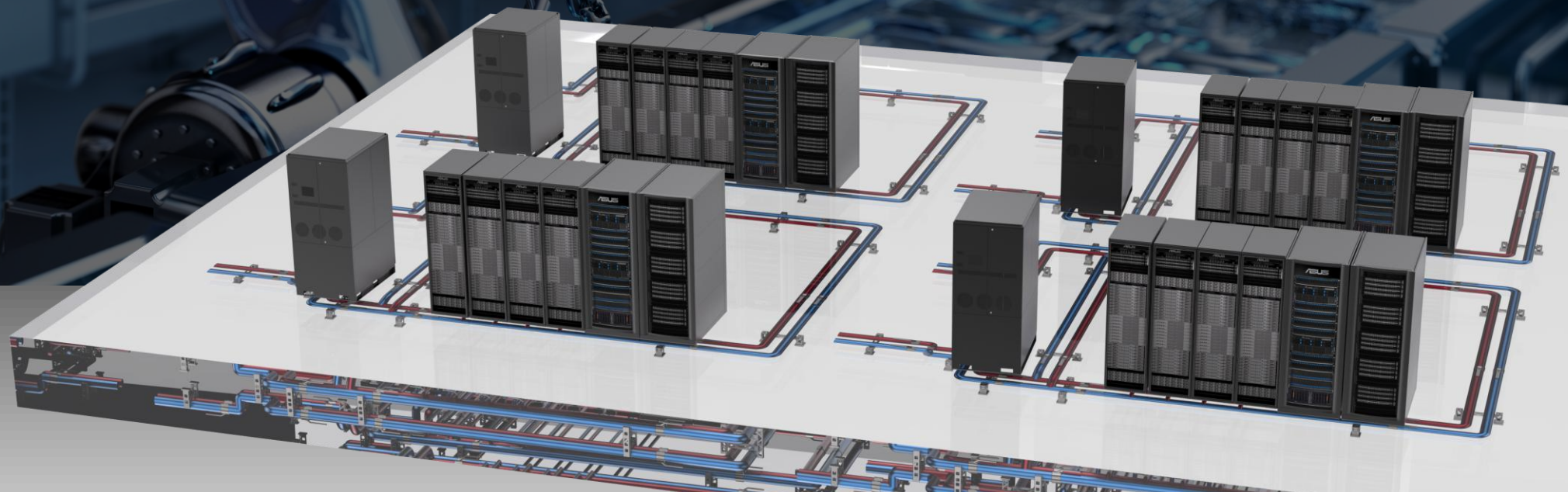
Inside the AI Factory

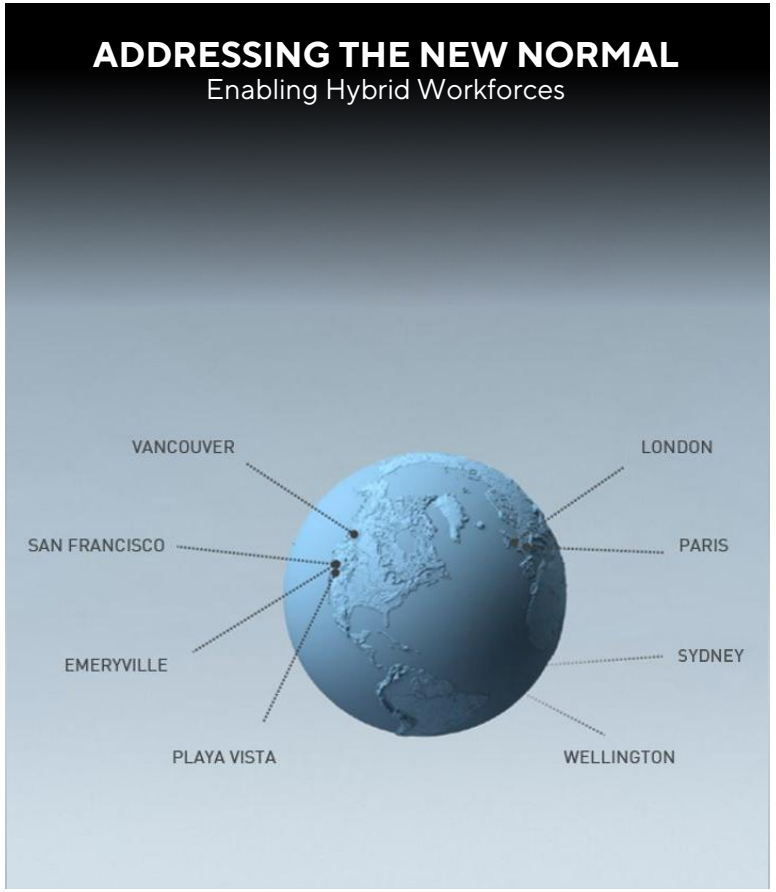
Scaling AI from ASUS Infrastructure to Physical AI and Industrial Automation

