An AI-First Toolchain & Infrastructure for Smart Manufacturing

Keep up with the demand and scale of your customer’s needs by modernizing into a smart factory, with optimized processes, enhanced efficiencies, assured product quality, and lower maintenance costs.

Build & operationalize AI models

- Empower your factory staff with productive experiences
- Accelerate time to market with MLOps & DevOps services
- Enable enterprise-scale innovation on secure, trusted resources

Performant, energy efficient solutions anywhere

- Optimize processes with more efficient use of infrastructure
- Scale up & scale out model inferencing anywhere
- Accelerate data & model training in parallel for the fastest pathway to solution

Empowering multi-discipline collaboration

- Benefit from HPC-caliber performance without having to understand what HPC is
- Accelerate the pace of productivity of AI-focused roles within your organization
- Enable greater collaboration across varying disciplines

Partnering to accelerate AI through GPU-powered Azure solutions and deliver real-time speed, predictability, resilience, & sustainability:

- Extremely efficient for virtually all sizes and scales of model training, plus real time and batch inferencing
- Heavily parallelized environments
- Superior choices for repeatable tasks to scale e.g., model training & inferencing tasks
- Excellent price-performance benefits
- Energy efficient
Use Cases for Smart Manufacturing

Predictive Maintenance

Compared to routine or time-based preventative maintenance, predictive maintenance puts you out ahead of problems before they start, saving your businesses from costly downtime.

**Benefits:**
- GPU-accelerated computing enables **AI at industrial scale**, letting you take advantage of unprecedented amounts of sensor and operational data to optimize operations, improve time-to-insight, and reduce costs.
- This means that you can use more data and process it faster **with greater accuracy**, allowing you to react in real time to equipment failures before they happen.
- Achieve a **50% reduction** in false positives and a **300% reduction** in false negatives.
- Leveraging NVIDIA RAPIDS™ & GPUs, manufacturers can **accelerate training of their AI algorithms** by up to 20X.

**Fast Facts**

$50B Annual cost of industrial manufacturers’ unplanned downtime

AI implementations that target maintenance of machinery and production assets 29x

Traditional computer vision methods that are typically used in production automated optical inspection (AOI) machines require intensive human and capital involvement, which can get cumbersome for manufacturers.

**Benefits:**
- **Consistent performance with guaranteed quality** of service, whether on-premises or in the cloud.
- GPU-accelerated computing enables **AI at industrial scale**, letting you take advantage of unprecedented amounts of sensor and operational data to optimize operations, improve quality, time-to-insight, and reduce costs.
- Leveraging NVIDIA RAPIDS™ & GPUs, manufacturers can **accelerate training** of their AI algorithms by up to 20X.

**Quality Assurance**

**Fast Facts**

71% By 2025, tasks completed by machines will be up from 29% to

Global wages associated with technically automatable activities $14.6T

**How we impact your bottom line:**
- **Accelerate industry innovation** with the advantage of enterprise customers + solution partners.
- **Integrated & optimized platform** of hardware and software for AI apps, from edge to cloud.
- **Safe, secure, & agile operations** with predictive maintenance to detect anomalies and speed up time-to-insights.
- **Inventory-optimized supply chains** to increase operational efficiency and optimize performance.
- Achieve **higher speed and accuracy with better AI performance** to fuel increased revenues and reduce time to market.
- **Ensured product quality** with minimized waste, cost, & downtime using Deep Learning models for increased performance and quality of services.

How we impact your bottom line:

$3.7T Global GDP created from fully integrated new technologies by 2025

60% of global manufacturers to shift their strategy to process change management by 2022

aka.ms/azurehpc