An AI-First Toolchain & Infrastructure for

Smart Manufacturing

Microsoft

NVIDIA

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

Microsoft + NVIDIA

Accelerate AI through GPU-powered Azure solutions and deliver real-time speed, predictability, resilience, & sustainability

Build & operationalize AI models

- Integrated toolchain for all skill levels
- Support for scaling MLOps solutions
- Enterprise-grade capabilities anywhere
- Responsible AI

Performant & energy efficient solutions anywhere

- Scale-up accelerators for inferencing & moderate training needs
- Scale-up-and-out networks of interconnected accelerators for data and model-parallel training needs

Empowering multi-discipline collaboration

- Application (AI) and IT Infrastructure (HPC) specialists

GPUs for Deep Learning

Capabilities:

- ✓ Heavily parallelized environments
- ✓ Superior choices for repeatable tasks to scale e.g., model training & inferencing tasks
- ✓ Excellent price-performance benefits
- ✓ Energy efficient

Use Cases:

- ✓ Real time Inferencing
- ✓ Batch Inference
- ✓ Basic Training
- ✓ Midrange Training
- ✓ Data Parallel Training
- ✓ Model Parallel Training

Use Cases for Smart Manufacturing

Predictive Maintenace

Compared to routine or time-based preventative maintenance, predictive maintenance gets ahead of problems and can save businesses from costly downtime

Fast Facts

$50B
Annual cost of industrial manufacturers' unplanned downtime

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

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

Product Quality

Traditional computer vision methods that are typically used in production automated optical inspection (AOI) machines require intensive human and capital involvement.

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

Fast Facts

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

$14.6T
Global wages associated with technically automatable activities

Impacting manufacturer's 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

60% Manufacturers will shift their smart strategy focus to process change management by 2022

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

Microsoft & NVIDIA have combined their deep industry expertise & experience via a single, integrated platform

Next Steps

Contact your local Microsoft representative to get started....

Microsoft NVIDIA