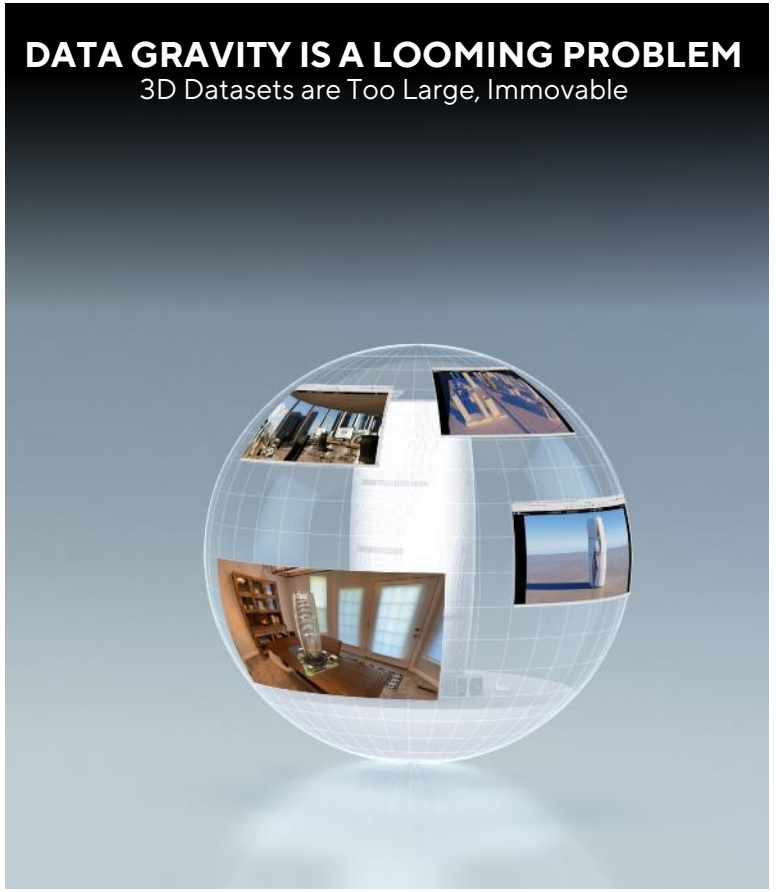


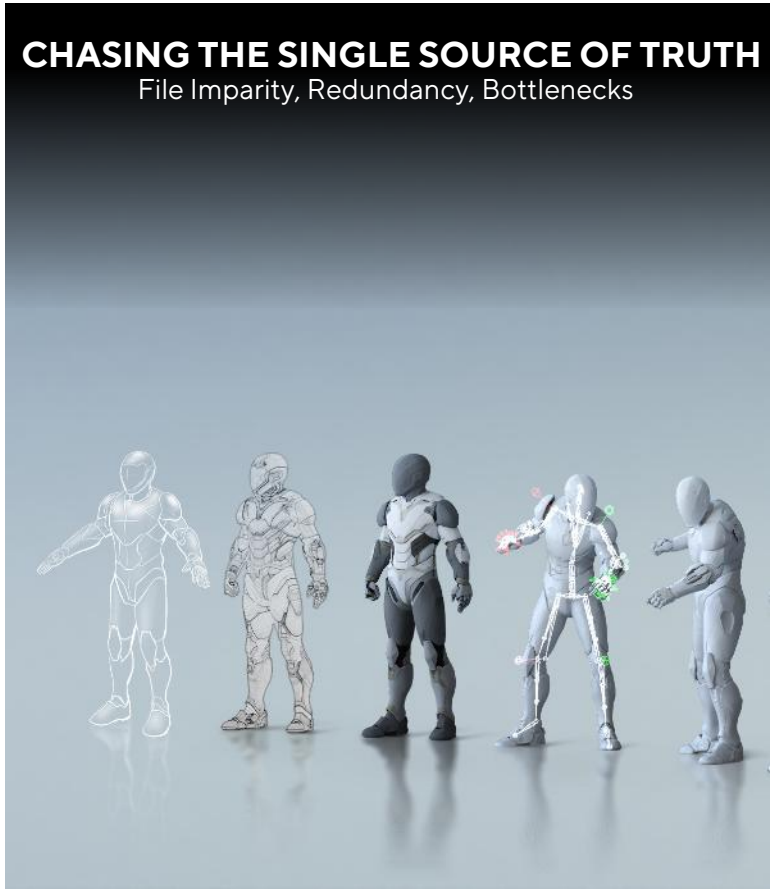
How can AI-powered systems be used to improve worker safety and efficiency in factories?

