GLOBAL INSTITUTE FOR DIGITAL COMPETITIVENES

GLOBAL DIGITAL WEEK 2023

Mukundan Govindaraj

Arquitecto Principal de Soluciones

NVIDIA

www.gidcomp.org

NVIDIA
NVIDIA OMNIVERSE
EMPOWERING CREATORS TO BUILD METAVERSES | DIGITAL TWINS

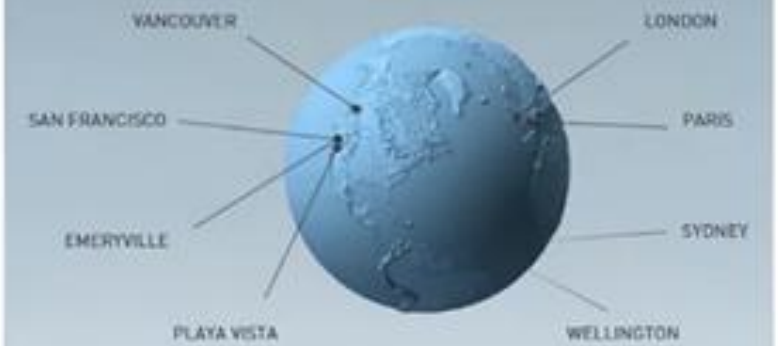
WHAT IS THE METAVERSE?

INDUSTRIAL METAVERSE

NVIDIA

NEW CHALLENGES ON THE HORIZON

ADDRESSING THE NEW NORMAL
Enabling Hybrid Workforces



DATA GRAVITY IS A LOOMING PROBLEM
3D Datasets are Too Large, Immovable

CHASING THE SINGLE SOURCE OF TRUTH
File Imparity, Redundancy, Bottlenecks

NVIDIA

PRESENTING NVIDIA OMNIVERSE

NVIDIA OMNIVERSE ENTERPRISE

Platform for Creating and Connecting Virtual Worlds

Designer, Creator, Engineer Collaborators

Nucleus

RTX Renderer

Portal

USD Physics Materials Path-Tracing AI

NVIDIA Core Technology

NVIDIA

THE BIG BANG OF OMNIVERSE

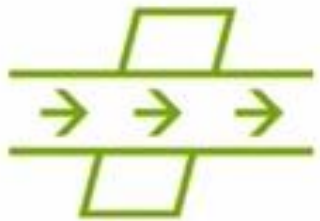
Confluence of Enabling Technologies

REVOLUTIONIZE YOUR 3D PRODUCTION PIPELINES

REDUCE COSTS & WASTE

INCREASE VALUE EXISTING INFRASTRUCTURE

MAXIMIZE CREATIVITY & PRODUCTIVITY



ACCELERATE TIME TO PRODUCTION

NVIDIA

ADVANCED TOOLS AND TECHNOLOGIES

Foundational Platform Components

NUCLEUS

CONNECT

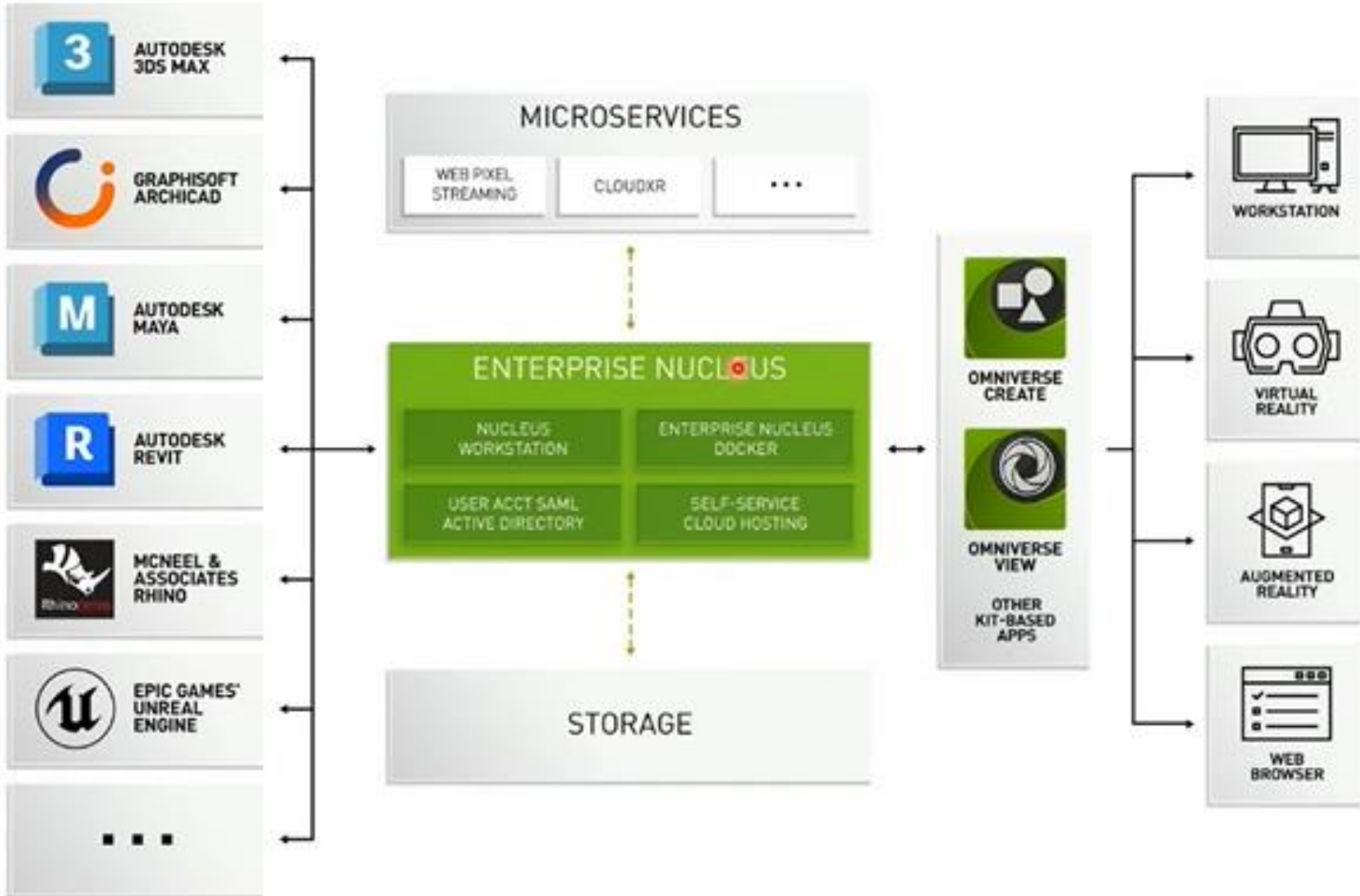
KIT

SIMULATION

RTX RENDERER

NVIDIA

NVIDIA OMNIVERSE ENTERPRISE



NVIDIA OMNIVERSE™

USD

UNIVERSAL SCENE DESCRIPTION

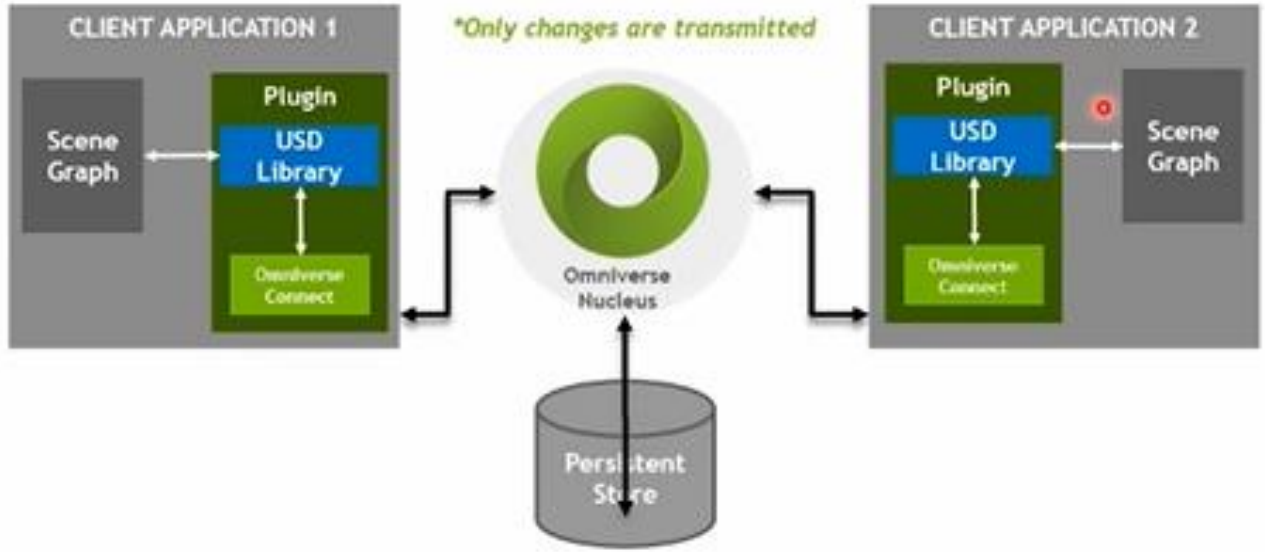
The “HTML” of 3D Virtual Worlds

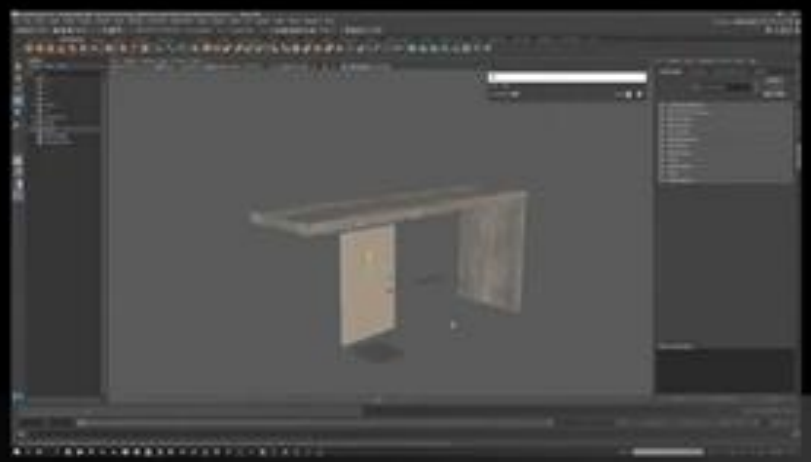
- Developed by Pixar
- Foundation for NVIDIA Omniverse
- Open-sourced API and file framework for complex scene graphs
- Easily extensible, simplifies interchange of assets between industry software
- Introduces novel concept of layering
- Enables simultaneous collaboration for large teams in different department working on the same scene
- Originated in M&E, now becoming a standard across industries including AEC, Manufacturing, Product Design, Robotics

