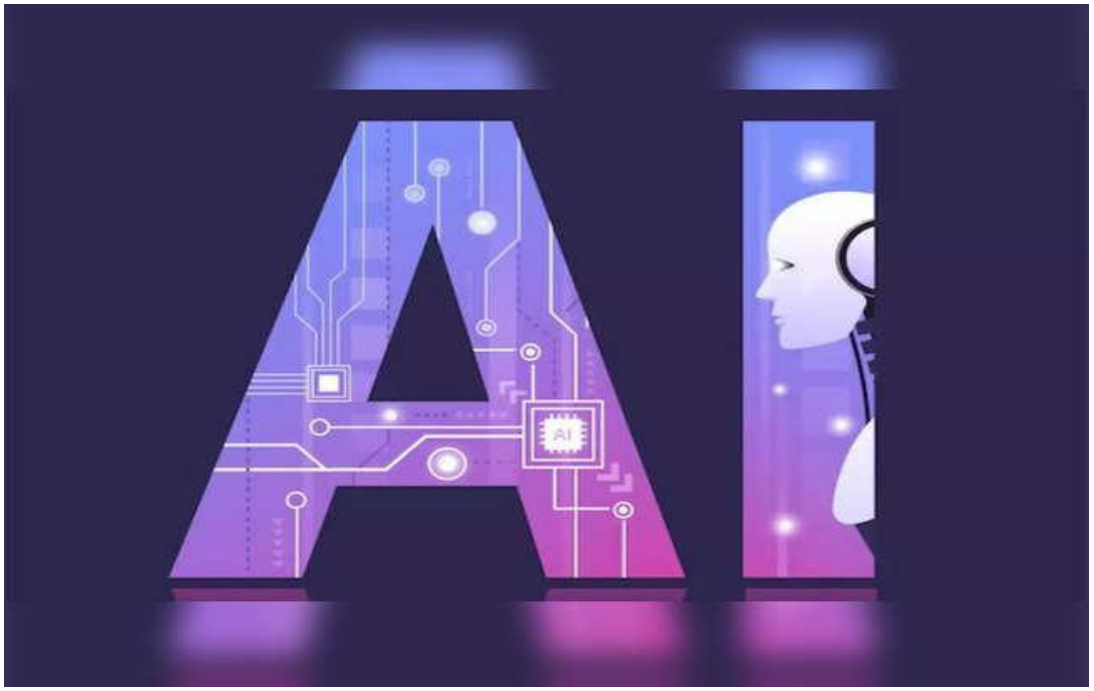
Weekly Bytes on Innovation and New Trends

Australia plans AI rules on human oversight, transparency

Australia's centre-left government said on Thursday it planned to introduce targeted artificial intelligence rules including human intervention and transparency amid a rapid rollout of AI tools by businesses and in everyday life.
Industry and Science Minister Ed Husic unveiled 10 new voluntary guidelines on **AI systems** and said the government has opened a month-long consultation over whether to make them mandatory in the future in high-risk settings. The report containing the guidelines said it was critical to enable human control as required across an AI system's life-cycle.