New Challenges on the Horizon

The AI revolution is no longer confined to data centers—it's breaking into the physical world. From factories populated with autonomous robots to supply chains optimized in real time, AI-driven systems are increasingly managing critical infrastructure, including energy grids and transportation networks. This expansion of AI from digital infrastructure to physical automation presents a new set of challenges. How can enterprises position themselves to succeed in this emerging AI-driven competitive landscape?

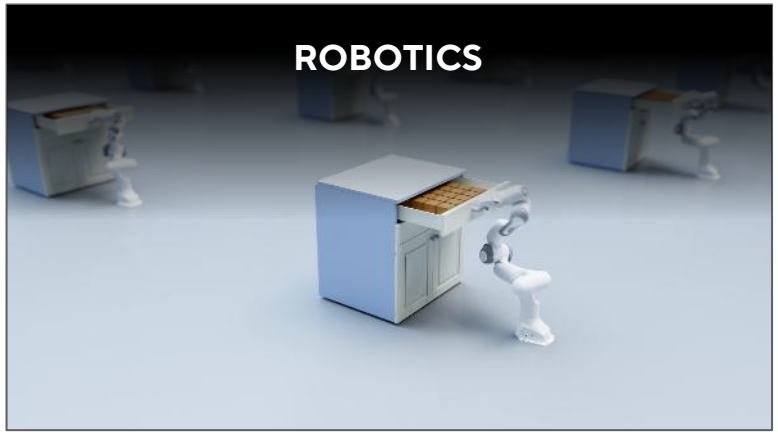


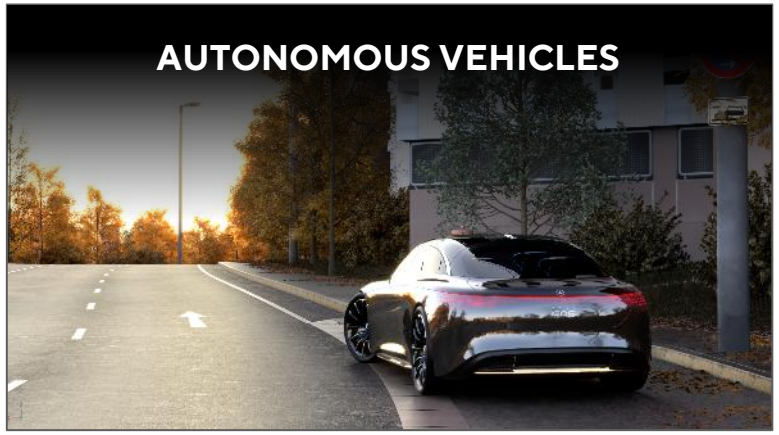




Virtual Worlds are Essential for Every Industry

Virtual worlds are revolutionizing AI development by providing immersive, scalable environments for training and testing. bridging simulation and reality, virtual worlds enable rapid AI iteration, reduce costs, and unlock innovation—making them indispensable for industries racing toward an AI-powered future.





NVIDIA Omniverse™ Enterprise

With ASUS NVIDIA-certificated system and NVIDIA Omniverse™ as the backbone, AI evolves faster, smarter, and safer—bridging the gap between simulation and reality for every industry.

Safe, scalable training environments
avoiding costly real-world errors.

Massive synthetic datasets
enhancing AI generalization.

Real-time collaboration
letting AI and humans co-design solutions.

Train AI Safely
Avoid real-world risks with synthetic yet realistic scenarios.

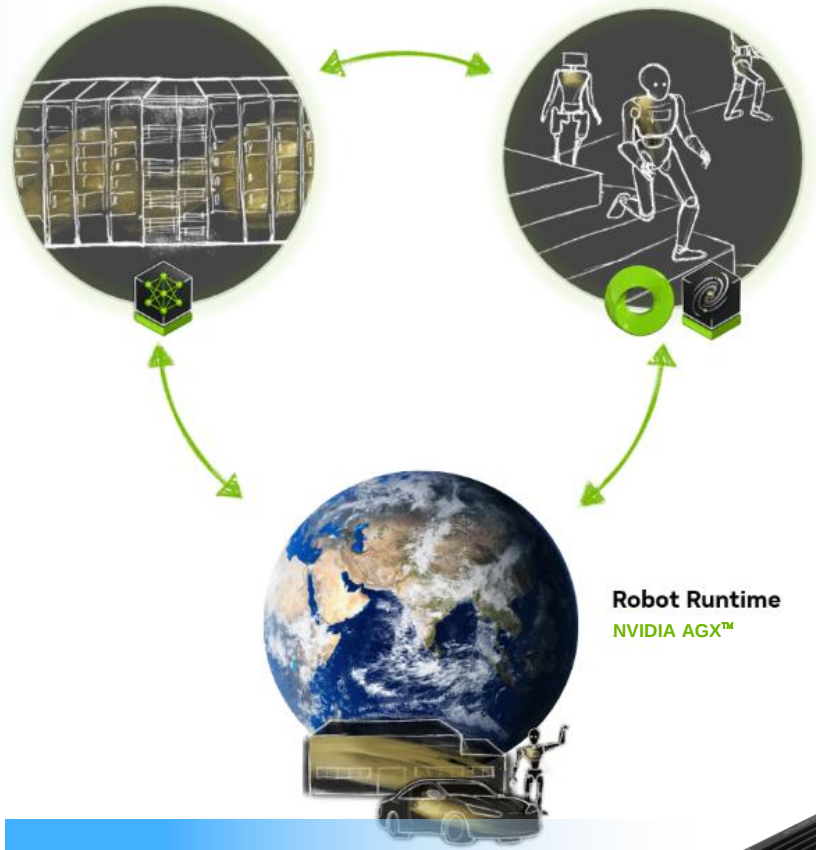
Enhance Learning
Generate infinite data variations to improve AI robustness.