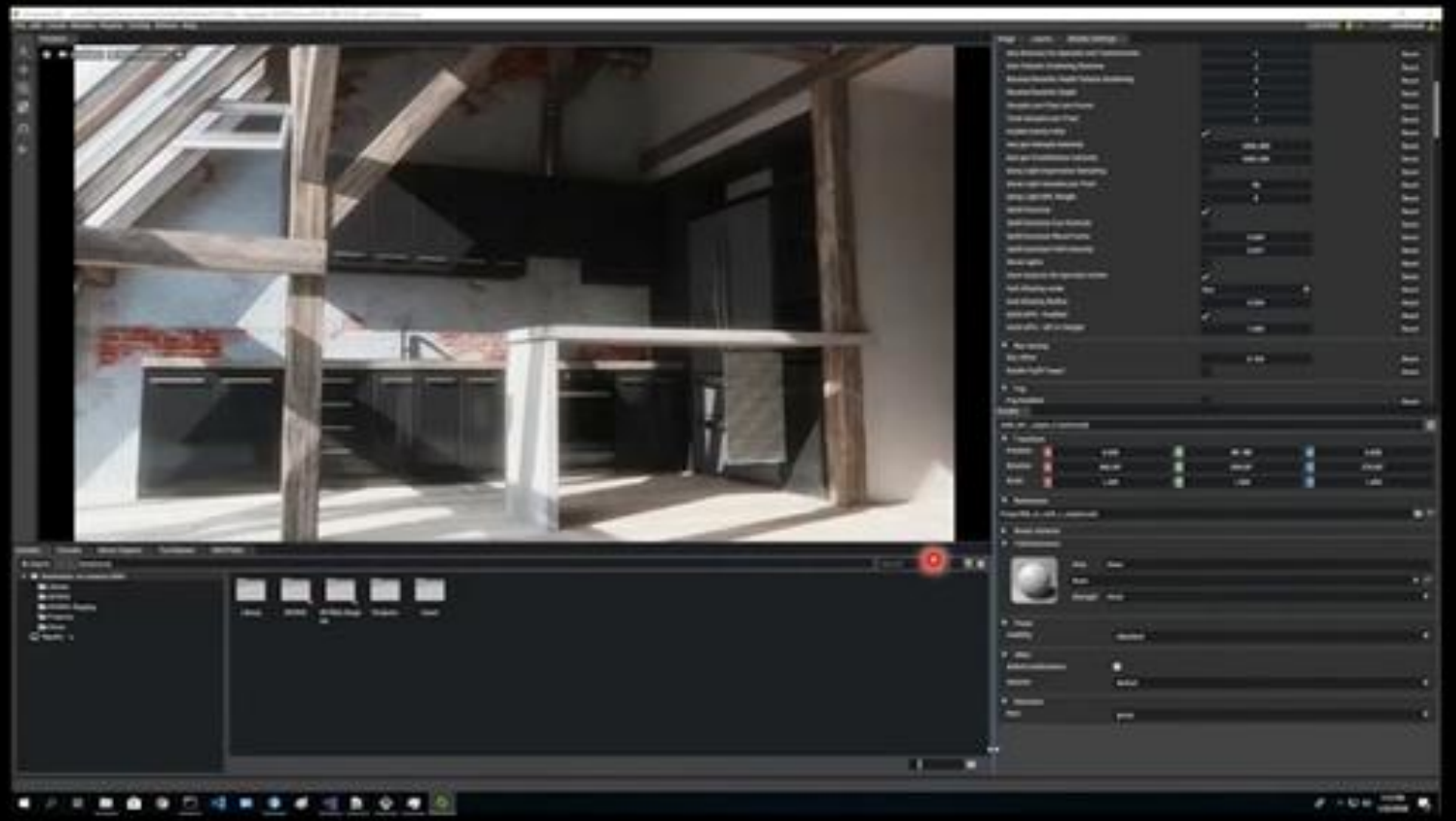
OMNIVERSE NUCLEUS

Asset Database and Collaboration Engine

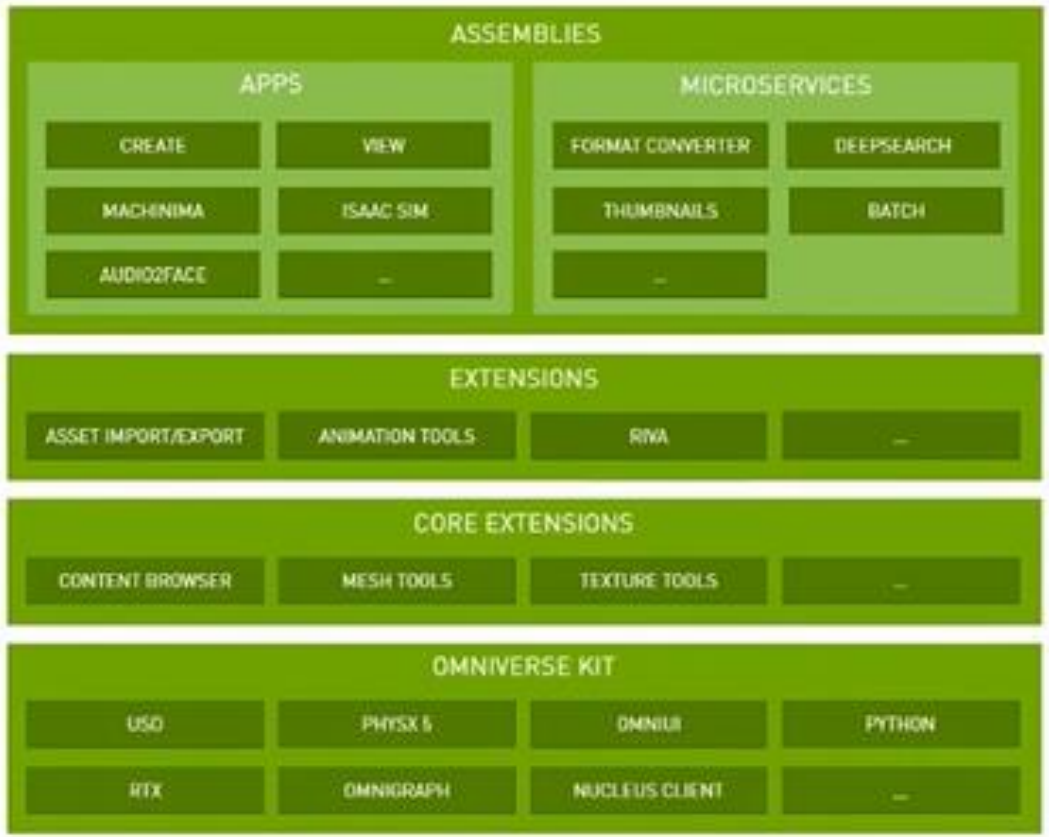
- Allows multiple software tools to talk to each other as well as live sync workflow
- Universal asset exchange - can house assets of any filetype
- Enables collaboration on large, ultra-complex scenes and passes only the change deltas
- Because only deltas are exchanged, extremely fast creation/replication is enabled
- No more hour-long or overnight uploading/downloading of entire scene files - everything is real-time and live
- Enables a single source of truth and eliminates messy, redundant file copies







TEAM COLLABORATION



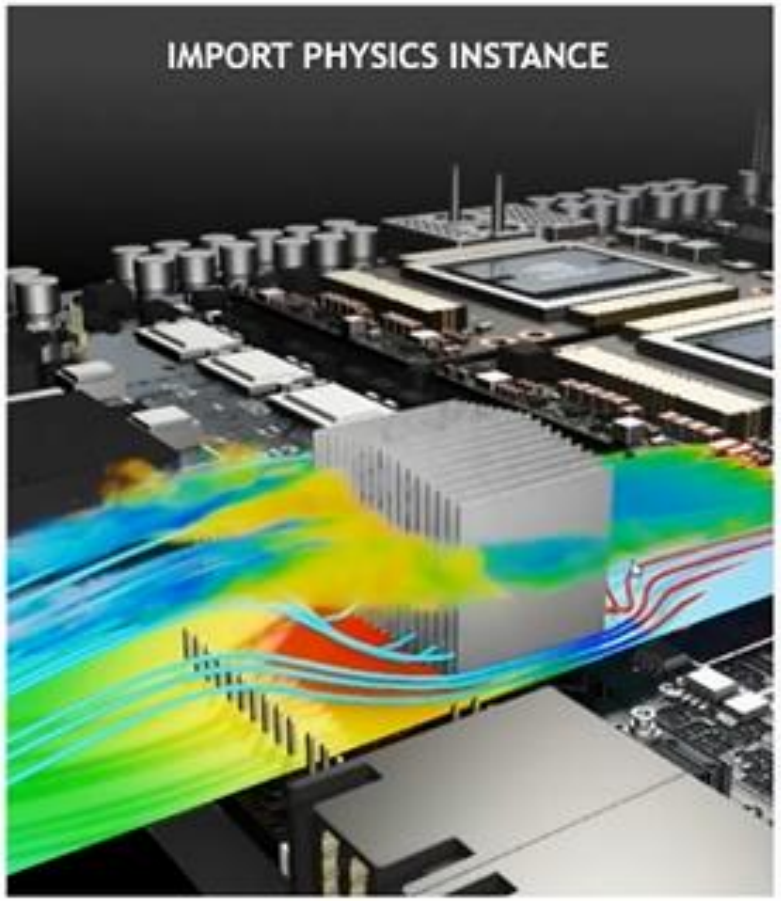
OMNIVERSE KIT

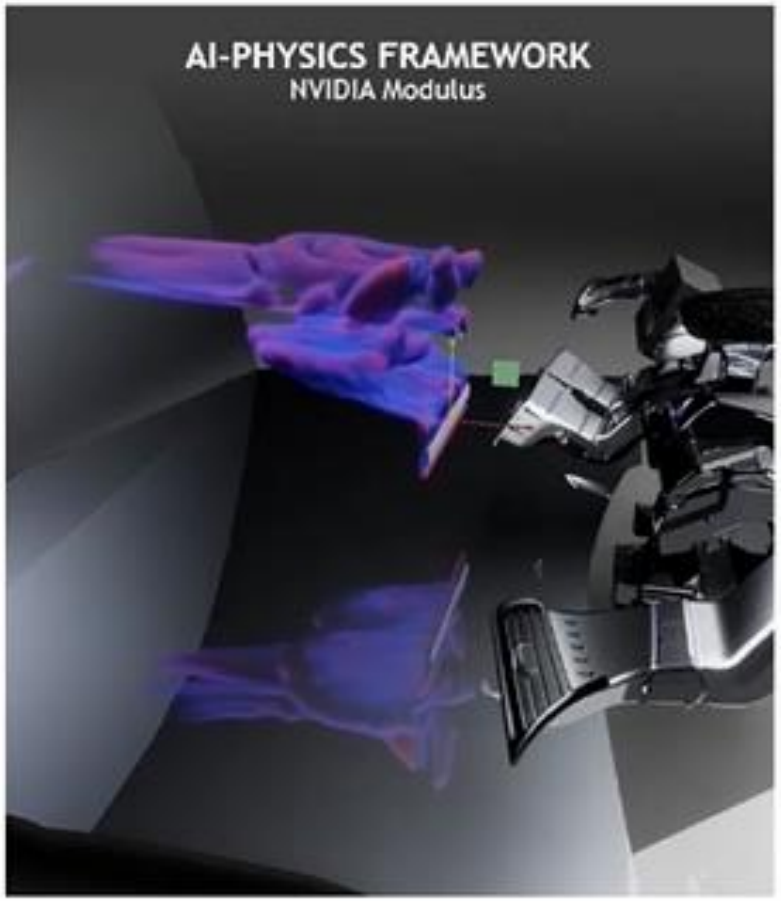
A Powerful SDK to Build the Tools of the Future

- Extremely modular platform of extensions
- Extensions are the building blocks of Omniverse Apps
- Flexible, customizable, easily extensible
- Includes Kit Extensions System, Omni.UI Graph API, Omni.UI Models and View Widgets

PHYSICS IN OMNIVERSE

Multiple Ways to Visualize and Simulate Physics in Omniverse





PHYSICS SIMULATION IN OMNIVERSE

Advanced Libraries Providing Foundations for Accurate Virtual Worlds

PhysX 5
Rigid, Soft Body, and Vehicle Dynamics

PhysX Blast
Fracture & Destruction

PhysX Flow
Combustible Fluids, Smoke, Fire

NVIDIA

OMNIVERSE RTX RENDERER

Advanced, Multi-GPU, Multi-Node Renderer for World Simulations

Scalable, Multi-GPU, Multi-Node

Infinitely scalable ray tracing to handle more geometry, thousands of dynamic lights with no baking.

Real time, Photoreal, Physically Accurate

Leading the convergence of real time and offline renderers.

