
GI VENTURES
Technology & Beyond
NVIDIA
INTRODUCTION TO ARTIFICIAL INTELLIGENCE

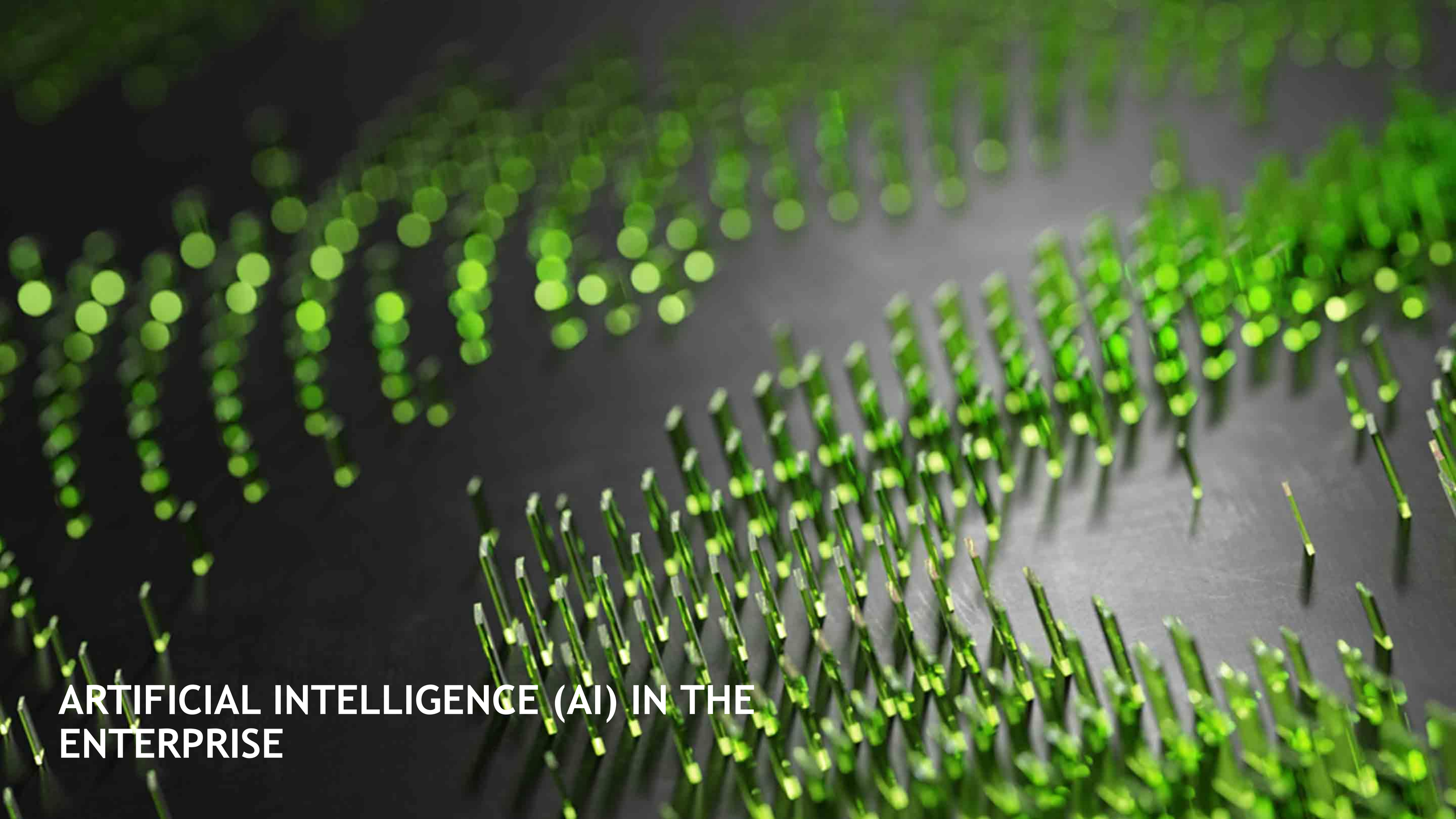
TOPICS

Artificial Intelligence (AI) in the Enterprise

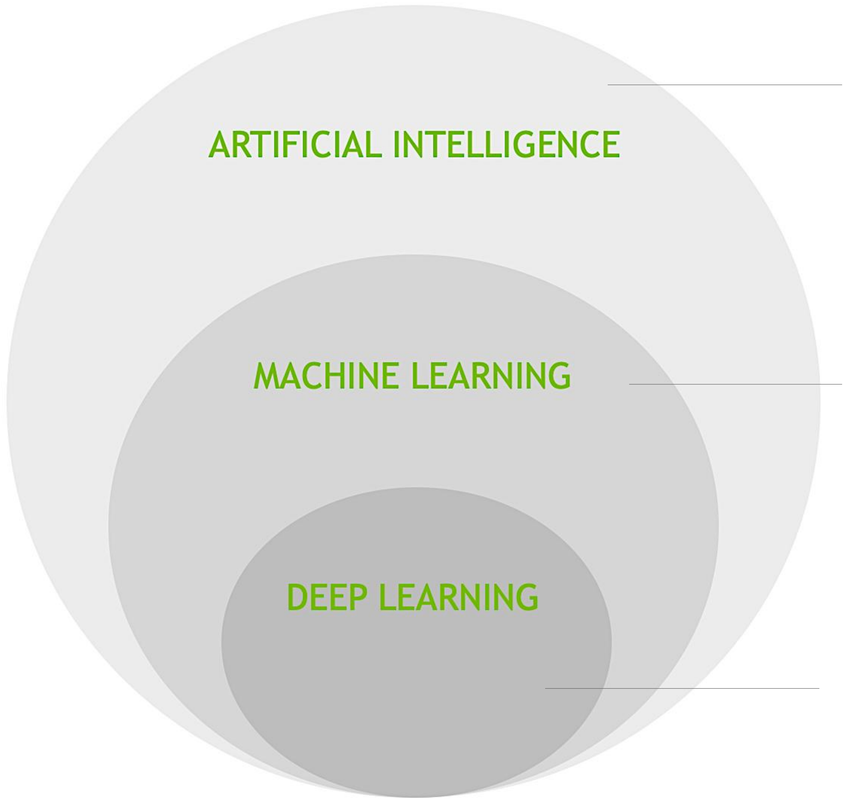
NVIDIA Tech Stack

GPU Fundamentals

Getting Started with Containers and Virtualization using Docker


ARTIFICIAL INTELLIGENCE (AI) IN THE
ENTERPRISE

THE REALM OF ARTIFICIAL INTELLIGENCE



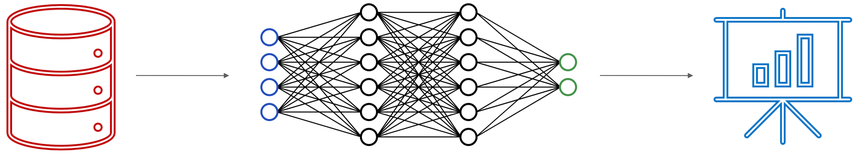
Solves a task requiring human intelligence
Any technique that allows computers to mimic human behavior

Learn → Analyze → Predict

Trains a machine to solve a specific AI problem
Uses well-researched statistical methods and algorithms to train predictive models

Data → Stats & Math Algorithms → Prediction

Uses artificial neural networks to solve an AI problem
Particularly powerful when dealing with complex inputs like images, text & speech