Optimize Systems
Test AI-driven automation in physics-accurate virtual factories

3 Steps to accelerate your AI DeVops with ASUS

1 Train foundation models on ASUS Servers with NVIDIA HGX™ B200/B300

Pre-Training & Post-Training
NVIDIA DGX™



Simulation & Synthetic Data Generation
NVIDIA Omniverse™ with Cosmos™

Robot Runtime
NVIDIA AGX™

2 Simulate with ASUS NVIDIA OVX™ systems with NVIDIA L40S PCIe and RTX PRO™ 6000 Blackwell Server Edition

3 Deploy to the edge with ASUS IoT and NVIDIA® Jetson™

ASUS AI Factory Architecture Overview

ASUS Delivers end-to-end AI infrastructure from datacenter deployment and orchestration to platform and service management integrated with NVIDIA full-stack software. This layered architecture empowers enterprises to scale AI from infrastructure to real-world deployment.

ASUS AI/HPC Total Solution

Turnkey AI Application

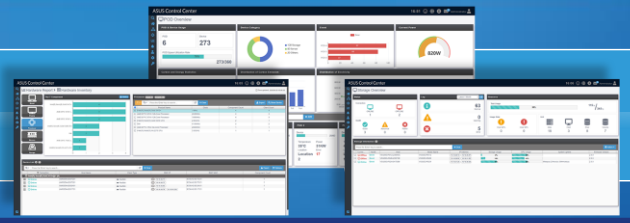
ASUS AI Hub

Cloud Service
- Agentic AI
- Physical AI
- LLM

NVIDIA Software Platform
- NVIDIA Omniverse™
- NVIDIA AI Enterprise

ASUS Cloud Platform Services
- Resource Management
- Portal Management
- Service Management

Infrastructure Management
- ASUS Control Center (ACC)
- Network Management
- Cluster/Monitor Management
- Log Platform



Data Center Architecture

ASUS AI POD
- Optimized Compute Nodes
- Scalable Network Fabric
- High-Speed Storage

Edge deployment orchestration

ASUS Infrastructure Deployment Center (AIDC)

Diverse Options for Every Reasoning Workloads

Simulation and Synthetic Data Generation

NVIDIA RTX PRO ™ Server

- **ESC8000A-E13P:** NVIDIA MGX™ platform with RTX PRO ™ 6000 Blackwell Server Edition

Pre-training & Post-training

- **ESC NB8-E11** with NVIDIA HGX™ B200
- **XA NB3I-E12** with NVIDIA HGX™ B300
- **ASUS AI POD** with NVIDIA GB200/GB300 NVL72

NVIDIA RTX PRO™ 6000 Blackwell Server Edition

NVIDIA HGX™ B200/B300

NVIDIA GB200 NVL72/GB300 NVL72

ASUS Server for Simulation and Synthetic Data Generation

ESC8000A-E13P

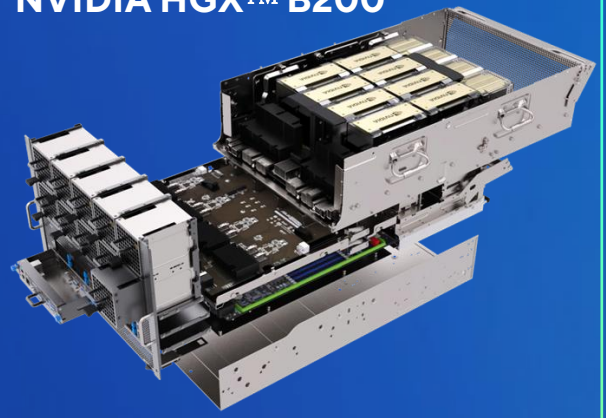
NVIDIA RTX PRO™ 6000 Blackwell Server Edition

