Hewlett Packard Enterprise

AI: Powering smart solutions in an ever-changing world

Here's how AI is helping humanity achieve its greatest and most pressing goals.

We live in an era in which humanity is capable of things we could only dream about a few short years ago. Finding more effective treatments for deadly and debilitating diseases. Preserving our planet's dwindling natural resources. Feeding the world. Reaching for the stars.

Realizing these ambitious goals is closer than ever, thanks to our ability to apply artificial intelligence (AI) to unimaginably massive volumes of data and previously unsolvable problems. And those AI capabilities have been made possible by extremely powerful, scalable, and sustainable computing platforms — technology Hewlett Packard Enterprise has been providing to enterprises and research institutions for decades.

Discovering the cosmos

When your customers work at the bottom of the ocean and the edges of the solar system, you need technology that allows you to securely store and efficiently analyze all the data you collect.

Virginia-based technology company Peraton handles some of the most sensitive data in the world, working closely with organizations ranging from NASA and the National Geospatial-Intelligence Agency to the U.S. military and Internal Revenue Service. Data security and sovereignty are crucial to its mission.

Today, many of Peraton's customers are wrestling with how to safely manage large datasets that are distributed around the world and sometimes

even beyond our planet. They want to consolidate workloads and move away from disjointed and siloed data stores. And once their data is consolidated, they want to use AI to discover new insights, open opportunities, enhance productivity, and accelerate innovation.

Peraton's government customers must keep their most precious data assets close at hand, with easy access to AI infrastructure and tools for use in training and inference, notes Mark Adams, vice president of technology and engineering at Peraton. They also require solutions that are flexible and scalable, as well as economically efficient and sustainable over the long haul, he adds.

"Whether you're developing space systems or building detection for fraudulent financial activity, all of those are missions of consequence," he says. "They need flexible and agile capabilities that can help them not only today and for the next 12 months but over the next five to 10 years."[1]

Feeding the world

Growing enough food to feed the planet's eight billion people, and doing it in a sustainable way, is another ambitious goal made possible by AI. Norway's DigiFarm is using high-resolution satellite data and AI-powered supercomputing to transform agriculture around the world.

By analyzing satellite imagery, DigiFarm's AI model can precisely map the boundaries of fields and the features within them, allowing for more efficient farming techniques. To accelerate the development of its AI model, DigiFarm turned to the LUMI supercomputer powered by HPE Cray, reducing the time required to train the model while increasing its accuracy.

DigiFarm's technology is now being used to enhance crop management for farmers and government agencies across Europe, India, Latin America, and North America, increasing yields by as much as 10% while reducing costs by the same amount. The organization has also started collaborating with world regulatory bodies, enabling it to promote sustainable farming practices and improve soil health while maintaining wildlife habitats.

"The immediate effect of working on the LUMI

supercomputer wasn't only the ability to develop better-performing models but also to significantly shorten the time frame from training and R&D to product iteration and commercialization," says DigiFarm CEO Nils Helset. "These two factors have been really, really significant for us."[2]

Preserving the planet

Sometimes, if you hope to preserve an ecosystem, you need to listen to what it's saying.

Researchers at Purdue University's Center for Global Soundscapes (CGS) are doing just that. From the wastelands of the Gobi Desert to the glaciers of Patagonia — and dozens of other ecosystems in between — researchers are recording the sounds of natural habitats and using AI to analyze what they're trying to tell us.

So far, CGS has collected more than eight million recordings in 28 of the world's most diverse ecosystems, generating more than 1.2 petabytes of data. It uses

[1] "Unleash the power of HPE GreenLake cloud for cloud-native and AI workloads," HPE Discover 2024, June 2024

[2] "Advancing precision and resilient agriculture with AI," HPE case study, 2024

HPE Apollo servers to store the data and then applies AI and deep neural networks to identify patterns in the aural landscape, says Dr. Bryan Pijanowski, a professor in soundscape ecology and biodiversity at Purdue.[3]

"We can map sounds to habitat data that we get from drones and NASA satellites, so we can now connect changes in sound to changes in habitat, landscape, and animal biodiversity," he says. "It's like the canary in the coal mine: If we don't hear something we are supposed to, we know something is wrong."

Saving lives

AI has also been key in improving health outcomes across a wide range of disciplines. Medical researchers are using AI to diagnose illnesses, discover new drugs, deliver personalized medical treatments, and mitigate the outbreak of epidemics.

There are many more examples of how the ability to extract insights from vast volumes of data is moving humanity forward. That includes building safer vehicles, reducing the impact of climate change, increasing access to education in less developed countries, and simply helping people make better, more-informed decisions.

AI also allows businesses to enhance productivity, accelerate innovation, and create new revenue models. But to get there, they will need help to make their data AI ready, devise effective AI workloads, and scale their efforts across the enterprise.

In short, the key to realizing our collective ambition is AI.

[3] "Decoding the sounds of nature with AI," HPE case study, 2024

Learn more at
HPE.com/AI/insights

Visit **HPE.com**

Chat now

Hewlett Packard Enterprise

a50011805ENW