Data → Neural Networks → Prediction

ENTERPRISE AI USE CASES

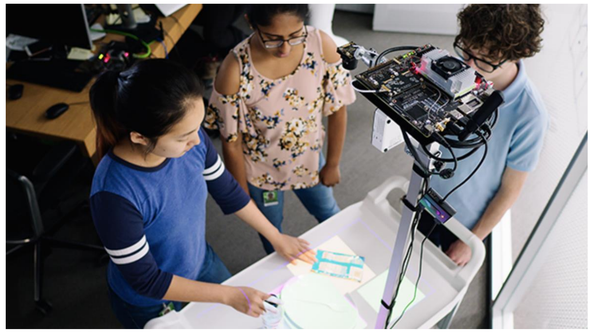
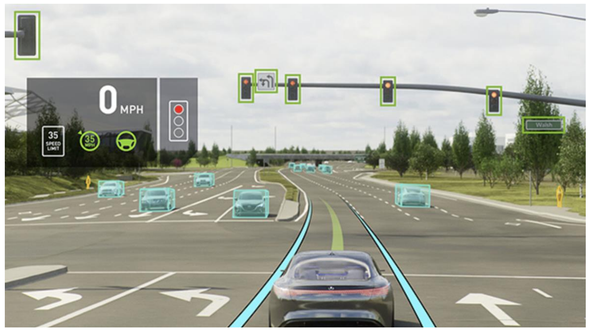


Image courtesy of DataFromSky


Image courtesy of Lucasfilm

Image courtesy of AiFi



"We are leveraging the capabilities of AI to perform intuitive tasks on a scale that is quite hard to imagine. And no industry can afford to or wants to miss out on the huge advantages that predictive analytics offers. "

Jensen Huang, *CEO of NVIDIA*

VALUE OF AI FOR THE ENTERPRISE

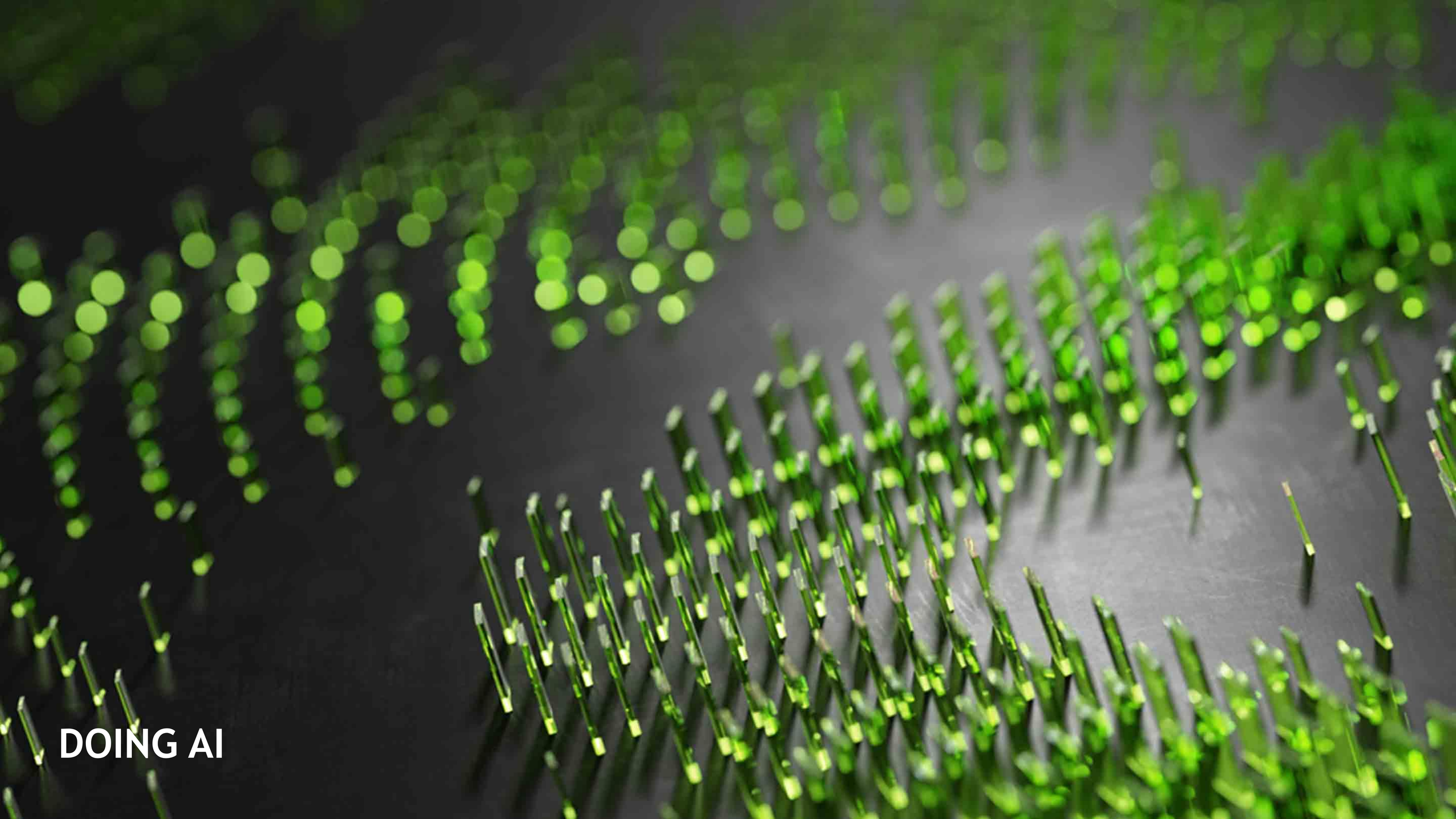
Why more and more enterprises are adopting AI