- AMD EPYC™ 9005, 192 Zen 5c cores, 12-channel DDR5 (6000 MHz), 500W TDP/socket
- NVIDIA MGX™ compatible for scalable deployment
- 4U chassis: Supports 8x dual-slot H200 GPUs or RTX PRO™ 6000 Blackwell (600W each)
- 5x PCIe 5.0 slots for high-speed NICs/DPUs
- ASUS toolless design for easy maintenance

Learn More

ESC NB8-E11

NVIDIA HGX™ B200



- NVIDIA Blackwell HGX™ B200 8-GPU
- Dual 5th Gen Intel Xeon (350W TDP)
- 1,800GB/s NVLink® for GPU-to-GPU scaling
- 1:1 GPU-to-NIC topology (8x NICs max)
- Full-stack NVIDIA tech (BlueField-3 DPUs, NVSwitch, etc.)
- AI-optimized for generative AI, data centers & software

Learn More

XA NB3I-E12

NVIDIA HGX™ B300

- Dual Intel® Xeon® 6700/6700P (350W TDP)
- 1800GB/s NVLink® for GPU interconnect
- Modular design – minimal cables, optimized cooling
- Full NVIDIA stack (GPUs, BlueField-3 DPUs, NVSwitch)
- 80 PLUS Titanium PSUs (5+5) for max efficiency

Learn More

ASUS

ASUS AI POD for Pre-training & Post-training

ESC NM2N721-E1

NVIDIA GB200 NVL72

Unleash the power of AI with NVIDIA Grace Blackwell Superchips

- 36 NVIDIA Grace™ CPUs Superchips
- 72 NVIDIA Blackwell GPUs
- 5th Gen NVIDIA® NVLink™ technology
- Supports trillion-parameter LLM inference and training with NVIDIA
- Scale-up ecosystem-ready
- ASUS infrastructure deployment center
- ASUS premium service suite

Learn More

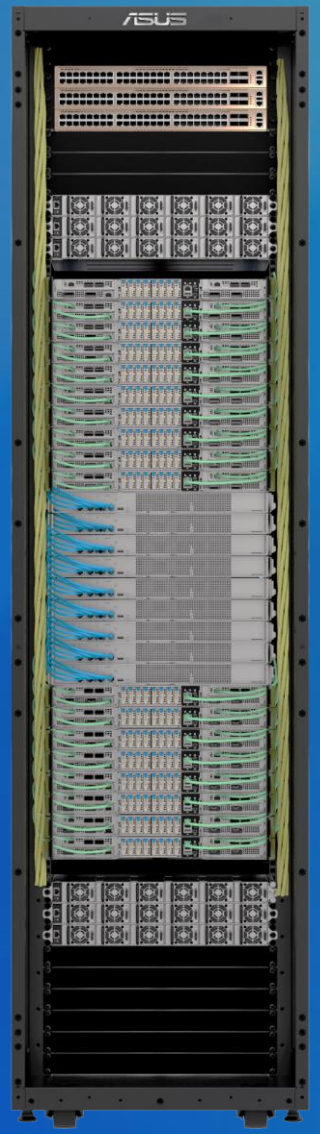
XA GB721-E2

NVIDIA GB300 NVL72

Built for the age of AI reasoning

- 36 NVIDIA Grace™ CPUs
- 72 NVIDIA Blackwell Ultra GPUs
- 5th Gen NVIDIA® NVLink™ technology
- Support AI reasoning inference
- Scale-up ecosystem-ready
- ASUS infrastructure deployment center
- ASUS premium service suit

Learn More




Use Case
Is it possible to eliminate blind spots completely in a surveillance system, or are they an unavoidable limitation?

