HOW THE RIGHT TECH CREATES
# BETTER AI EXPERIENCES

Experts call data "the new oil"—and businesses who can utilize AI to process data quickly and efficiently will reap the greatest rewards. But the ongoing explosion in the quantity of data is exceeding the capacity and performance of most computers, especially in an increasingly remote-work world.

AI Podcast host Noah Kravitz talked with Jared Dame, Director of AI and Data Science at Z by HP, about how the company created the distinct compute brand to focus on data science, AI, and the new forms of collaboration that our world is pushing toward.
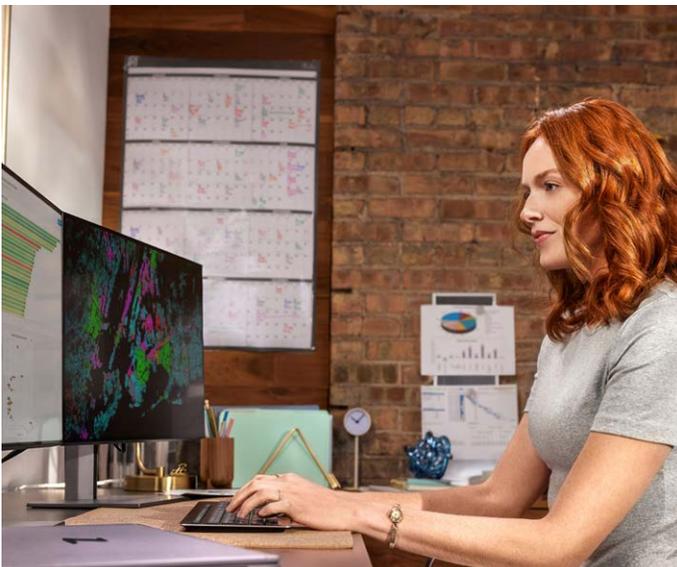
WHAT IS Z BY HP?

Z is delineated from other HP laptops and desktops—a separate, professional line of compute for high-end users. These devices have the most configurable settings to give data scientists and AI developers the most power, from memory to CPU to GPU. They're also designed for operational longevity and come covered by our highest level of support: three years of white-glove service.

"Z is about performance...We want to deliver the best AI experience to the world."

— Jared Dame,
  Director of AI and Data Science at Z by HP

HOW DO YOU DESIGN Z FOR DATA SCIENTISTS?

Instead of operating on a "this-is-what-we-think-you-need" model, we take more of a collaborative partnership approach to make sure we design a product that compute-intensive customers need. We spend a lot of time prior to design gathering insights from customers who are working with AI tools, and then we design to solve their pain points, like long load times and long number-crunching cycles.

"Customers actually tell us what they're wanting, we design it, we pull up plans, we go back and talk to them and make sure we're hitting the mark...These products are specifically designed to enhance a person's experience in their workflow."

— Jared Dame,
  Director of AI and Data Science at Z by HP

WHAT SECTORS ARE USING AI MOST HEAVILY THESE DAYS?

It seems like every vertical is adopting AI and deep learning into their workflows—there are so many different advantages organizations can leverage with this technology. While federal, state, and local governments have always been heavy users of AI-capable technology, other industries have greatly accelerated their AI use in the past few months.

With pharma, COVID has of course been a big factor, as well as with oil and gas, where companies are trying to stay afloat in turbulent times by calculating reserves and estimating production.

Financial services companies are getting into trading engines and GPU acceleration—any advantage they can get to help them trade a nanosecond faster than a competitor. In commodity markets, for instance, they can make a lot more money by jumping on something the moment they know they want to buy it.

But we're seeing other applications, like when NASA Goddard Space Center used AI to detect solar flares and their impact on our atmosphere and health—what used to take 90 days to calculate takes only 15 hours with Z by HP.

WHAT IS THE ROLE OF WORKSTATIONS IN THE AI WORKFLOW?

Workstations are uniquely positioned to do end-to-end: You can do absolutely everything on the workstation, from your training to the inference engine. Some of our customers balance it out with their data centers and cloud instances; Z by HP is designed to work seamlessly in those environments.

Today's explosion of data is exceeding latency and bandwidth, impacting your ability to move data from one point to the other at will. You need compute close to the massive data, even if you're not at your desk. Because you can put a Z workstation anywhere—a data center or a coat closet—and connect to it securely, from any location, device, OS, or internet connection, you can put the workstation alongside the data, eliminating the concern about long traffic times. And it's hypersecure—only pixels are transferred back and forth, no customer or other data.

