

ARTIFICIAL INTELLIGENCE, MACHINE LEARNING & MEDICAL IMAGING: Scrumptious Results, Frustrating Challenges



Artificial intelligence can move medical imaging into new realms of quality and efficiency by:



Reducing the need for surgery

Mayo Clinic neuroradiologists are using AI to find genetic markers in MRI scans, helping to eliminate the need for intrusive brain surgery¹



Enabling quick diagnosis

Stanford researchers have developed an artificial intelligence algorithm that can diagnose up to 14 types of medical conditions and is able to diagnose pneumonia off of medical images.²



Empowering radiologists to access needed information

AI can review images, immediately identify potential findings and can call up information that the radiologist will need to evaluate patients such as:

- Data and prior exams
- Pharmacy information
- Prior imaging exams
- Prior reports
- Prior procedures
- Recent lab results
- Pathology reports that relate to specimens collected³

But to develop and implement artificial intelligence & machine learning solutions requires feeding a gargantuan “compute” appetite

Between 2015 and 2017, the amount of compute power

required by leading deep learning algorithms jumped

15x

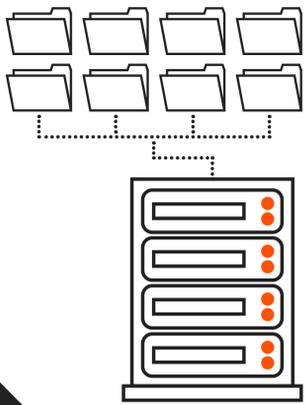
delivered by GPUs (processes that deliver 10 to 100 times the performance of a CPU) jumped by

10x

While legacy storage capacity stood still 0 growth⁴

GPUs are left starving for data – and AI solutions are not making it to the dinner table as fast as stakeholders would like.

Fortunately, FlashBlade can eliminate the GPU starvation



Powered by Purity software, **FlashBlade** is a data platform capable of delivering high performance access to billions of objects and files for 10s of thousands of clients in parallel.

FlashBlade can be expanded to 75 blades and deliver linear-scaling performance up to:

75 GB/sec
read throughput

25 GB/sec
write throughput

7.5 M IOPS
at 8PB capacity (assuming 3:1 compression)

And FlashBlade can keep nourishing AI and machine learning efforts by



Efficiently training the machine learning model (Even with the hundreds of terabytes required with medical imaging)



Providing a solution that is evergreen to upgrade (Never do a forklift replacement as Flashblade delivers storage infrastructure as a service that continually grows with burgeoning needs)



Effortlessly meet AI/machine learning needs (No knobs, no dials, no fine tuning required as parameters and balance loads are continually adjusted)

With this type of data storage, software developers and healthcare professionals can continue to assess the data needed to support AI and machine learning efforts, making it possible to bring develop and implement innovative solutions.

¹NVIDIA. Mayo Clinic Turns to AI to Improve Brain Tumor Treatment. <https://blogs.nvidia.com/blog/2017/04/17/ai-to-predict-brain-tumor-genomics/>

²Kubota, T. Algorithm better at diagnosing pneumonia-radiologists.html. <https://m.phys.org/news/2017-11-algorithm-pneumonia-radiologists.html>

³Fornell, D. How Artificial Intelligence will Change Medical Imaging. Imaging Technology News. <https://www.itnonline.com/article/how-artificial-intelligence-will-change-medical-imaging>

⁴Kim, R. Why the AI Industry Needs to Rethink Storage. <https://blog.purestorage.com/ai-industry-needs-rethink-storage/>