Surveillance Robot System

Face Recognition

- NVIDIA Isaac™ ROS
- NVIDIA TensorRT™

Accuracy:99.83%
Under100ms/times

License Plate/ Weapon Recognition

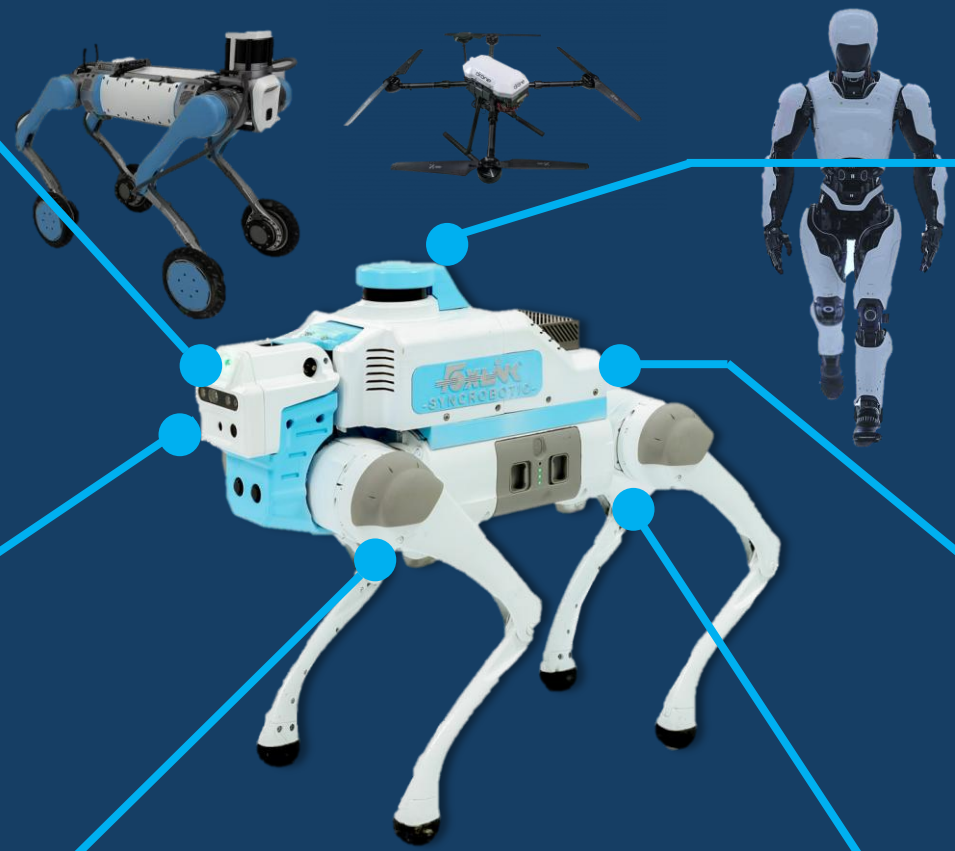
- NVIDIA Isaac™ ROS
- NVIDIA Isaac™ Perceptor