Based on Open Standards

USD-enabled, flexible MDL, MDL-based procedural dome lights

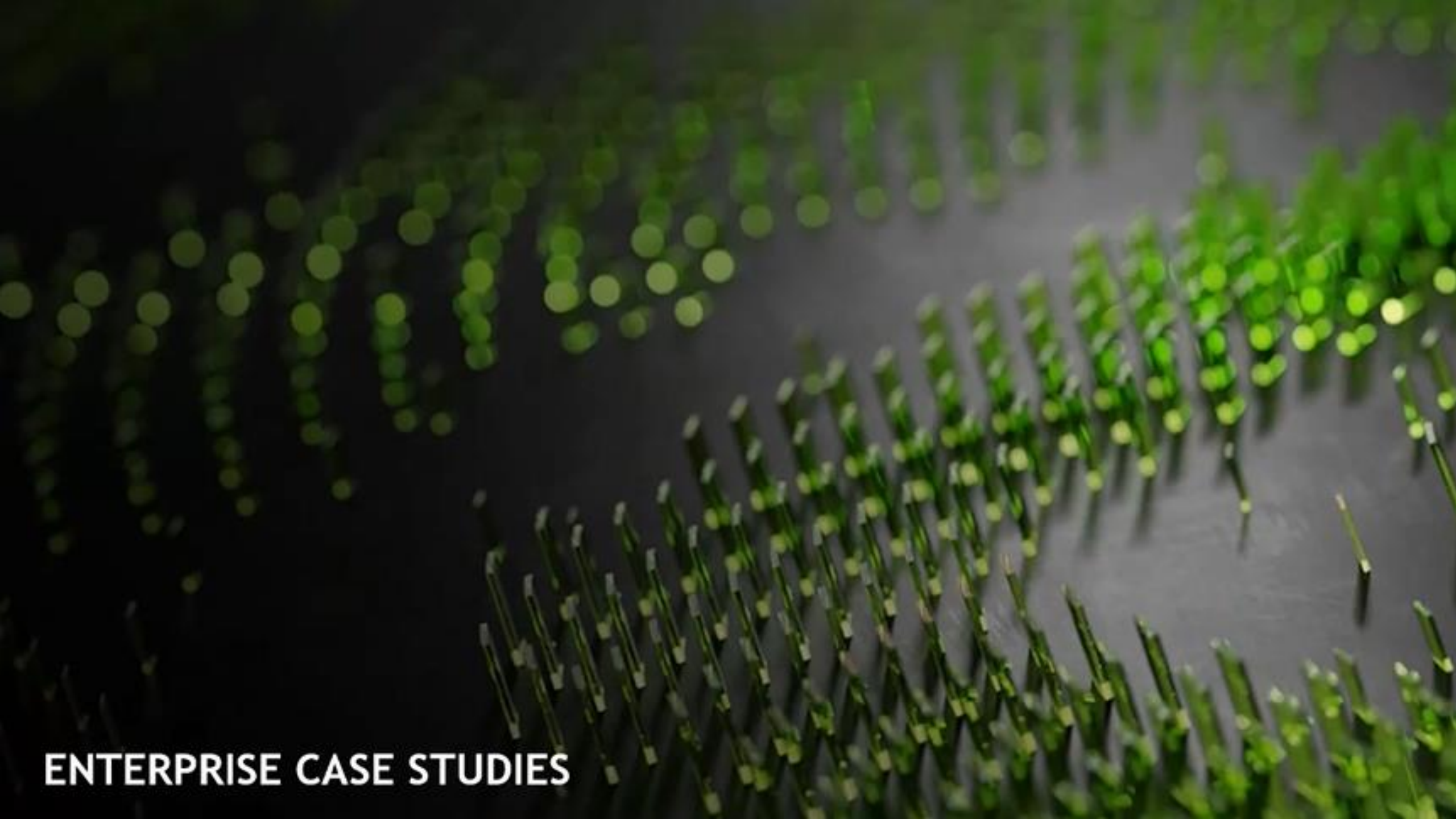
NVIDIA

CORE OMNIVERSE ENTERPRISE APPS

Multi-GPU Enabled for Assembling, Viewing Full-Fidelity Scenes

- Simplify full-fidelity world building with intuitive layout tools and physics
- Breathtaking photorealism with physically-accurate materials, and real time ray and path traced rendering
- Advanced simulation with NVIDIA PhysX 5, Flow, and Blast integration

- Simple to use tools for project reviews including camera waypoints, annotations, measure, and markup
- Make minor environment or material iterations to present multiple options
- Quick toggling between real-time ray traced and ultra-high-fidelity path-traced for interactive visualization


ENTERPRISE CASE STUDIES

OMNIVERSE IS EVERYWHERE

Enabling 3D Design Collaboration and Industrial Digital Twins Across Industries

EARLY ADAPTOR USE CASES

AECO and ME

NVIDIA

TRANSFORMING VFX WORKFLOWS

Industrial Light & Magic

"NVIDIA continues to advance state-of-the-art graphics hardware, and NVIDIA Omniverse showcases what is possible with real-time ray tracing. The potential to improve the creative process through all stages of VFX and animation pipelines will be transformative."

— Francois Chardavoine, VP of Technology

INDUSTRIAL
LIGHT & MAGIC

INVENTING THE FUTURE OF ADVERTISING

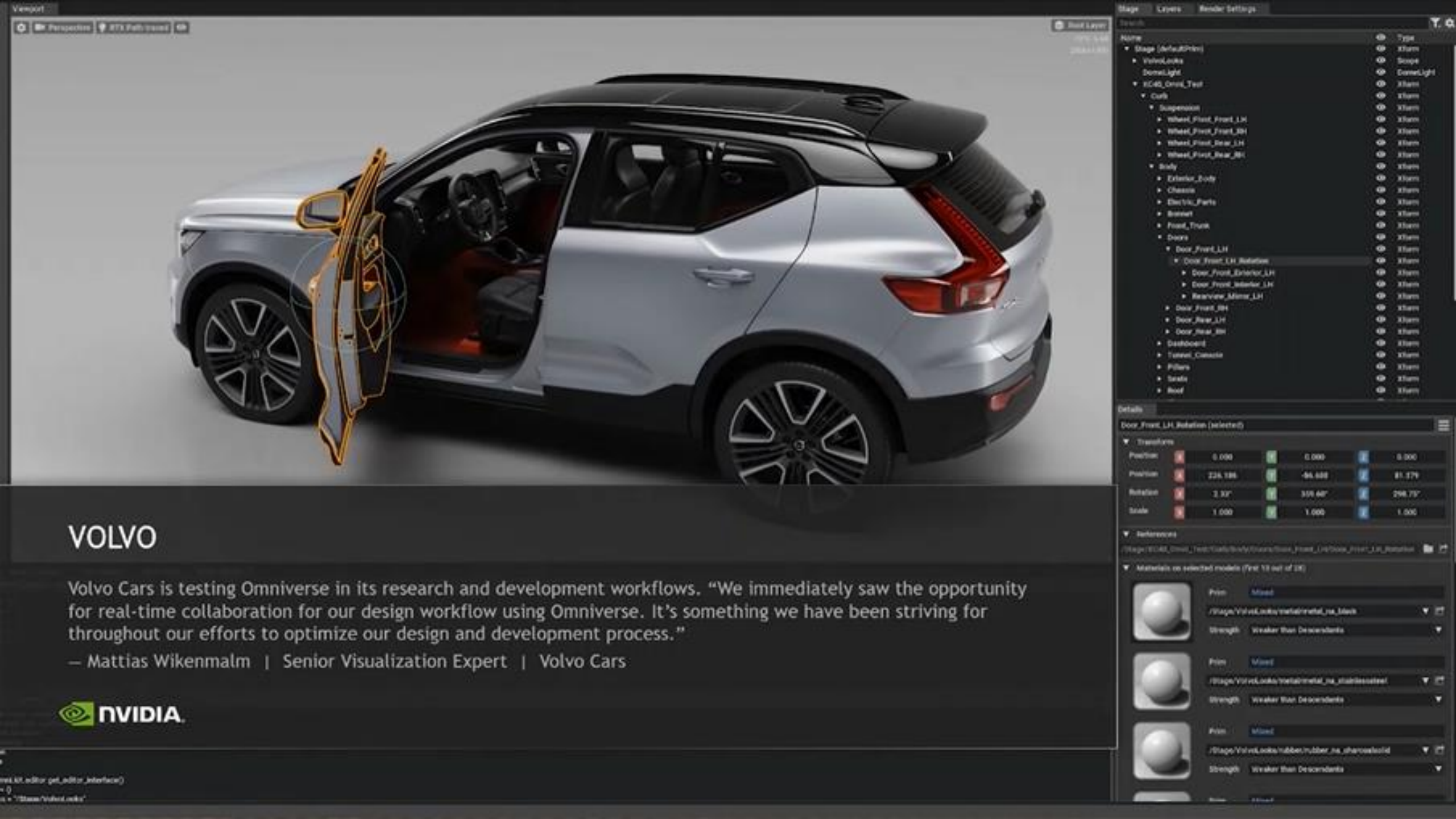
WPP

WPP, the world's largest marketing services organization, is using the NVIDIA Omniverse™ platform to reinvent the way advertising content is made by replacing traditional on-location production methods with entirely virtual production.

When COVID-19 restrictions were put in place, the team faced limitations shooting commercials for clients on location.

WPP used NVIDIA Omniverse to collaboratively design, build, and simulate a photorealistic virtual forest without having to shoot it in person.

WPP



VOLVO

Volvo Cars is testing Omniverse in its research and development workflows. “We immediately saw the opportunity for real-time collaboration for our design workflow using Omniverse. It’s something we have been striving for throughout our efforts to optimize our design and development process.”

— Mattias Wikenmalm | Senior Visualization Expert | Volvo Cars

NVIDIA.

ENERGIZING CREATIVITY WITH REMOTE COLLABORATION

DNEG

"To create Academy Award-winning work, DNEG has always thrived on collaboration and the creative energy it provides. With nine facilities worldwide, we were at the forefront of virtualized production," said Roy C. Anthony, global head of Research at DNEG. "We're excited to work together with NVIDIA to reinvent how our artists and supervisors collaborate globally in real- time with NVIDIA Omniverse."

