

Luminary Cloud Uses NVIDIA Omniverse Blueprint for Real-Time Computer-Aided Engineering Digital Twins

Luminary Cloud's simulation as service was chosen for its ability to generate data at the speed, scale and accuracy required to train advanced physics AI models

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EINPresswire.com/ -- Luminary Cloud today announced that it is demonstrating an interactive virtual wind tunnel that combines its cloud-native [NVIDIA CUDA-X](#)-accelerated CFD SaaS with the NVIDIA Omniverse Blueprint for [real-time computer-aided engineering digital twins](#).



Luminary Cloud Demo of NVIDIA Blueprint for Interactive Virtual Wind Tunnels

The AI-powered virtual wind tunnel demonstrates how design engineers of physical products in the automotive, aerospace and industrial manufacturing fields can rapidly analyze, optimize and perform real-time interactive design. This new technology will enable companies to significantly accelerate their design cycles, reduce costs, and bring more innovative and optimized products to market faster than ever before.

Accurate physics AI starts with accurate data

NVIDIA Blueprints are reference workflows that help developers build with NVIDIA's libraries for accelerated computing, physics AI frameworks, and APIs for visualization. AI training frameworks like NVIDIA Modulus, and NVIDIA Omniverse APIs can be combined with CFD solvers to create simulations of real-world scenarios, such as a wind tunnel. Commercial-grade solvers must be added to this reference workflow to instantiate it and realize a fully capable CAE solution.

Combining Luminary Cloud's CUDA-X accelerated, cloud-native, high-fidelity simulation capabilities with the NVIDIA Modulus physics AI framework enables the creation of CFD surrogate models that produce detailed solution fields orders of magnitude faster than

traditional CFD solvers. This acceleration, realized by AI, is what enables design engineers to modify a geometry or scene and visualize the impact in real time.

“Luminary’s ability to generate vast amounts of high-fidelity simulation data in minutes is the key enabler for physics AI models that are ready to revolutionize simulation-based design,” said Juan J. Alonso, CTO and co-founder of Luminary Cloud. “Integrated data-generation and model-training and inference workflows can be used to develop virtual wind tunnels, advanced surrogate models for aerodynamic databases, and digital twins, and for optimization and uncertainty quantification.”

“Physics AI models are essential for real-time interactive engineering analysis and design, but require tremendous amounts of data,” said Tim Costa, senior director CAE EDA and Quantum at NVIDIA. “Luminary Cloud’s cloud-native, GPU-accelerated CFD capabilities allowed us to generate the high-fidelity simulation data needed to train the underlying physics AI model in our Modulus physics AI framework in a matter of hours.”

Simulation-as-a-Service for Physics AI

Key benefits of Luminary Cloud for physics AI model training include:

- Rapidly Generate Large Training Datasets: Cloud-native architecture providing CFD solvers accelerated with CUDA-X, enabling customers to generate hundreds of high-fidelity CFD simulation results in just hours.
- Immediate Access to Powerful CFD Simulation: Cloud-native SaaS combines powerful CFD tools with secure storage so engineers can start immediately, collaborate freely, and safely share results.
- Flexible Workflows: A secure Python API for integrating the CFD SaaS with third-party CFD workflows. The API enables integration with the NVIDIA Omniverse Blueprint.

To learn how Physics AI is transforming modern product development and Luminary Cloud’s role in the revolution, read the blog “[Revolutionizing Product Development with Physics AI](#)”.

Experience Luminary Cloud by signing up for a free-trial at luminarycloud.com

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About Luminary Cloud, Inc.

Luminary Cloud is a pioneer of cloud-native, computer-aided engineering (CAE) software that empowers engineers to achieve their vision in real time. The company was founded in 2019 by Jason Lango, an expert in high-performance computing, cloud-based infrastructure, and cloud security, and Juan Alonso, the founder of Stanford’s Aerospace Design Laboratory and former director of NASA Aeronautics research programs. Customers span industries from cutting-edge electric vertical take-off and landing (eVTOL) aircraft to leading sporting equipment providers, including Joby Aviation, Piper Aircraft, Trek Bikes and Cobra Golf (a subsidiary of Puma). For more information, visit www.luminarycloud.com.

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