Accuracy:99%↑
Under100ms/times

Autonomous Charging

- NVIDIA Isaac™ ROS

Failure rate = 0%



Foxlink Robot Platform

Navigation

- NVIDIA Isaac™ ROS
- NVIDIA Isaac™ Perceptor
- NVIDIA® Riva
- NVIDIA X-Mobility

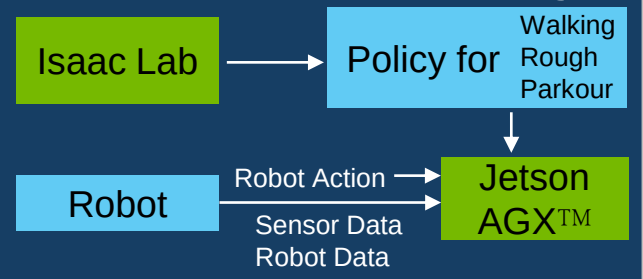
Automatic mapping
Stair localization

Gripping objects

- NVIDIA Isaac™ Manipulator

Door open, Mail delivery,
Garbage Pickup

Robot Motion Policy



Dog can learn new tricks

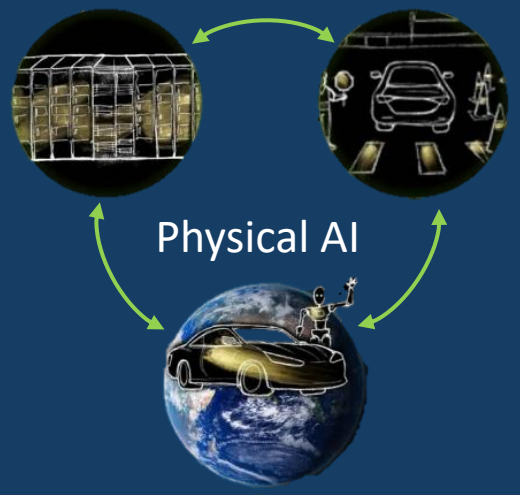
FOXLINK Robotic Dog Security System

Ubilink

DGX

NVIDIA DGX™

NVIDIA Omniverse™ with Cosmos™

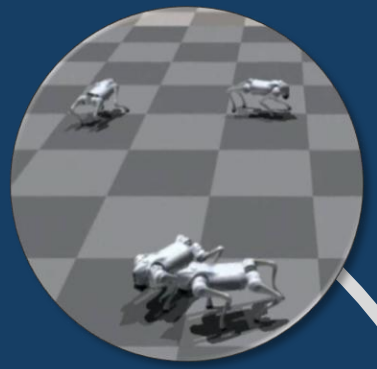


Physical AI

NVIDIA AGX™

AGX

Foxlink Jeff



Omniverse

NVIDIA Omniverse™ with Cosmos™

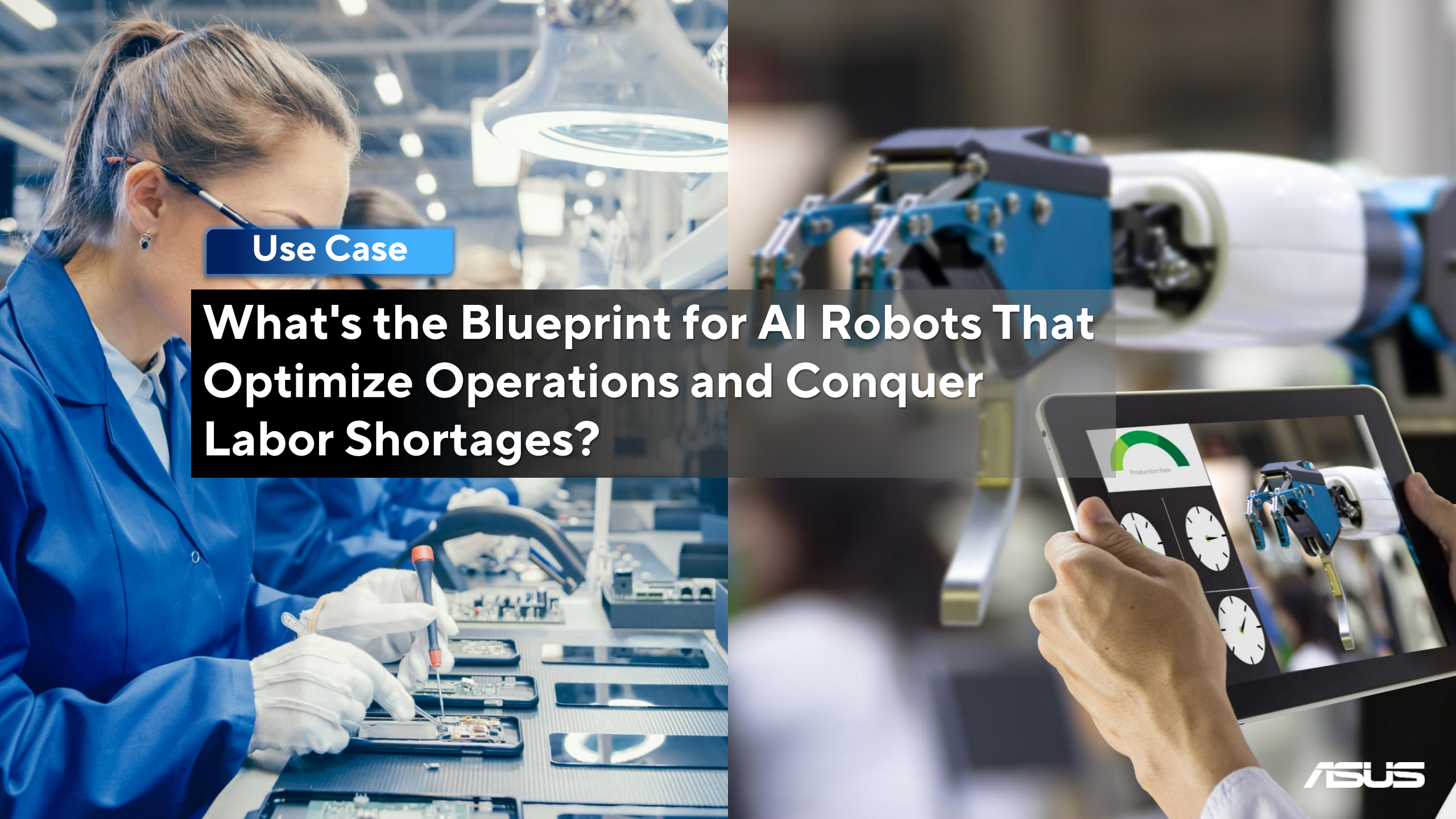
COSMOS

Metropolis

Solar Power Plant

Office Building

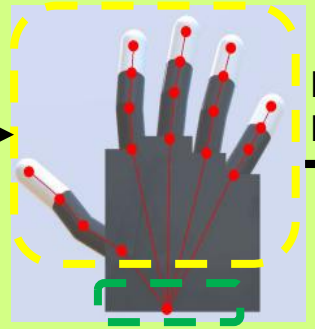
Incinerator


Use Case
What's the Blueprint for AI Robots That Optimize Operations and Conquer Labor Shortages?
Production Rate
ASUS

Project Architecture

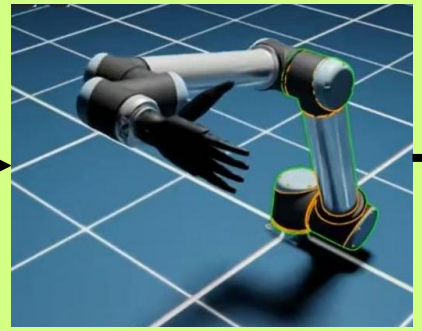
VisionSync Dexterity – NVIDIA Isaac™ GR00T teleoperation