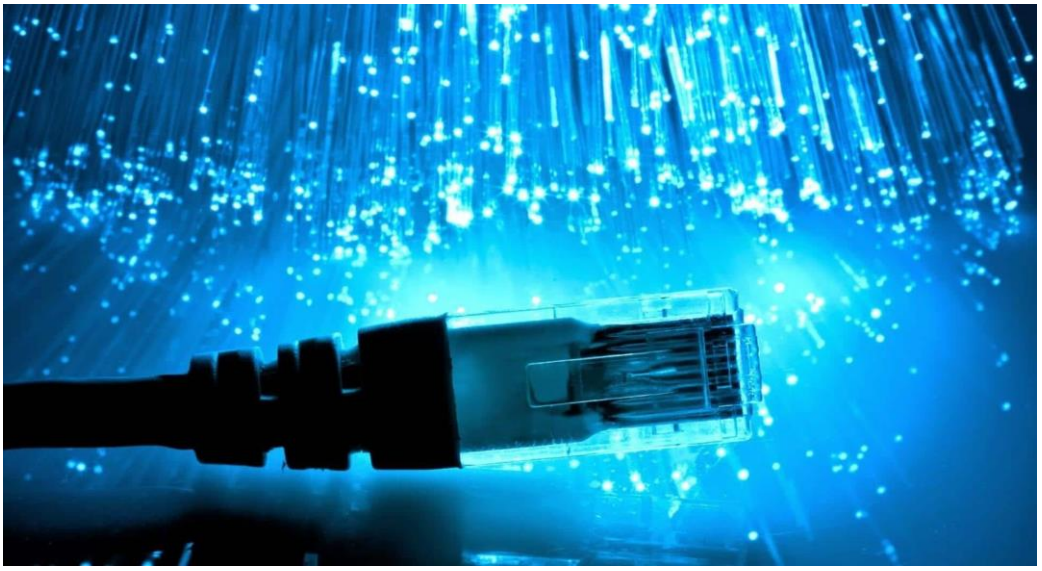
Regulators around the world have raised concerns about misinformation and fake news contributed by AI tools amid the rising popularity of generative AI systems such as Microsoft-backed OpenAI's ChatGPT and Google's Gemini.

As a result, the European Union in May passed landmark AI laws, imposing strict transparency obligations on high-risk AI systems that are more comprehensive than a light-touch voluntary compliance approach in several countries.



Source: *https://economictimes.indiatimes.com/tech/artificial-intelligence/australia-plans-ai-rules-on-human-oversight-transparency/articleshow/113080726.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst*

300 million mbps! Scientists set new internet speed world record



A team of scientists from Aston University in the UK has achieved a groundbreaking feat in data transmission, setting a new global benchmark.In collaboration with Japan's National Institute of Information and Communications Technology and Nokia Bell Labs in the US, they successfully transferred data at an unprecedented speed of 301 million megabits per second.This speed is 4.5 million times faster than the average broadband speed in the UK and surpasses the US average by one million times.

The secret behind this remarkable achievement lies in the use of innovative wavelength bands, not typically used in conventional fiber optic systems.Ian Phillips, a researcher at Aston University, explained that these new wavelength bands can be compared to "different colors of light being transmitted down the optical fiber."The data was sent via an optical fiber using two additional spectral bands known as E-band and S-band, in addition to the commercially available C and L-bands.

Aston University has developed an optical amplifier that allows data wavelengths to operate in the E-band, which is about three times broader compared to traditional wavelengths used for data transmission.This achievement marks the first time E-band channels have been successfully replicated in a controlled environment.The innovative approach doesn't require new infrastructure, potentially enabling significantly faster internet speeds using existing fiber cables.

Source: *https://www.newsbytesapp.com/news/science/uk-scientists-achieve-new-internet-speed-record/story*

Top trends impacting the future of data science and machine learning: Gartner

In a new report, Gartner has identified five trends that are impacting the future of data science and machine learning (DSML).These trends take into account the growing significance of data in artificial intelligence (AI), particularly generative AI, as the technology continues to explode across nearly every industry

The five trends identified by Gartner are as follows:

1. Cloud data ecosystems are moving from self-contained software or blended deployments to full cloud-native solutions. Gartner advises organizations to evaluate their data ecosystems based on their ability to resolve distributed data challenges, as well as to access and integrate with data sources outside of their immediate environment.

2. Edge AI, which enables organizations to process data at the point of creation at the edge, is growing in demand. Gartner predicts that more than 55 per cent of all data analysis by deep neural networks will occur at the point of capture in an edge system by 2025, up from less than 10 per cent in 2021. Organizations should identify the applications, AI training and inferencing required to move to edge environments near IoT endpoints.

3. Responsible AI – Gartner predicts the concentration of pretrained AI models among one per cent of AI vendors by 2025 will make responsible AI a societal concern. Gartner recommends that organizations adopt a risk-proportional approach when applying AI solutions and models, and seek assurances from vendors to ensure they are compliant with regulations and are managing risks.