DNEG

DNEG CASE STUDY

Character Design Workflows - Before & After Omniverse Enterprise

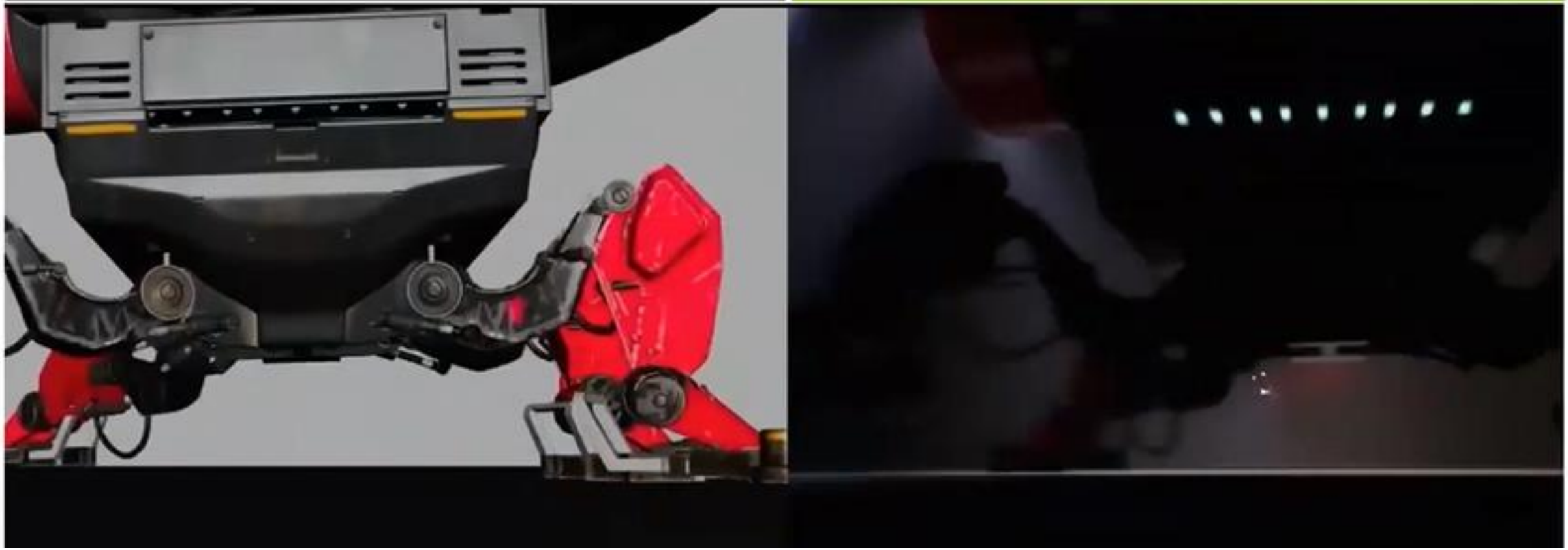
NVIDIA

DNEG CASE STUDY

Pre-Visualization Before Omniverse Enterprise, and After

AUTODESK MAYA PLAYBLAST - OFFLINE

OMNIVERSE CREATE - REAL TIME



NVIDIA
SHOWREEL

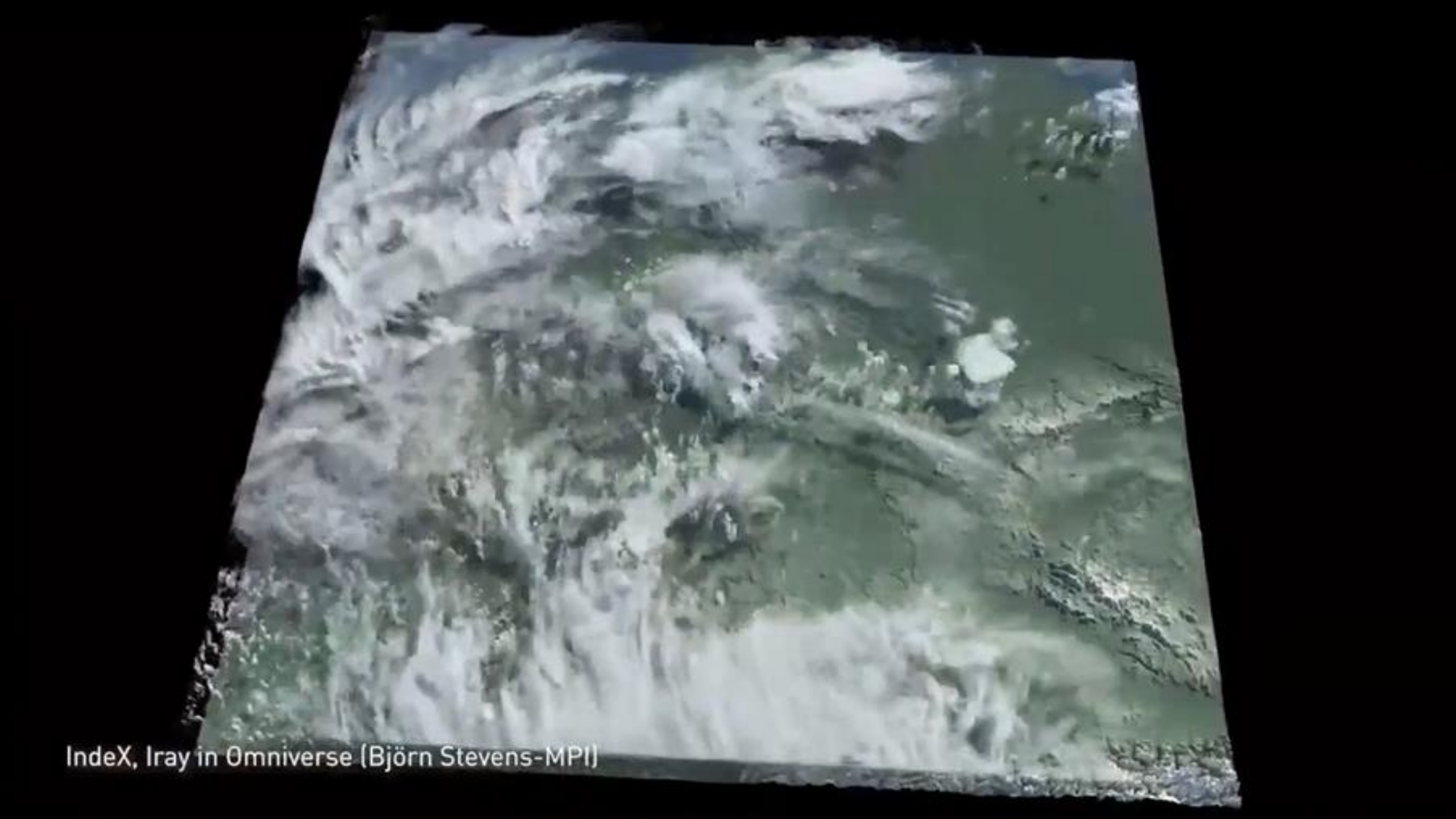
NeuralVDB

ActionGraph

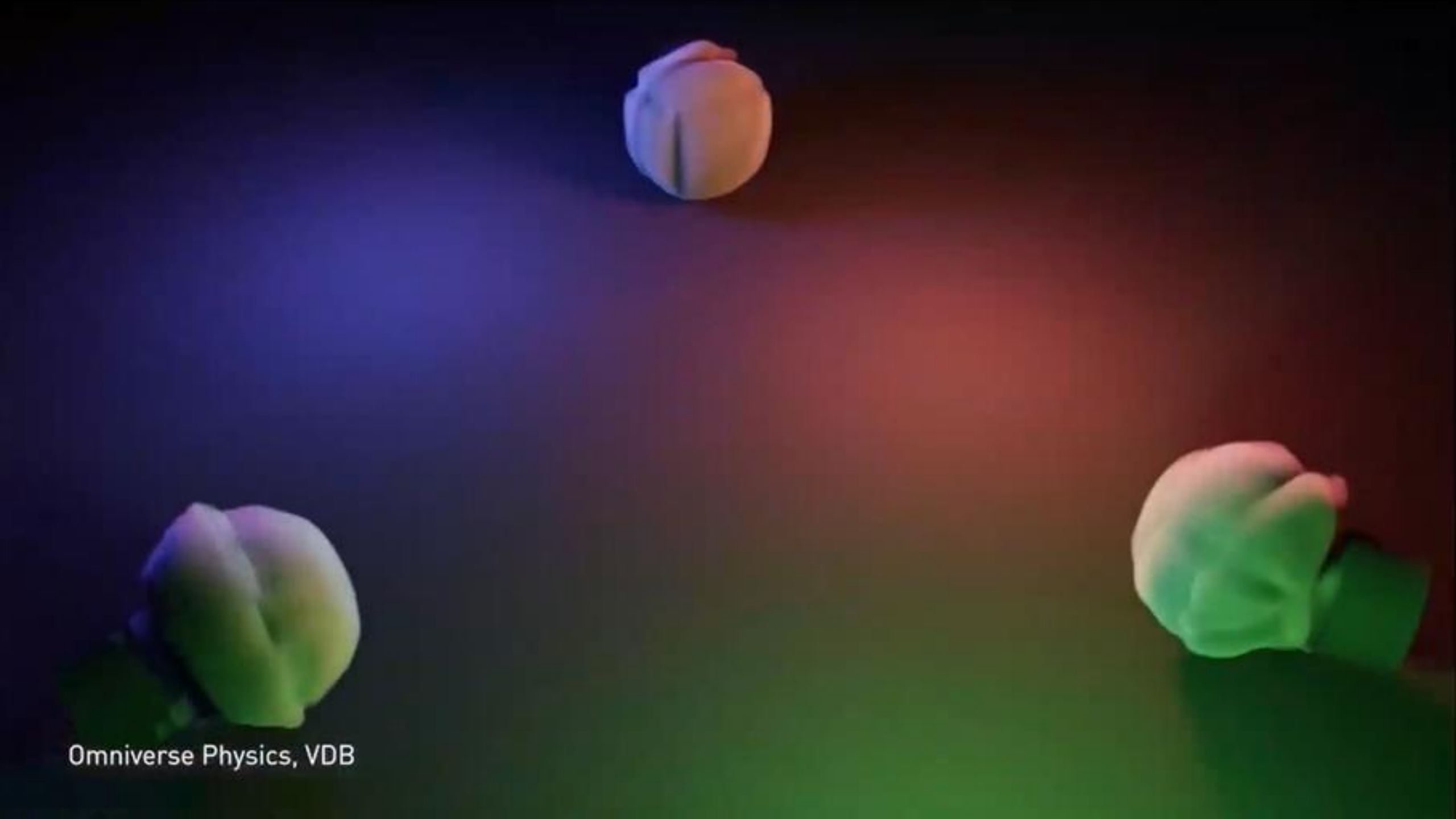
RTX Renderer

Omniverse Ramen Shop

RTX Renderer, Iray Accurate

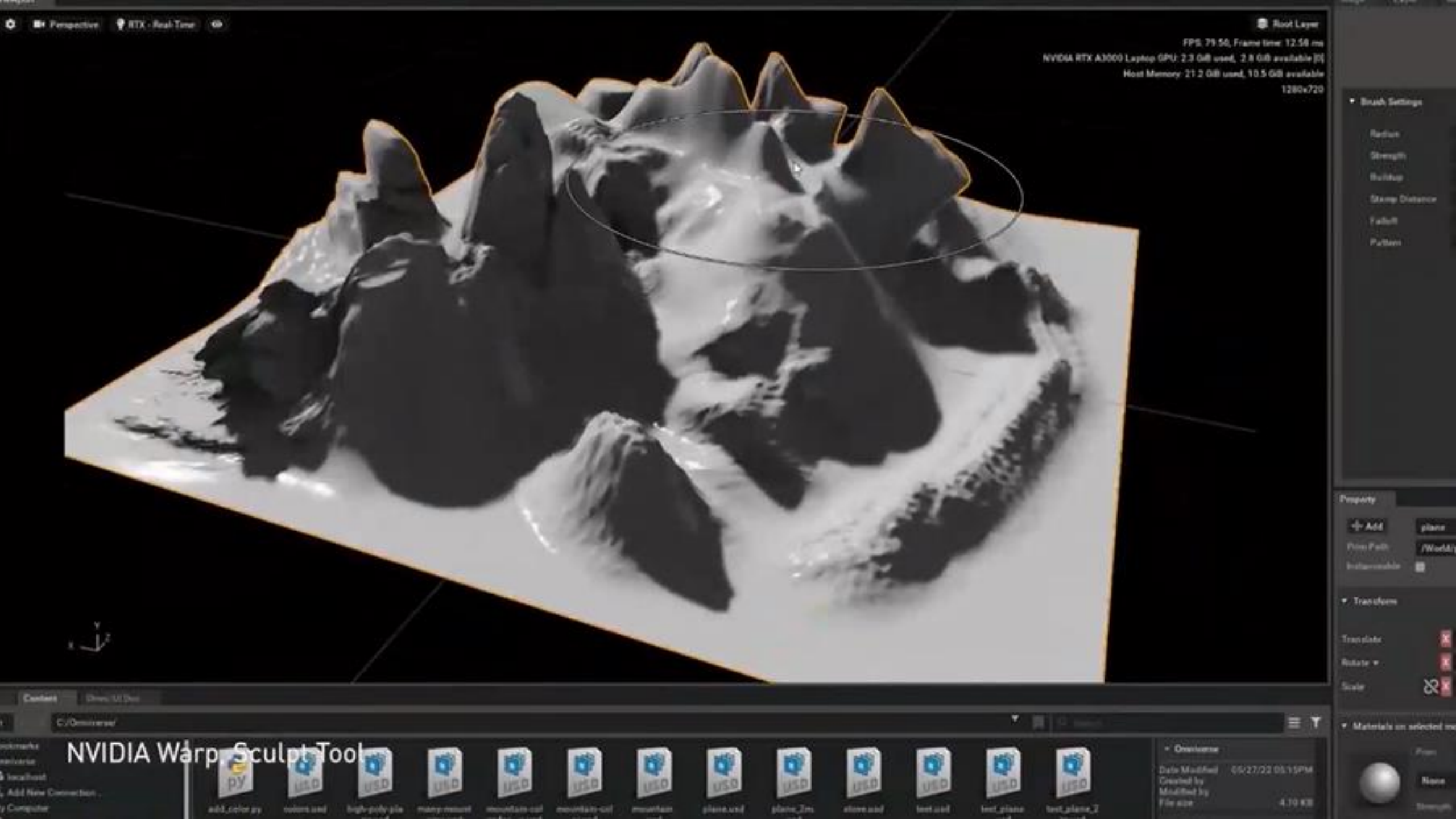


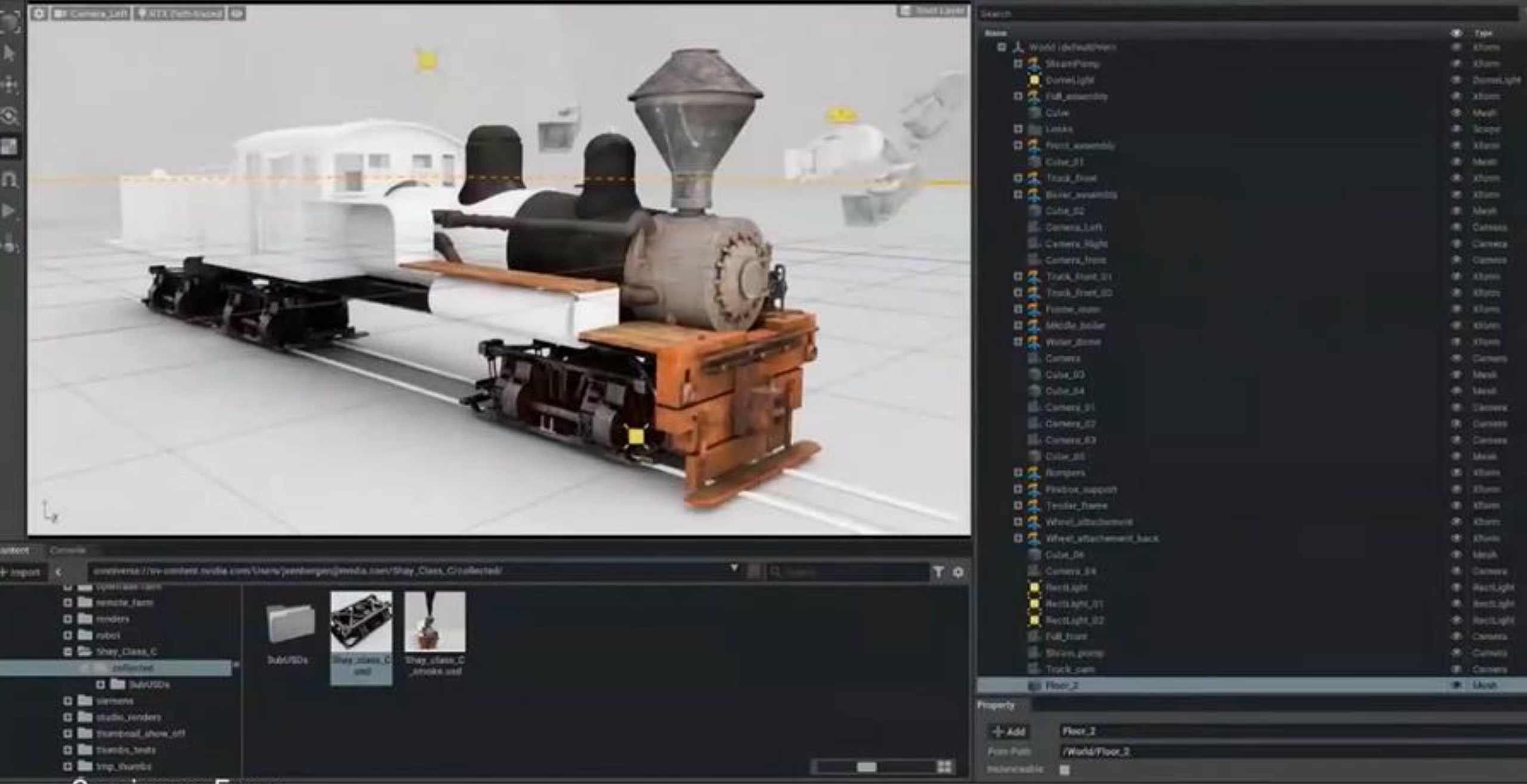
IndeX, Iray in Omniverse (Björn Stevens-MPI)