Finger Angle
&
Wrist Position

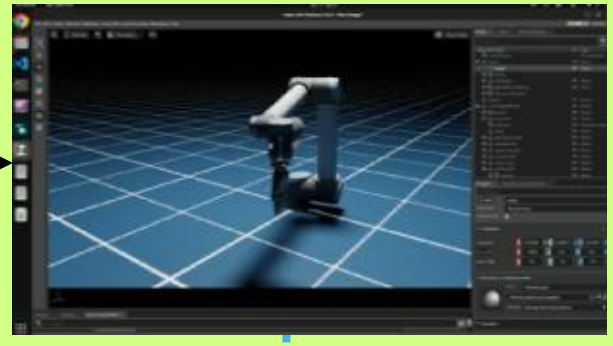


ROS2
Message

Simulation environment control



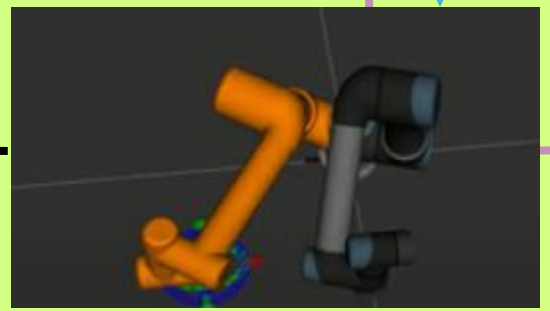
NVIDIA Isaac Sim™ Simulation



NVIDIA CuRobo+ Hand joint control

Real environment control

Real environment



CuRobo command to real robot

Sim
robot
LeRobot
format

Real
robot
LeRobot
format

Isaac GR00T

Fine-Tuning
by NVIDIA DGX™

Pre-Trained Model

Custom Datasets

Fine-Tuning Model Policy

LeRobot

Applications at Foxlink Factory

1st Generation

Arranging battery cells

- Equipment Setup Data Collection In Isaac Sim
- Fine-Tuning Model Policy
- GR00T N1 Deploy

2nd Generation

Tighter battery arrangement

- More complex action
- More precise movements
- More task instructions
- Faster iteration speed

3rd Gen.

ASUS Co-Engineering with NVIDIA to Provide Full Stack Solution for Token Generated AI Factory

Compute

NVIDIA Certified Systems

- NVIDIA GB200/GB300 NVL72
- NVIDIA HGX™ B300/B200 servers
- NVIDIA MGX™ Servers

Storage

NVIDIA Certified Storage

- RS501A-E12 Weka Node
- OJ340A Object Storage
- VS320D SAN Storage

Networking

NVIDIA Networking Gear

- NVIDIA Quantum Switch
- NVIDIA Spectrum Switch
- NVIDIA ConnectX® NIC/DPU/SuperNIC
- Transceiver, Fiber, Cable

Software

AI POD Management

- NVIDIA AI Enterprise
- NVIDIA Omniverse™
- ASUS Infrastructure Deploy Manager
- ASUS Control Center

Infra Solution

ASUS HPC/AI Solution Team

- AI Data Center Infrastructure Planning
- Performance Tuning
- Consultancy Services

AI Data Center Infrastructure Planning

Electricity

- Power Consumption of IT Equipment
- Cooling System Power Consumption
- Electrical Infrastructure
- Other Power-Consuming Equipment
- Future Scalability

Cooling

- Liquid to Liquid, In-Row CDU
- Liquid to Air, Side Car Solution
- Air Conditioning Planning

Layout

- Load Capacity
- Raised Floor Systems
- Cable Routing
- Cooling System
- Space Planning
- Safety

5 steps to accelerate your digital transformation with ASUS

Consult & Design

- Demand evaluation
- Configuration and architecture design
- Computing and network topology
- Cooling, electricity, layout design

Install

- Server/ switch set up
- Cabling and labeling
- Electrical/UPS
- In-row CDU/side car
- Fire/ safety system

Validate

- Acceptance test and accept reporting
- System foundation validation
- Port mapping
- Robust interconnectivity

Deploy

- Rapid deployment
- Centralized configuration
- Automation & systemization
- GenAI cloud service

Maintain & Support

- SLA compliance
- Operations and maintenance
- Continuous monitoring and management

Domain Expert in AI Infrastructure

Experienced in infrastructure solution and services

Click to discover how ASUS helps clients build powerful infrastructures from the ground up in just 3 months.
Ready to fast-track your time to market with ASUS?

Take the Next Step

Find out how ASUS accelerates your AI transformation and deployment.

- Watch the Webinar Now:
  https://www.youtube.com/watch?v=1-wBJs-irGQ
- Contact our ASUS expert:
  https://servers.asus.com/support/contact