NVIDIA Omniverse Opens Portals to Vast Worlds of OpenUSD

New Omniverse Cloud APIs Help Developers Adopt OpenUSD; Generative AI Model ChatUSD LLM Converses in USD; RunUSD Translates USD to Interactive Graphics, DeepSearch LLM Enables Semantic 3D Search

SIGGRAPH—NVIDIA today announced a broad range of frameworks, resources and services for developers and companies to accelerate the adoption of Universal Scene Description, known as OpenUSD.

NVIDIA is advancing the development of OpenUSD — a 3D framework enabling interoperability between software tools and data types for the building of virtual worlds — through NVIDIA Omniverse™ and a new portfolio of technologies and cloud application programming interfaces (APIs) — including ChatUSD and RunUSD — along with a new NVIDIA OpenUSD Developer Program.

These investments in OpenUSD expand on NVIDIA's co-founding of the Alliance for OpenUSD (AOUSD) — an organization announced last week that will standardize OpenUSD specifications — along with Pixar, Adobe, Apple and Autodesk.

"Just as HTML ignited a major computing revolution of the 2D internet, OpenUSD will spark the era of collaborative 3D and industrial digitalization," said Jensen Huang, founder and CEO of NVIDIA. "NVIDIA is putting our full force behind the advancement and adoption of OpenUSD through our development of NVIDIA Omniverse and generative AI."

OpenUSD Goes to the Cloud
NVIDIA announced four new Omniverse Cloud APIs built by NVIDIA for developers to more seamlessly implement and deploy OpenUSD pipelines and applications.

- ChatUSD — a large language model (LLM) copilot for developers that can answer USD knowledge questions or generate Python-USD code scripts. ChatUSD is fine-tuned using USD functions and Python-USD code snippets from NVIDIA.
- RunUSD — a cloud API that translates OpenUSD files into fully path-traced rendered images by checking compatibility of the uploaded files against versions of OpenUSD releases, and generating renders with Omniverse Cloud. A demo of the API is currently available for developers in the NVIDIA OpenUSD Developer Program.
- DeepSearch — an LLM agent enabling fast semantic search through massive databases of untagged assets.
- USD-GDN Publisher — a one-click service that enables enterprises and software makers to publish high-fidelity, OpenUSD-based experiences to the Omniverse Cloud Graphics Delivery Network (GDN) from an Omniverse-based application such as USD Composer, as well as stream in real time to web browsers and mobile devices.

Evolving OpenUSD Functionality
OpenUSD was invented to better connect film and animation pipelines. Industrial applications — such as building interoperable manufacturing design pipelines, creating physically accurate real-time digital twins of factories, or training and validating autonomous vehicles — require different demands of the 3D framework.

To enable these highly complex industrial and perception AI workloads, NVIDIA is developing NVIDIA Omniverse, the OpenUSD-native software platform for developing applications, as well as technologies that include geospatial data models, metrics assembly and simulation-ready, or SimReady, specifications for OpenUSD.

Geospatial data models for OpenUSD let users develop simulations and calculations for true-to-reality digital twins of factories, warehouses, cities and even Earth. For extreme-scale projects, it accounts for the planet's curvature to ensure the simulations are physically accurate.

Industrial applications combine datasets from many tools and sources, each represented in different units. NVIDIA is developing a metrics assembly for OpenUSD that enables users to combine diverse datasets with complete accuracy.

NVIDIA is also developing a structure for new SimReady 3D models. These will include true-to-reality material and physical properties, which are critical to accurately training autonomous robots and vehicles. For example, an autonomous robot tasked with sorting packages needs to be trained in simulation on 3D packages that move and react to physical contact just as they would in the real world.

Get early access to OpenUSD services, resources and tools through the NVIDIA OpenUSD Developer Program. This includes two new fully distributable OpenUSD sample scenes built by NVIDIA designers and artists — called Da Vinci's Workshop and Riverfront Tower.

Learn more about OpenUSD, its ecosystem of connections, AOUSD and the NVIDIA Omniverse platform. Watch Huang's SIGGRAPH keynote.

About NVIDIA
Since its founding in 1993, NVIDIA (NASDAQ: NVDA) has been a pioneer in accelerated computing. The company's invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined computer graphics, ignited the era of modern AI and is fueling industrial digitalization across markets. NVIDIA is now a full-stack computing company with data-center-scale offerings that are reshaping industry. More information at https://nvidianews.nvidia.com/.

Certain statements in this press release, including, but not limited to, statements as to: the benefits, impact, performance, features and availability of our products, services and technologies, including NVIDIA Omniverse, NVIDIA OpenUSD Developer Program and Omniverse Cloud APIs; the Alliance for OpenUSD standardizing OpenUSD specifications; OpenUSD sparking the era of collaborative 3D and industrial digitalization; NVIDIA putting its full force behind the advancement and adoption of OpenUSD; and NVIDIA developing NVIDIA Omniverse as well as technologies to enable highly complex industrial and perception AI workloads, and their impact are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company's website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.

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