Omniverse Physics, VDB

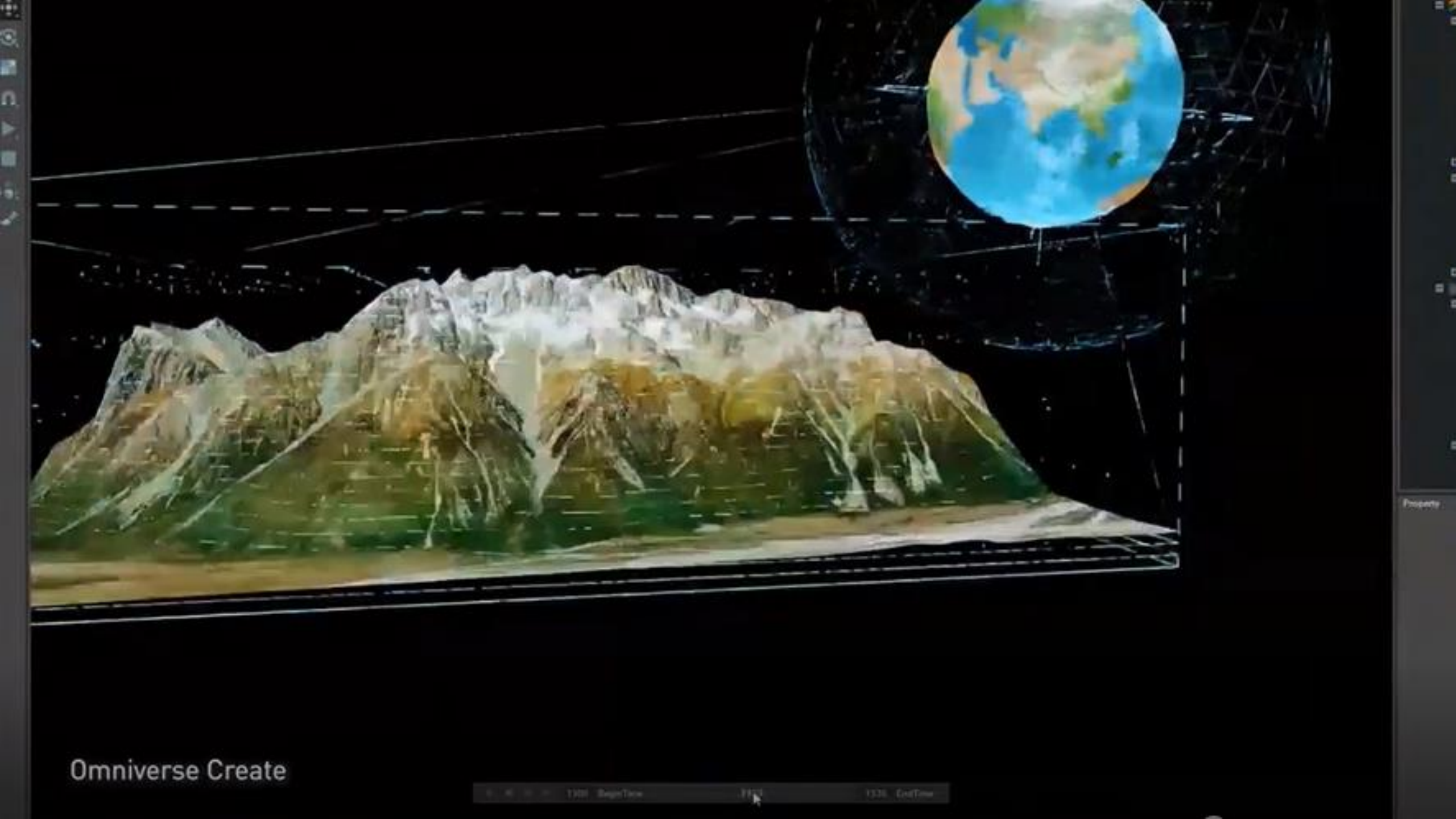
Viewport
Perspective
RTX - Real-Time
Root Layer
FPS: 41.36, Frame time: 24.18 ms
NVIDIA GeForce RTX 3090: 5.0 GiB used, 18.0 GiB available [0]
Host Memory: 31.6 GiB used, 32.3 GiB available
1280x720
Stage
Layer
Render Settings
Search
Name
World (defaultPrim)
Looks
Desk
XRoom
XRoom_01
XRoom_02
XRoom_03
SphereLight
SphereLight_01
SphereLight_02
Property
Add
SphereLight_01
Prim Path
/World/SphereLight_01
Instanceable
Transform
Translate
-25.0
Console
Content
Flow
Import
Omniverse Physics, VDB
Destruction
FireVDBCapture
Flow2020
USD
USD

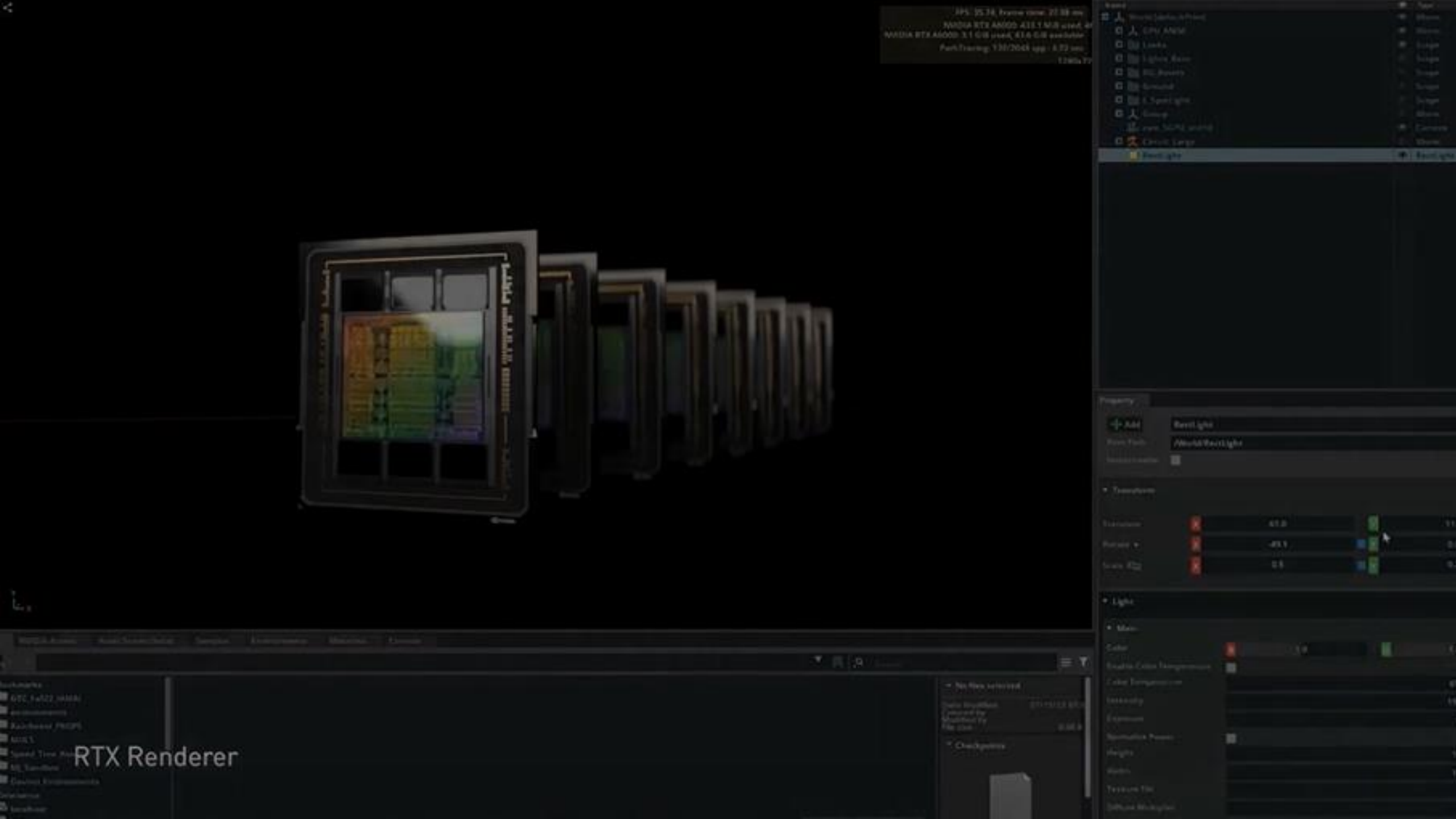
Omniverse Physics, VDB

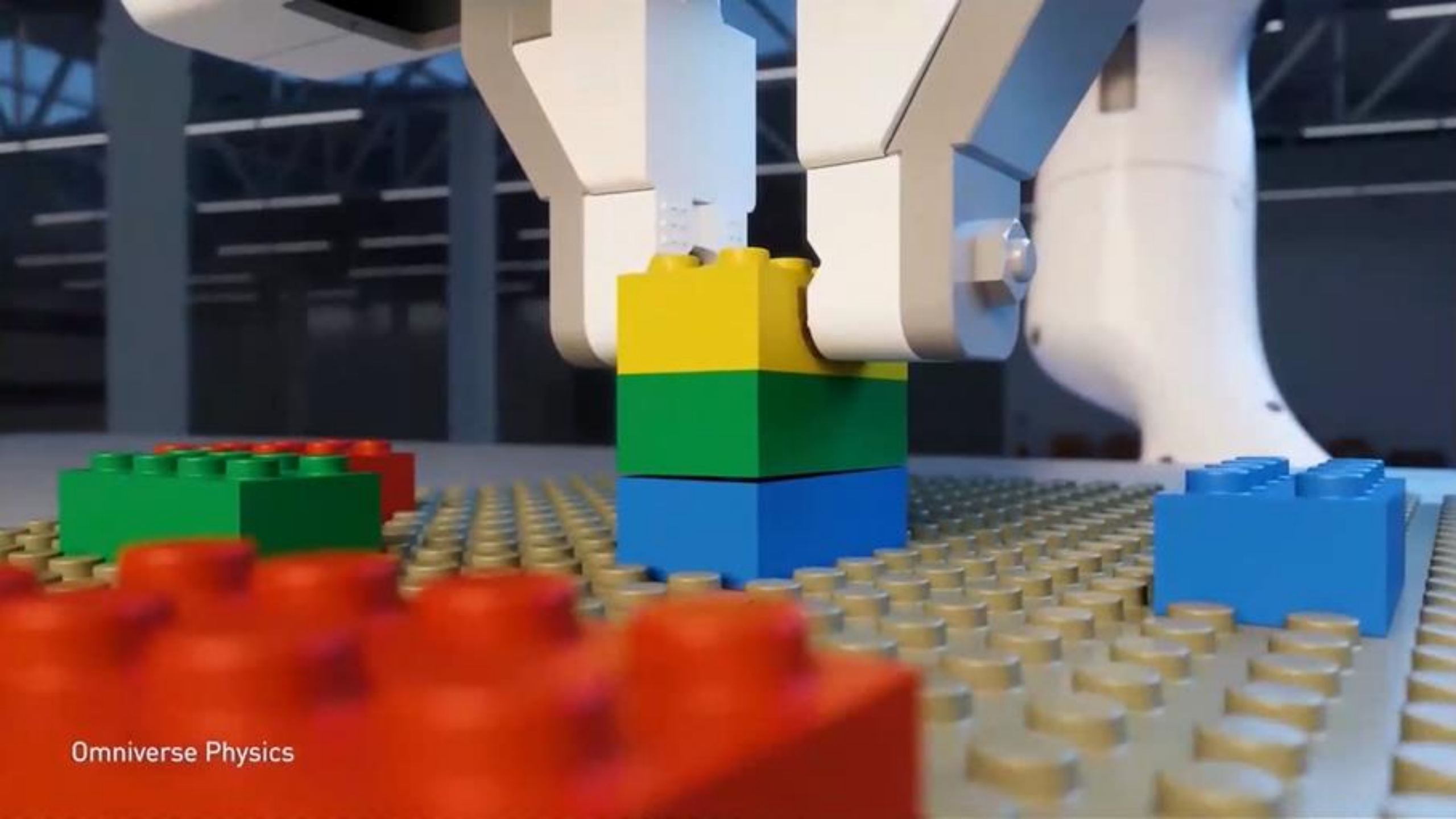

Perspective
RTX - Real-Time
Root Layer
FPS: 79.50, Frame time: 12.58 ms
NVIDIA RTX A3000 Laptop GPU: 2.3 GiB used, 2.8 GiB available (0)
Host Memory: 21.2 GiB used, 10.5 GiB available
1280x720
Brush Settings
Radius
Strength
Buildup
Stamp Distance
Falloff
Pattern
Property
Add
Transform
Translate
Rotate
Scale
Content
C:/Omniverse/
NVIDIA Warp Sculpt Tool