Operational Efficiency

Competitive Intelligence

"The world's largest industries run algorithms written by Machine Learning on a sea of servers to sense complex patterns in their market and environment, and make fast, accurate predictions that directly impact their bottom line."

Jensen Huang, *CEO of NVIDIA*


DOING AI

COMPONENTS OF A TYPICAL AI PIPELINE

Data Management

- Wrangle data
- Uncover patterns

Model Training

- Prepare training dataset
- Train the machine

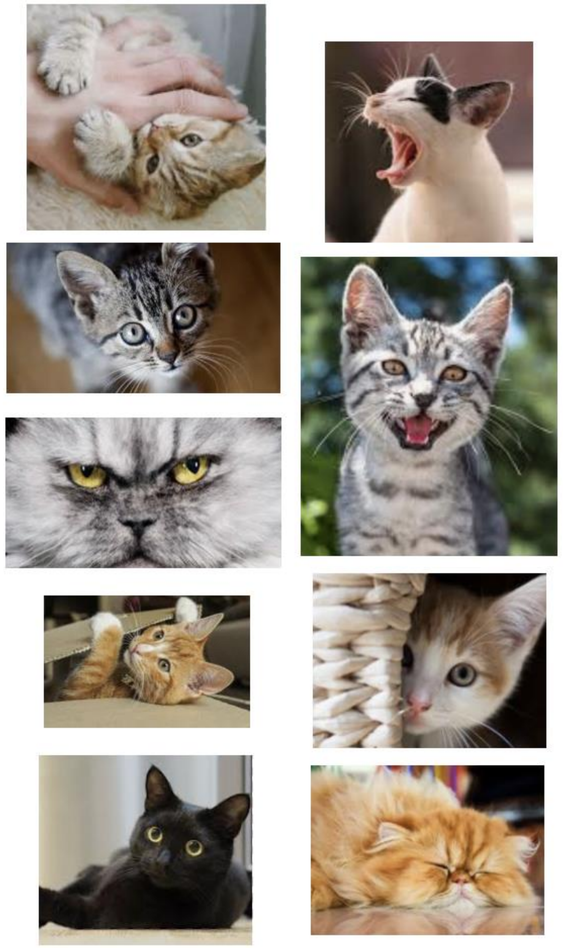
Inference

- Deploy the trained model
- Solve big, difficult problems

AI Creation

AI Deployment

MODEL TRAINING

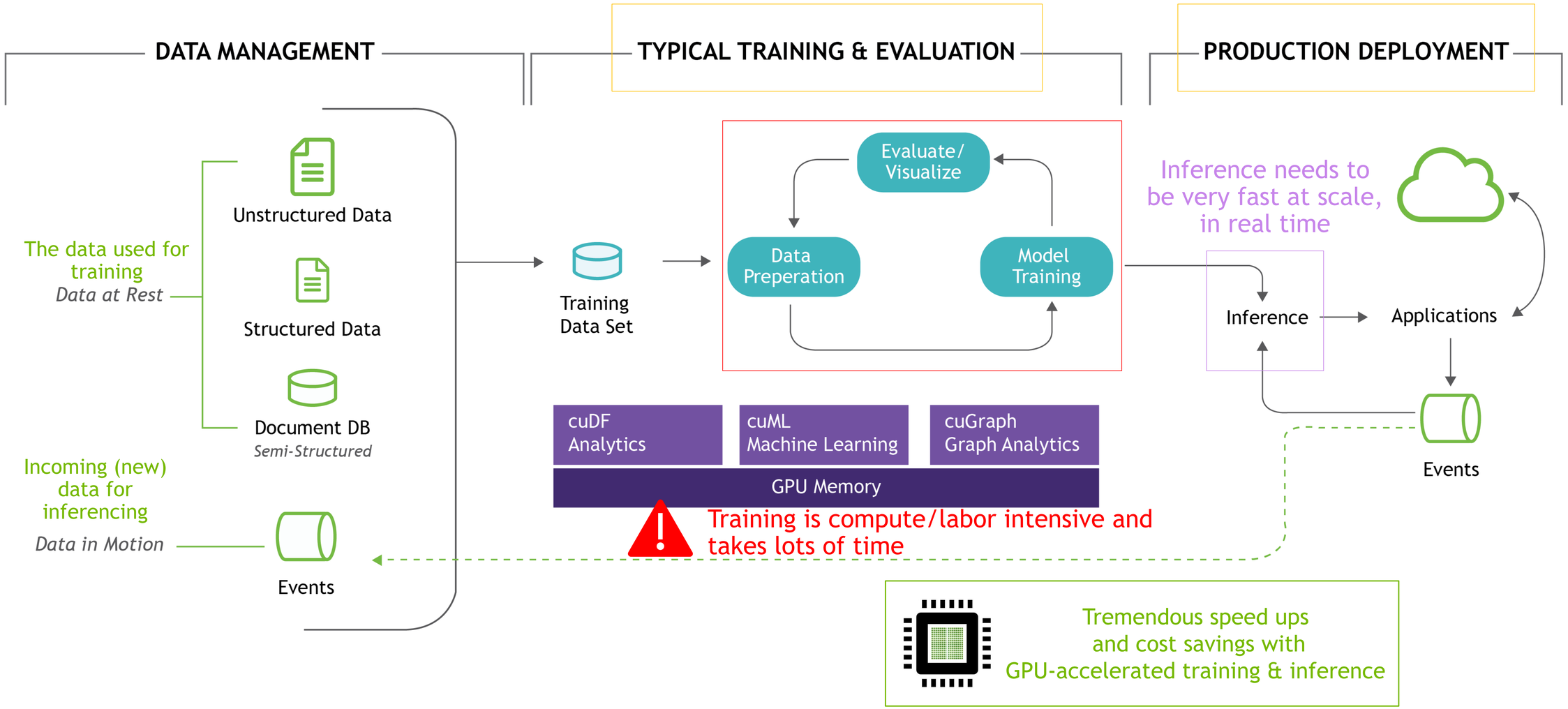


Model learns to
‘Generalize’