4. Data-centric AI will see solutions such as AI-specific data management, synthetic data, and data labeling technologies evolve to solve data challenges including accessibility, volume, privacy, and more. By 2024, Gartner predicts 60 per cent of data for AI will be synthetic, to simulate reality and future scenarios and de-risk AI, up from 1 per cent in 2021.

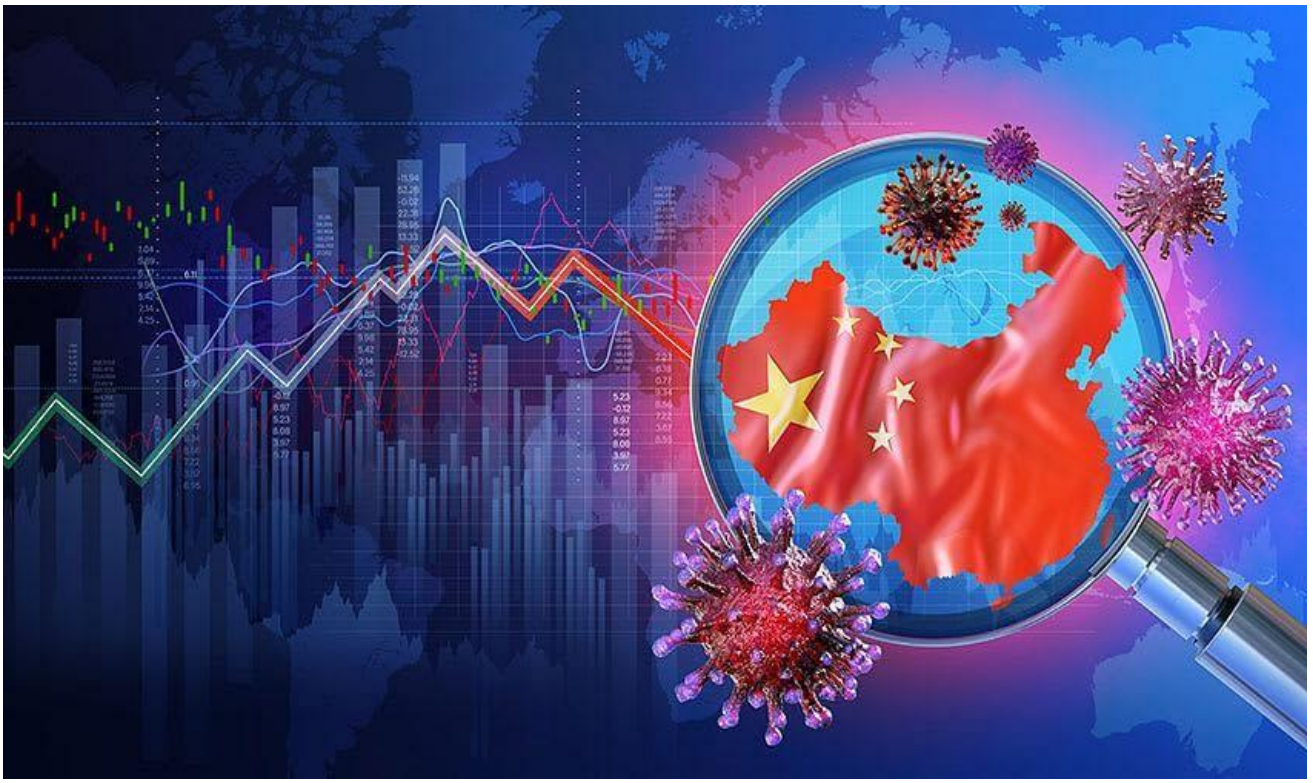
5. Investment in AI will continue to accelerate, with organizations implementing new solutions, as well as in industries looking to grow through AI technologies and AI-based businesses. By the end of 2026, Gartner predicts that more than US$10 billion will have been invested in AI startups that rely on foundation models.