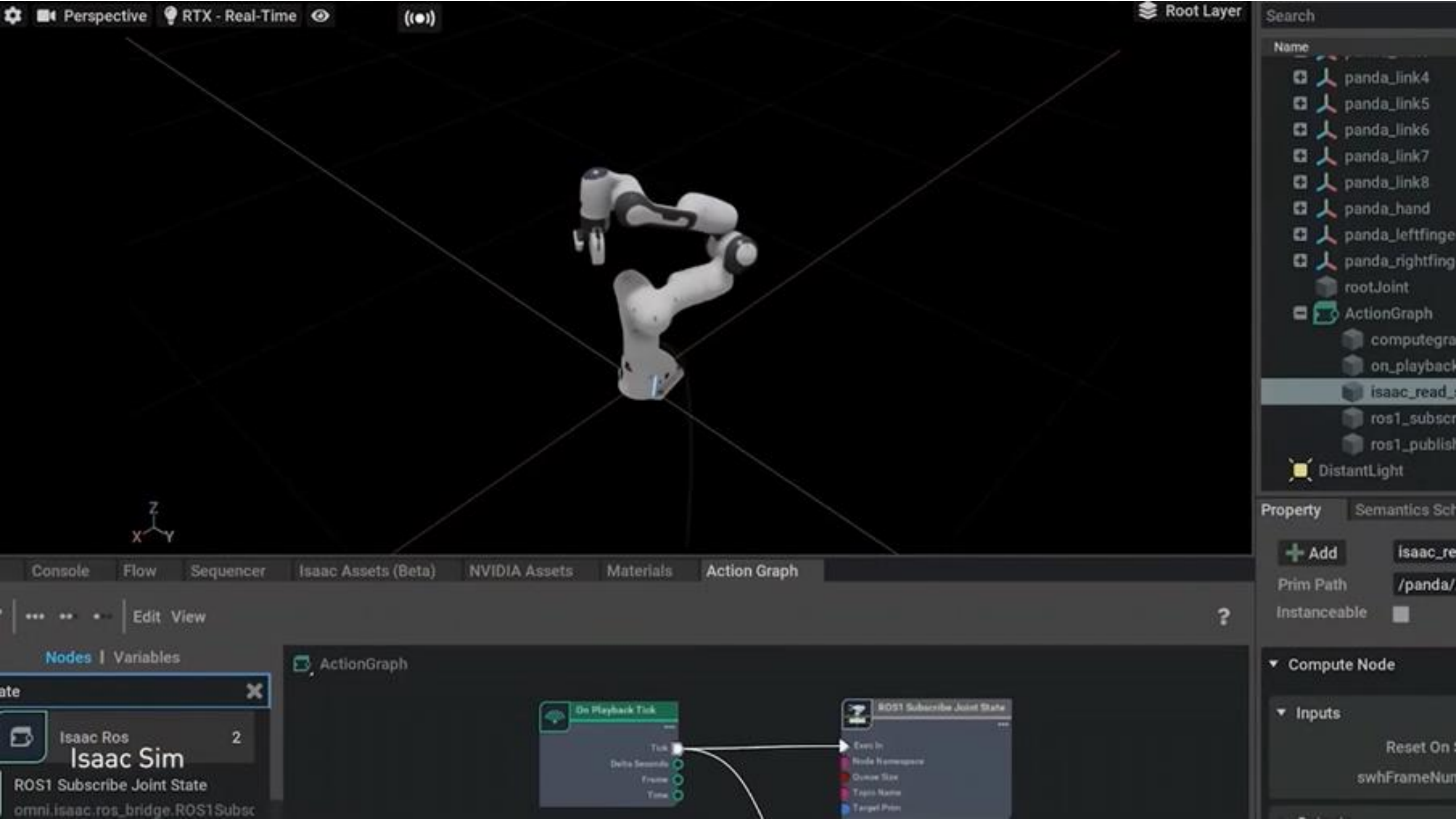

Omniverse Farm

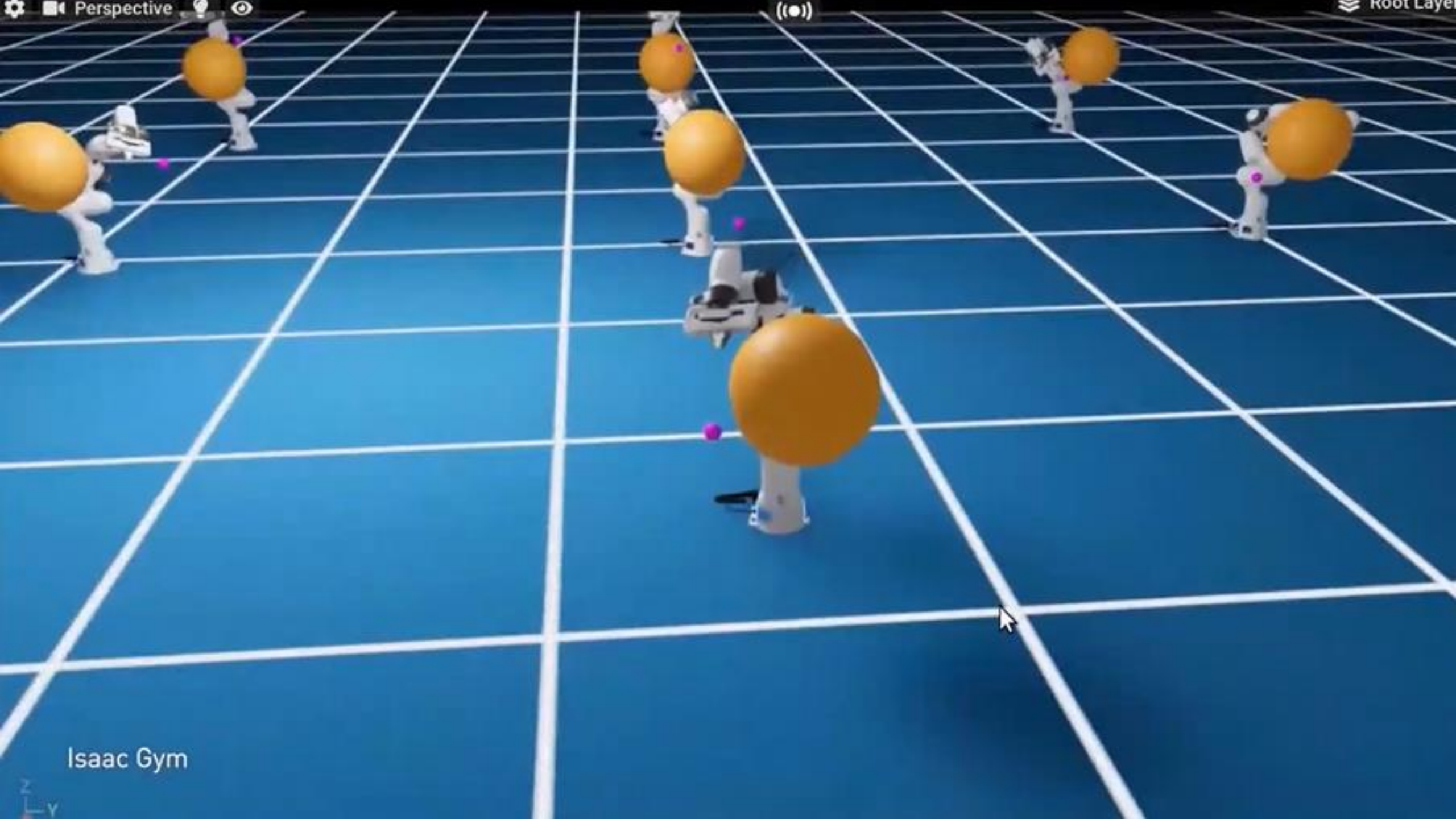
Environment Browser

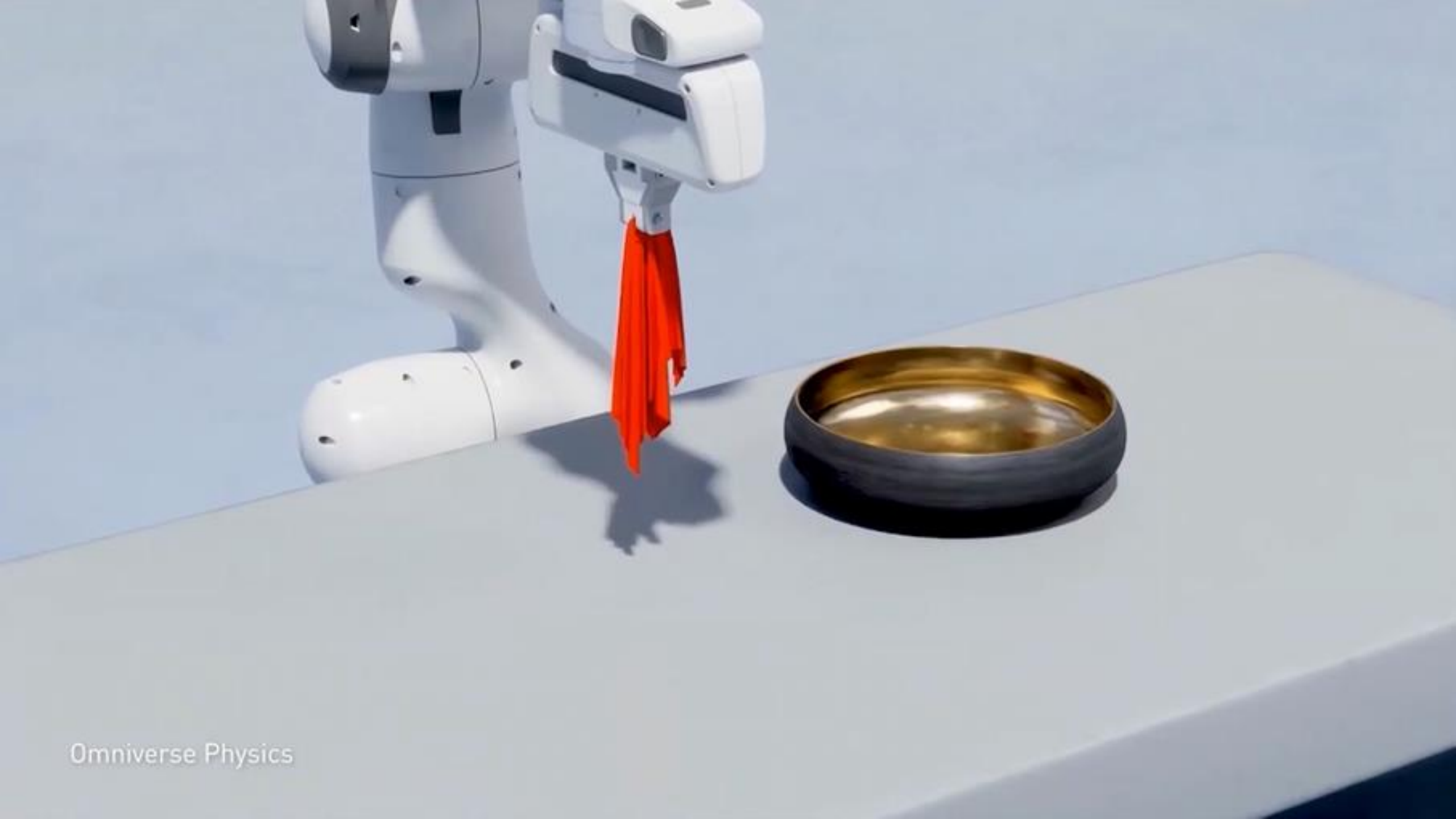

Omniverse Create


RTX Renderer


Omniverse Physics


Perspective
RTX - Real-Time
Root Layer
Search
Name
panda_link4
panda_link5
panda_link6
panda_link7
panda_link8
panda_hand
panda_leftfinge
panda_rightfing
rootJoint
ActionGraph
computegra
on_playback
isaac_read_
ros1_subscr
ros1_publish
DistantLight
Property
Semantics Sch
Add
isaac_re
Prim Path
/panda/
Instanceable
Compute Node
Inputs
Reset On
swhFrameNum
Console
Flow
Sequencer
Isaac Assets (Beta)
NVIDIA Assets
Materials
Action Graph
Edit
View
Nodes | Variables
ActionGraph
Isaac Ros
2
Isaac Sim
ROS1 Subscribe Joint State
omni.isaac.ros_bridge.ROS1Subsc
On Playback Tick
Tick
Delta Seconds
Frame
Time
ROS1 Subscribe Joint State
Exec In
Node Namespace
Queue Size
Topic Name
Target Prim


