NVIDIA Expands Omniverse With Generative Physical AI

• New Models, Including Cosmos World Foundation Models, and Omniverse Mega Factory and Robotic Digital Twin Blueprint Lay the Foundation for Industrial AI

• Leading Developers Accenture, Altair, Ansys, Cadence, Microsoft and Siemens Among First to Adopt Platform Libraries

CES—NVIDIA today announced generative AI models and blueprints that expand NVIDIA Omniverse™ integration further into physical AI applications such as robotics, autonomous vehicles and vision AI. Global leaders in software development and professional services are using Omniverse to develop new products and services that will accelerate the next era of industrial AI.

Accenture, Altair, Ansys, Cadence, Foretellix, Microsoft and Neural Concept are among the first to integrate Omniverse into their next-generation software products and professional services. Siemens, a leader in industrial automation, announced today at the CES trade show the availability of Teamcenter Digital Reality Viewer — the first Siemens Xcelerator application powered by NVIDIA Omniverse libraries.

“Physical AI will revolutionize the $50 trillion manufacturing and logistics industries. Everything that moves — from cars and trucks to factories and warehouses — will be robotic and embodied by AI,” said Jensen Huang, founder and CEO at NVIDIA. “NVIDIA’s Omniverse digital twin operating system and Cosmos physical AI serve as the foundational libraries for digitalizing the world’s physical industries.”

New Models and Frameworks Accelerate World Building for Physical AI
Creating 3D worlds for physical AI simulation requires three steps: world building, labeling the world with physical attributes and making it photoreal.

NVIDIA offers generative AI models that accelerate each step. The USD Code and USD Search NVIDIA NIM™ microservices are now generally available, letting developers use text prompts to generate or search for OpenUSD assets. A new NVIDIA Edify SimReady generative AI model unveiled today can automatically label existing 3D assets with attributes like physics or materials, enabling developers to process 1,000 3D objects in minutes instead of over 40 hours manually.

NVIDIA Omniverse, paired with new NVIDIA Cosmos™ world foundation models, creates a synthetic data multiplication engine — letting developers easily generate massive amounts of controllable, photoreal synthetic data. Developers can compose 3D scenarios in Omniverse and render images or videos as outputs. These can then be used with text prompts to condition Cosmos models to generate countless synthetic virtual environments for physical AI training.

NVIDIA Omniverse Blueprints Speed Up Industrial, Robotic Workflows
During the CES keynote, NVIDIA also announced four new blueprints that make it easier for developers to build Universal Scene Description (OpenUSD)-based Omniverse digital twins for physical AI. The blueprints include:

- **Mega**, powered by Omniverse Sensor RTX APIs, for developing and testing robot fleets at scale in an industrial factory or warehouse digital twin before deployment in real-world facilities.
- **Autonomous Vehicle (AV) Simulation**, also powered by Omniverse Sensor RTX APIs, that lets AV developers replay driving data, generate new ground-truth data and perform closed-loop testing to accelerate their development pipelines.
- **Omniverse Spatial Streaming to Apple Vision Pro** that helps developers create applications for immersive streaming of large-scale industrial digital twins to Apple Vision Pro.
- **Real-Time Digital Twins for Computer Aided Engineering (CAE)**, a reference workflow built on NVIDIA CUDA-X™ acceleration, physics AI and Omniverse libraries that enables real-time physics visualization.

New free Learn OpenUSD courses are also now available to help developers build OpenUSD-based worlds faster than ever.

Market Leaders Supercharge Industrial AI Using NVIDIA Omniverse
Global leaders in software development and professional services are using Omniverse to develop new products and services that are poised to accelerate the next era of industrial AI.

Building on its adoption of Omniverse libraries in its Reality Digital Twin data center digital twin platform, Cadence, a leader in electronic systems design, announced further integration of Omniverse into Allegro, its leading electronic computer-aided design application used by the world’s largest semiconductor companies.

Altair, a leader in computational intelligence, is adopting the Omniverse blueprint for real-time CAE digital twins for interactive computational fluid dynamics (CFD). Ansys is adopting Omniverse into Ansys Fluent, a leading CAE application. And Neural Concept is integrating Omniverse libraries into its next-generation software products, enabling real-time CFD and enhancing engineering workflows.

Accenture, a leading global professional services company, is using Mega to help German supply chain solutions leader KION by building next-generation autonomous warehouses and robotic fleets for their network of global warehousing and distribution customers.

AV toolchain provider Foretellix, a leader in data-driven autonomy development, is using the AV simulation blueprint to enable full 3D sensor simulation for optimized AV testing and validation. Research organization MITRE is also deploying the blueprint, in collaboration with the University of Michigan's Mcity testing facility, to create an industry-wide AV validation platform.

Katana Studio is using the Omniverse spatial streaming workflow to create custom car configurators for Nissan and Volkswagen, allowing them to design and review car models in an immersive experience while improving the customer decision-making process.

Innoactive, an XR streaming platform for enterprises, used the workflow to add platform support for spatial streaming to Apple Vision Pro. The solution enables Volkswagen Group to conduct design and engineering project reviews at human-eye resolution. Innoactive also collaborated with Syntegon, a provider of processing and packaging technology solutions for pharmaceutical production, to enable Syntegon's customers to walk through and review digital twins of custom installations before they are built.

About NVIDIA
NVIDIA (NASDAQ: NVDA) is the world leader in accelerated computing.

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