"Having the right balance of where to use your workstations, where to use Z, how to optimize cloud, and how to optimize data storage is important."

— Jared Dame, *Director of AI and Data Science at Z by HP*

HOW IS HP USING AI IN ITS OWN PROCESSES?

We're using AI to monitor and ensure the life expectancy of our devices, with hundreds or even thousands of machine learning and artificial intelligence sensors inside them. With device as a service, you can plan maintenance because our AI tells you ahead of time when a drive is going bad. Instead of dealing with potential data loss and worker downtime, your IT manager has a drive show up on their doorstep with the message that "this PC needs this by this time."

In our manufacturing, AI helps us go to customers who are doing very similar, discrete manufacturing and give them pointers on "this is where we failed" and "this is how we figured out to do it right." Sometimes we can save customers a hundred steps by showing them how we did it. In other cases, we learn from them—sometimes a customer has solved a problem that we haven't yet. It's all about relationships, really.

"We're using our own machines and the latest and greatest technologies to design AI accelerated for manufacturing, product quality control, and materials science. We're really adopting it fast."

— Jared Dame, *Director of AI and Data Science at Z by HP*

WHAT TRENDS ARE YOU SEEING IN AI AND DS TECHNOLOGY?

Over the past couple years, we've seen the acceleration of hardware power and the availability of surrounding AI software tools. The beauty is the data is rapidly, continuously expanding, and we're learning new ways to capture that data. The new tools and startup companies that are coming out... Instead of having to take just a small slice of the data pie and extrapolate from there and take weeks or months to do analysis, data scientists are able to take billions of rows and records and get an answer in just a couple of mouse clicks.

Looking ahead over the next five years, being able to access powerful workstations from wherever you are will dominate. An increasing need for compute to be at the edge—and not just IoT, but in a more encompassing sense of anywhere data is being generated. Endpoint devices are going to have to be accelerated; they're going to have to have a tremendous amount of compute to ensure organizations are able to get the most out of their data so they can make the best decisions possible, for whatever industry they do.
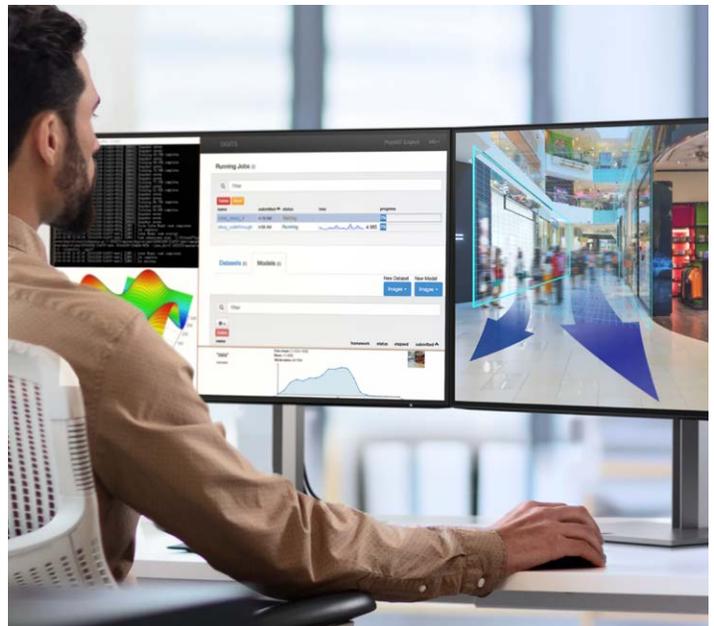
"It's about determining what the answer is and then being able to have an actionable answer—something that a business can make a quick turn on... If you know the answer, but actually can't implement anything with it, there's no value that comes from knowing."

— Jared Dame,
Director of AI and Data Science at Z by HP

Z BY HP RECOMMENDED RIGS

To maximize AI-driven Data Science workflows, we recommend:

Z8 Desktop
Data Science Workstation

- Ubuntu 20.04
- Preloaded Data Science Software Stack
- Dual Intel® Xeon® W[1]
- Dual NVIDIA RTX A6000 GPUs + NVLINK (96GB)
- 384GB RAM
- 2x 2TB[2] HP Z Turbo Drive M2 SSD

ZBook Studio
Data Science Workstation

- Ubuntu 20.04
- Preloaded Data Science Software Stack
- Intel® Core™ i9-10885H
- NVIDIA® Quadro RTX™ 5000 GPU (16GB)
- 32GB RAM
- 2TB PCIe NVMe SSD

GET MORE INSIGHTS

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