Perspective
Isaac Gym


Omniverse Physics

Content

Isaac Gym, DeXtreme

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image_rgb

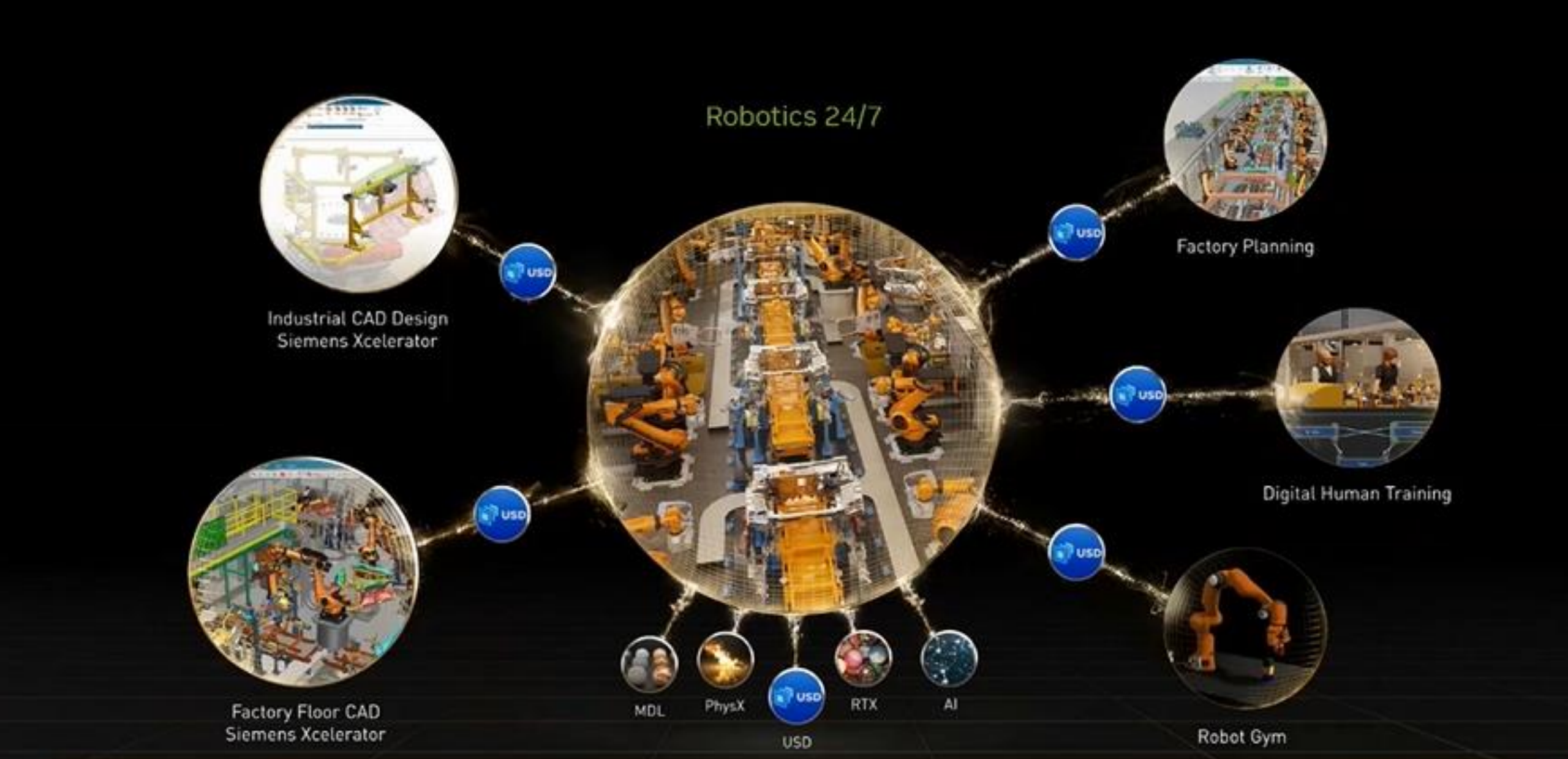
NVIDIA Earth-2

Omniverse Create XR

Toy Jensen

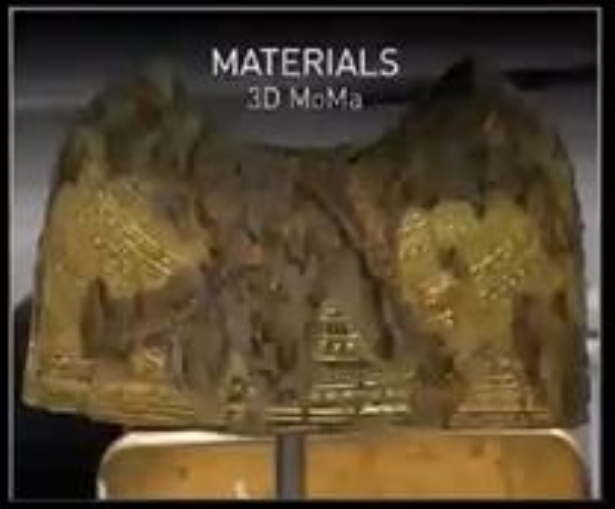
NVIDIA'S JOURNEY FORWARD

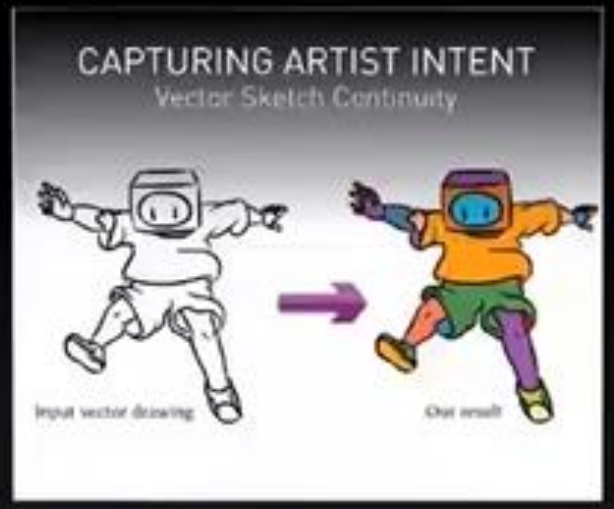
UPDATES FROM SIGGRAPH 2022



NVIDIA OMNIVERSE – USD COMPUTING PLATFORM FOR 3D WORLDS

Enterprise AI





NEURAL GRAPHICS ARE REDEFINING VIRTUAL WORLD CREATION & SIMULATION

AWN

Compatibility Testing Suite

glTF Plugin

Intl Character Sets (UTF-8)

MDL Schema

Hosting Builds

PyPI

CAD Converters

Real Time Proceduralism

High Speed Updates

Python 3

USD Physics

Geospatial Coordinates (WGS84)

Run in Browsers

Real Time IoT Streaming

2020

NVIDIA IS INVESTING IN THE FUTURE OF USD

“NVIDIA Pushes the Envelope for Virtual Worlds and Digital Humans”

SiliconANGLE

ABOUT GLOBAL INSTITUTE FOR DIGITAL COMPETITIVENESS

INSTITUTO DE INVESTIGACIÓN TECNOLÓGICA DE ALTO IMPACTO

GLOBAL INSTITUTE FOR DIGITAL COMPETITIVENESS

One goal,
Create value through technology.

Through 5 different specific strategies:

1. **Spread and promote the use of technologies** to increase the efficiency of organizations regardless of their geographic location.

2. **Connect the organizations and exercutives to create more value,** sell more in an **omnichannel** and geopolitically fragmented world.

3. Work together with **authorities and institutions** to **remove barriers to technologies and trade**.

4. **Bringing experts, knowledge and cases** to communities or regions with little access to technological knowledge and digitalization to make opportunities inclusive.

5. **Establish Committees by type of technology** to share uses, applications, as well as groups that want to interact, collaborate and test new applications in the practical field.

Accompanied by international senior leaders who manage committees

1st committee	2nd committee	3rd committee	4th committee
Smart Cities, Sustainability& 4.0 Industry, Public Policy, E-government & Cybersecurity	Blockchain and NFT. Digital Economy, and Artificial Intelligence.	Data Science & Big data, HR & Well-being Technologies, Education Technology	Metaverses, Immersive Technologies (AR, 3D, MR, VR), Omnichannel Experiences & Digital Commerce
Governments, Int. Organisms	CTOs, CDOs, CIOs	CRHOs, COOs, CHOs.	CEOs, CMOs. CSOs.

Macro ---------- Technology applications ---------- Micro

Affiliates will live an international Digital experience

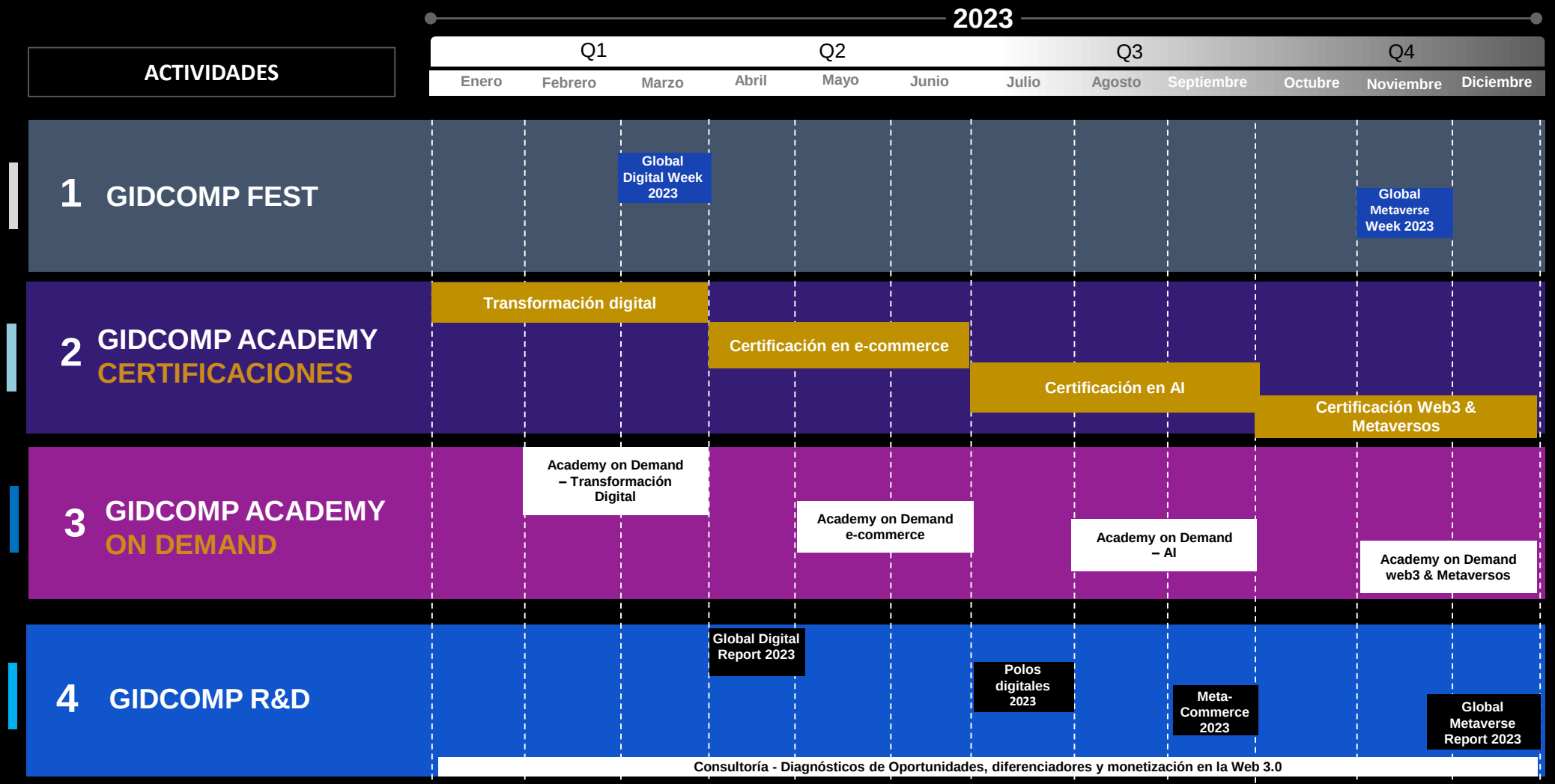
Meetings will be held every 15 days as follows: E.g., Metaverse Committee

Channel	Time	Attendees	City	Face-to-face host
Metaverse	1.5 hours	10		
Face-to-face	30 min	4	CDMX	Sura
		2	Bogota	Coats
		4	Madrid	Let me Park

ANNUAL OBJECTIVES OF THE COMMITTEES:

- Publish trends by technology.
- Collaborations with the media.
- Working papers.
- Video Cases and documentaries.
- International networking.
- Coordination of Roadshows.
- Recognition of executives
- Exposure of the brands that collaborate in the integration of knowledge.