Source: *https://channeldailynews.com/news/top-trends-impacting-the-future-of-data-science-and-machine-learning-gartner/82570*

How Organizations Use Big Data Analytics and AI to Manage Pandemics

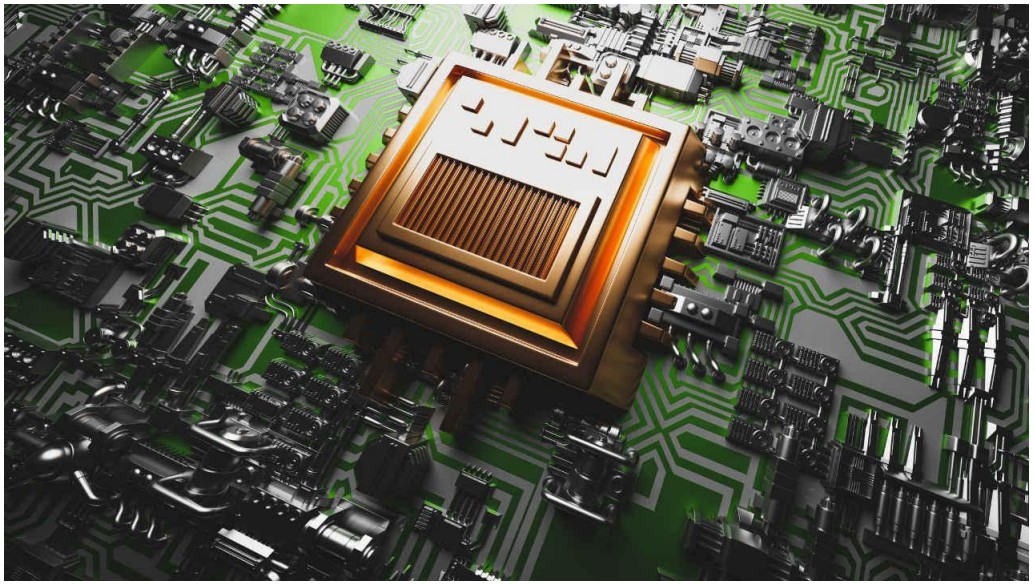
The danger of worldwide pandemics became all too real recently with the spread of the novel coronavirus (COVID-19). While the strategy for identifying and containing disease outbreaks on a global level is a complex issue, there is one thing that is becoming clear: fast analysis of available data can and is aiding the battle.

Big data analytics are helping to bring new hope to stopping the spread of pandemics, among many other public benefits. Today, over 97 percent of organizations are investing in big data and artificial intelligence, and according to a recent McKinsey study, 30 percent of respondents are using big data to improve the research and development function across multiple industries, including in epidemiology.



Source: *https://www.simplilearn.com/big-data-analytics-and-ai-to-manage-pandemics-article*

