

NVIDIA expands Cosmos platform with data curation and model training tools

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To help developers rapidly build world models , which help physical AI systems understand and simulate the real world, NVIDIA has expanded the Cosmos platform with new training tools, simulation checkpoints and Cosmos Data Factory blueprints.

Ranking top five on six different open models leaderboards, the NVIDIA Cosmos platform gives world model builders the frontier open models — as well as data, training and optimization tools and recipes — to scale training data, adapt models, test behavior and optimize for performance before deployment.

Build Better Training Data

Building world models begins with multimodal, multisensory data.

NVIDIA Cosmos Data Factory brings together the tools and skills for labeling, curating, augmenting and evaluating data at scale for training physical AI. Cosmos Curator, a GPU-accelerated solution for curating video training datasets, has now added support for multimodal multisensory inputs and processing blocks.

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Cosmos Data Factory now offers the following five cloud-native blueprints and is available through GitHub , Microsoft Azure , Nebius and CoreWeave :

Autonomous Vehicle Dataset Generation: Curates and labels driving data, then adds synthetic examples of hard-to-capture scenarios to expand training coverage.

Image Attribute Augmentation: Varies object appearance to improve image search.

Event Video Generation: Turns still images into synthetic videos of rare or unsafe events.

Defect Image Generation: Generates printed circuit board, metal and glass defect images for inspection models.

Video Data Augmentation: Changes weather and lighting in existing footage while preserving scene structure.

<https://blogs.nvidia.com/wp-content/uploads/2026/10/CDF-visual-Oct20.mp4>

Cosmos Data Factory accelerates data curation, processing and synthetic data generation with agentic skills.

Companies are already putting Cosmos Data Factory blueprints to work to speed their physical AI development workflows.

Porsche is leading the development of a shared AV data flywheel across Volkswagen Group brands, using Cosmos Data Factory through Voxel51 on Microsoft Azure. This is expected to reduce repeated physical test drives by up to 90% and shorten development cycle times by up to 85%.

<https://blogs.nvidia.com/wp-content/uploads/2026/10/Porsche-Cosmos-Data-Factory.mp4>

Porsche searching and augmenting autonomous vehicle data footage in Voxel51, powered by Cosmos Data Factory.

ANYbotics generated over 1,500 synthetic video clips with Cosmos Data Factory blueprints, curating real-world data and validating outputs with Encord's platform, to train its industrial-inspection robots to recognize liquid spills and other changes between facility visits.

<https://blogs.nvidia.com/wp-content/uploads/2026/10/ANYbotics-Cosmos-Data-Factory.mp4>

ANYbotics generating anomaly clips with Encord powered by NVIDIA Cosmos Data Factory.

Ultralytics, a computer vision company, retrained its YOLO model with real images and targeted synthetic defects generated using Cosmos Data Factory, improving defect localization and recall.

Train, Adapt and Optimize Models

With training data prepared, developers may train their own architecture or start with a pretrained model.

At GTC Berlin, NVIDIA extended Cosmos Framework training, optimization and deployment tools and recipes as agent skills to more open models, along with Cosmos 3, giving world model builders a faster path from experimentation to deployment.

Developers and agents can now adapt open models like GR00T, Alpamayo, QWEN, Pi0.5 and other compatible Hugging Face models through fine-tuning and reinforcement learning, optimize the model with distillation and quantization, and deploy with high-performing inference.

Cosmos Framework is an open, modular framework of model training and optimization tools and skills to accelerate world model development. To develop a world model specialized for egocentric manipulation, robotics research lab MicroAGI post-trained Cosmos 3 on videos of humans manipulating objects and distilled its 32-billion-parameter reasoner down to an 8-billion-parameter Nano model with no loss in accuracy.

Developers can label data and post-train Cosmos 3 on Roboflow for their specific environments and tasks, then deploy those models to RoboFlow hosted or on-premises NVIDIA GPUs to bring video reasoning into factories and warehouses.

Test Policies and Run Models Faster

Alongside these tools, NVIDIA continues advancing foundational technology through its work on Cosmos models.

New Cosmos 3 Nano model variants for simulation enable developers to test autonomous policies in repeatable, hard-to-capture, multiview multisensor scenarios. Accompanying code allows developers to adapt the models to train and evaluate their own policies for autonomous vehicles and bimanual robots in interactive simulations before real-world testing.

Multiview and multisensory video data generation for evaluating policies in closed loop simulation. Developers can deploy core Cosmos models using updated NVIDIA Cosmos 3 NIM microservices, which deliver up to 2x faster inference with no quality loss in validated configurations, while continuous video analysis enables sub-second alerts.

For vision AI developers, the new NVIDIA Metropolis Blueprint for video search and summarization (VSS) 3.3, built on Cosmos NIM microservices, turns one prompt into an efficient video AI application and helps teams monitor 40% more video streams with the same GPU.

ADNOC uses Fogsphere's MistIQ agentic platform, built with Cosmos and the NVIDIA Metropolis VSS Blueprint, to detect safety hazards in real time across 65 sites. For rare events, Fogsphere also uses the Cosmos Data Factory to generate synthetic training data, improving detection without needing to physically stage dangerous situations.

<https://blogs.nvidia.com/wp-content/uploads/2026/10/ADNOC-Cosmos.mp4>

The Cosmos platform is fully modular and open. Developers can use Cosmos Data Factory to generate training datasets, Cosmos Framework to train and adapt world models, then deploy supported Cosmos models through NIM microservices.

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