Calendario GIDCOMP 2023



Actividades de responsabilidad social de acceso al público, vía streaming y plataformas tecnológicas con marcas co-organizadoras.

GIDCOMP with its purpose of contributing to reduce the global digital divide holds several international festivals inviting Senior leaders to share and inspire people to create value and generate experiences in Web 3.0 with new technologies.

1 GIDCOMP Immersive Festivals

GLOBAL DIGITAL WEEK 2023

+ 100 experts

Check international experts

Day 1. Smart Cities
Day 2. Public policies
Day 3. Digital Commerce
Day 4. Disruptive Business
Day 5. Wellness Technologies

From March 27 th to March 31st, 2023

GLOBAL METAVERSE WEEK 2023

+ 100 experts

Check international experts

Day 1. Immersive technologies
Day 2. Omnichannel
Day 3. NFTs and Blockchain
Day 4. 3D and Web 3.0
Day 5. Immersive experiences

From November 11th to November 15th 2023

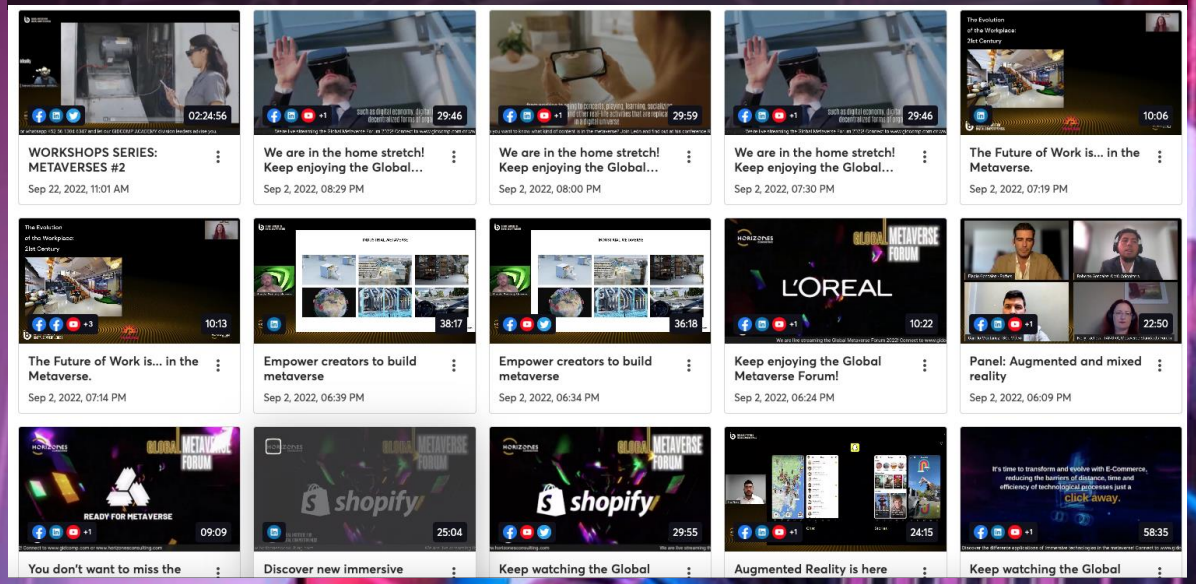
2 Digital Knowledge Bank

www.gidcomp.online

+200 Replays:
Keep your brand leaders up to date on technology trends.
Global Digital Week 2022-2023 Replays
Global Metaverse Week Replays 2022-2023

Marketplace for technology providers.
Don't miss the opportunity to be in touch with the leaders of large companies and organizations, get in touch with the leading brands!

The committees via their member brands will continuously broadcast the advances and trends in order to continue showing new applications to the audience and at the same time will be strengthening the digital knowledge bank for affiliates, which currently has more than 200 conferences, Mini MBA on demand, master classes, MOOCs, with more than 200 uninterrupted hours of content.



3 GIDCOMP ACADEMY

The Academy Division seeks to bring international practice experts together to share their pragmatic and tactical execution insights with leading global companies.

The main mission is for executives to develop practical skills in order to increase the efficiency and sales of brands.

CERTIFICATION IN IA APPLIED TO MARKETING AND BUSINESS

Certification in AI for marketing and sales aims to help decision makers maximize results, optimize budgets, predict customer behavior, study, define and segment users, predict audiences and improve operational efficiency.

Certification options

A.Certification via applied project.
Mentors who are leaders in the subject matter of the project

B. Immersive certification in Dubai.
Includes visits to companies in the city, developing a proposal applied to your company.

NEXT START DATES

Summer 2023

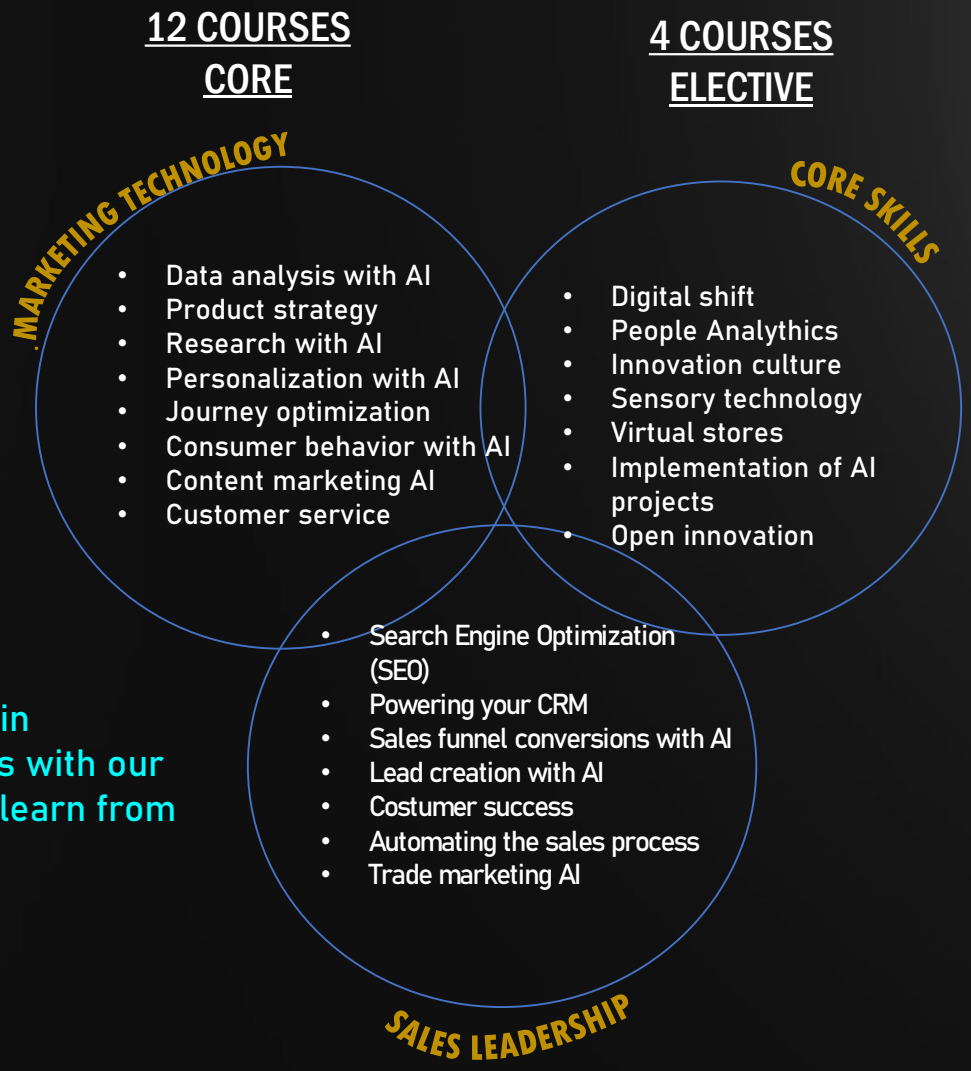
Start: July 1st

Admissions closing MAY 15TH

Contactar aquí

"Boost your career in Marketing and Sales with our AI certification and learn from global brands."

16 COURSES TO BECOME AN EXPERT



4 GIDCOMP R&D

Trend Studies, Reports and Digital Labs

Global Metaverse Report 2022
Release due November 2022

Global Digital Report 2023
Release due February 2023

Meta Commerce 2023 Release due June 2023

Polos digitales 2023
Release due November 2023

BRAND POSITIONING AND PRESENCE IN THE METAVERSES

1. CONTACT WITH CONSUMERS - ESTEFANÍA YAGÜEZ, HEAD DE CONSUMER INTELLIGENCE DE L'ORÉAL
2. MARKETING Y BRANDING – FERNANDO CANO, MANAGING DIRECTOR DE HAVAS METAVERSE

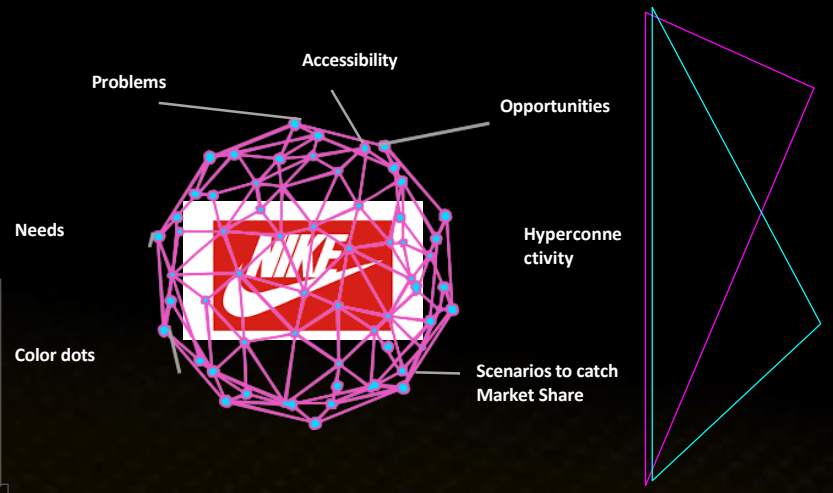
OMNICHANNEL TRADE

1. VIRTUAL STORES – JONATHAN MÁSMELA, CEO OF LA COLONIA
2. SELLS IN THE METAVERSES– THORSTEN WALTHER, CEO OF INSPIFY

MASSIVE METAVERSES

1. VIRTUAL COMMUNITIES MANAGEMENT, DANIELLE MCCONNELL, CMO FROM VIRTWAY
2. SPECIALIZED METAVERSES SORAYA CADALSO, CEO OF UTTOPION

Note: Clic on the links to watch the international leaders' lectures.



ILLUSTRATIVE EXAMPLES

Market fit. Short-term

- Incorporate technology applicatives
- Prioritization in terms of sales impact

Market fit. Medium-term

- Being the first to incorporate technologies
- Prioritization in terms of sales impact

Current Portfoilio
1. Sneakers
2. Clothes
3. Accessories

Adapted portfolio (médium-term)
1. NIKELAND
2. Clothes with technology applicatives
3. Monitor accessories

Exemple: NIKE of non-exhaustive business units.

Technology adoption diagnostics

Some brands that are part of our international ecosystem

Reasons to join GIDCOMP:

1. To receive information on Business Intelligence and Technology trends
2. To leverage existing technology (leapfrog)
3. To generate networking / community
4. To have visibility of the applications in the use of technologies
5. To keep you informed and up to date with the latest news
6. To receive support or consulting
7. To train my team to face new market challenges.
8. To generate a relationship with Authorities
9. Access to +200 Mentors from 52 countries and presentations of their models at the Global Digital Week & Global Metaverse Forum.

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How to become a member?

Send us an email to **be.digital@gidcomp.org** or a WhatsApp to: **+52 56 1463 3902**
The GIDCOMP seeks to unite and relate organizations linked to the international technological ecosystem to promote and develop digital capabilities in any location in the world.
The membership begins with the date of accreditation of payment in the bank account.
Valid 12 months from the date of payment.
Renewals begin to run from the expiration date of the current membership.

More Information

Our network of member Institutes promotes Innovation and Technology as factors that allow human and organizational progress and improve our lives. We contribute to supporting causes with our core business through Corporate Social Responsibility actions that are carried out through the Consultores sin Fronteras Foundation and the Global Institute for Digital Competitiveness www.gidcomp.org We also believe in respect for Human Rights and not We do not discriminate in any program, activity, or person on the basis of sexual preference, income, religious preference, race, color, national origin, age, gender, or disability. GIDCOMP© All Rights Reserved 2023.