Rise of NPU: The most important ingredient of AI PCs

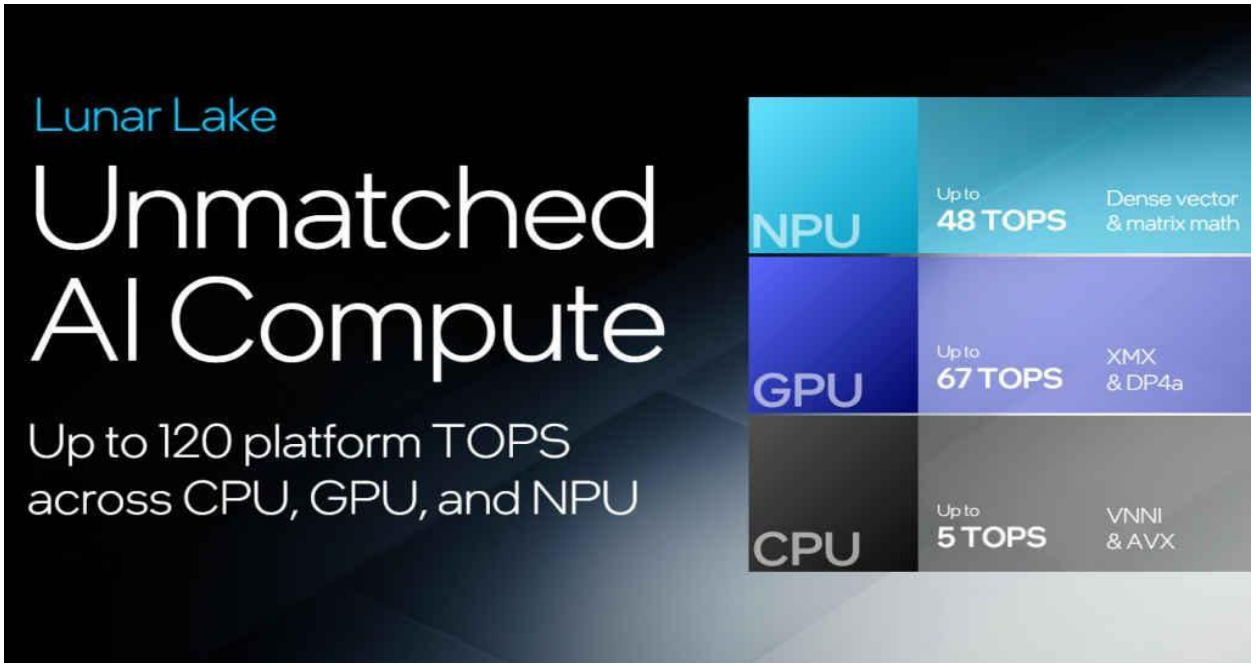


A little over a decade ago, if you had mentioned Neural Processing Units (NPUs) at a tech conference or otherwise, you'd likely have been met with blank stares or polite nods at best. Fast forward to today, and NPUs have become a staple in the silicon architecture of almost every major chip maker, from Intel to NVIDIA, Qualcomm to MediaTek, and even Samsung. So, what changed? Why are NPUs now a critical component in our devices, and what does this mean for the future?

Also read: AMD Introduces Ryzen AI 300 and 9000 Series Processors at Computex 2024

Let's rewind to the early 2010s. The tech landscape was dominated by CPUs and GPUs, with the former handling general-purpose computing tasks and the latter excelling in parallel processing, crucial for gaming and graphics-intensive applications. But as artificial intelligence (AI) started to permeate every facet of personal technology manifestations, the limitations of CPU-GPU duopoly became apparent. Enter NPUs, specialised processors designed to efficiently run and accelerate machine learning tasks.

Inspired by the human brain, the concept of NPUs arose from the need for specialised hardware to handle the demands of artificial neural networks. Think of the NPU as a highly specialised chef in a restaurant kitchen. While the CPU is the head chef, overseeing and managing all tasks, and the GPU is the sous-chef, best suited for handling and executing several large-scale tasks in the kitchen, the NPU is like the pastry chef, meticulously focused on creating the perfect dessert with a creative touch. Each chef plays a crucial role, but the NPU's specialised skills make it indispensable for specific tasks like AI.



Not just NPU, but check total Lunar Lake platform TOPS by Intel Not to forget NVIDIA or Samsung, who are also playing a decisive role in this broader industry shift towards AI-centric computing. These companies recognize that the future of technology hinges on AI, and NPUs are the key to unlocking its full potential. By embedding NPUs into their SoCs, they ensure that devices are equipped to handle the growing demands of AI applications, from edge computing to cloud services. As a result, NPUs are at the heart of every conversation from AI-powered smartphones to the future of AI PCs.

This leaves no doubt in my mind that the evolution of NPUs is only going to accelerate. As AI models become more complex, the need for even more specialised and powerful NPUs will grow. We can expect future NPUs to offer greater efficiency, lower power consumption, and enhanced capabilities that we can only imagine for now. Innovations in chip design, such as integrating NPUs with other specialised processors like Tensor Processing Units (TPUs), will further propel AI advancements.

Source: *https://www.digit.in/features/general/rise-of-npu-the-most-important-ingredient-of-ai-pcs.html#:~:text=We%20can%20expect%20future%20NPUs,will%20further%20propel%20AI%20advancements.*