Model in Training

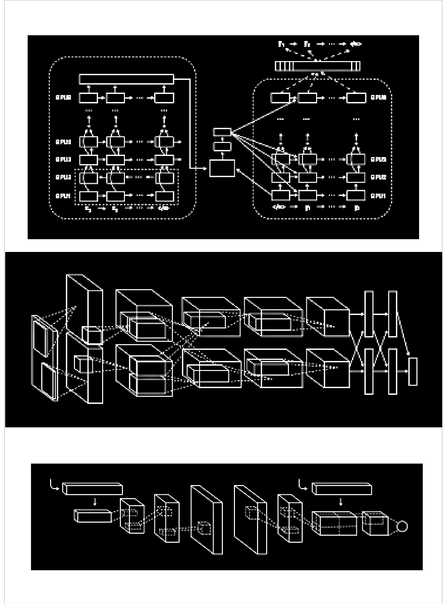

GPU-ACCELERATED AI PIPELINES

BOTTLENECKS IN AN AI PIPELINE AND THE NEED FOR GPU ACCELERATION

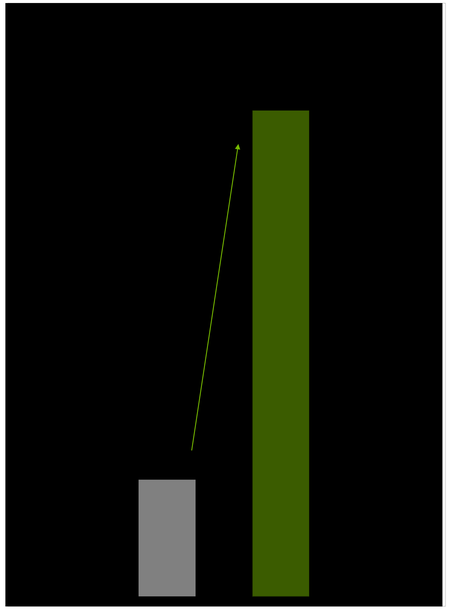


AI SOLUTIONS IN THE MARKET

FEATURES OF AN IDEAL AI SOLUTION

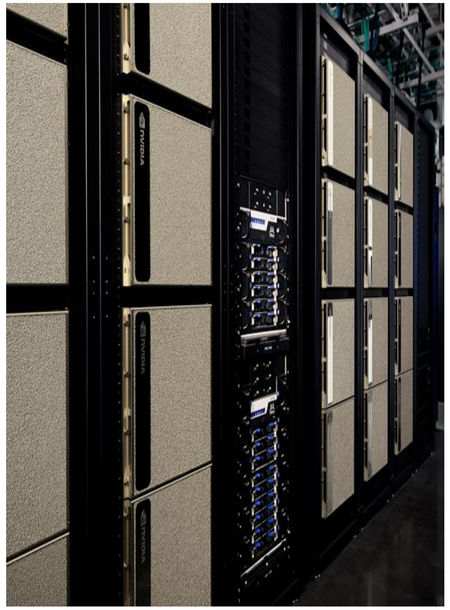


Diversity
Networks, Frameworks



Performance
Records in Speed

Software Platform
Maturity and Deployment



Infrastructure
Complete Data Center

Advancements
Next Generation AI

NVIDIA'S GPU-ACCELERATED COMPUTING ECOSYSTEM

GPU-ACCELERATED AI APPLICATIONS

PyTorch · blazingSQL · DEEP VISION · TensorFlow · anyVISION.

NGC REGISTRY OF CONTAINERS, MODELS AND HELM CHARTS

APPLICATION FRAMEWORKS

NVIDIA STACK

Kubernetes | Containers | CUDA-X | IoT

NGC-READY FOR OEM SYSTEMS

GPU | AI | STORAGE

NETWORKING | SECURITY

Atos · DELL · SUPERMICRO · FUJITSU · hp · Lenovo

GLOBAL OEMs/ODMs

redhat · vmware · NUTANIX · cisco · Microsoft Azure

ENTERPRISE HYBRID CLOUD

KEY TAKEAWAYS

AI in the Enterprise

- AI solves large-scale problems that are difficult or impossible for humans to solve
- Machine Learning is the technique for doing AI
- Deep Learning is one of the most popular and powerful methods for doing AI
- Enterprises leverage AI to improve operational efficiencies and competitive advantage

Doing AI

- AI models are trained on massive datasets
- Iterative model training workflows are essential for improving predictive accuracy
- Trained models are deployed to infer from incoming data

GPU-accelerated AI Pipelines

- Model training is very compute intensive and can be costly
- CPU-based training results in bottlenecks in the AI pipeline
- GPU-accelerated workflows are effective for handling bottlenecks
- GPU acceleration is essential for fast, real-time inference at scale

AI Solutions in the Market

- Good AI solutions are diverse, performant, easy to deploy and scalable
- NVIDIA's solutions address the needs of technical and non-technical personas
- NVIDIA's AI offerings are backed by a large ecosystem of partners and users