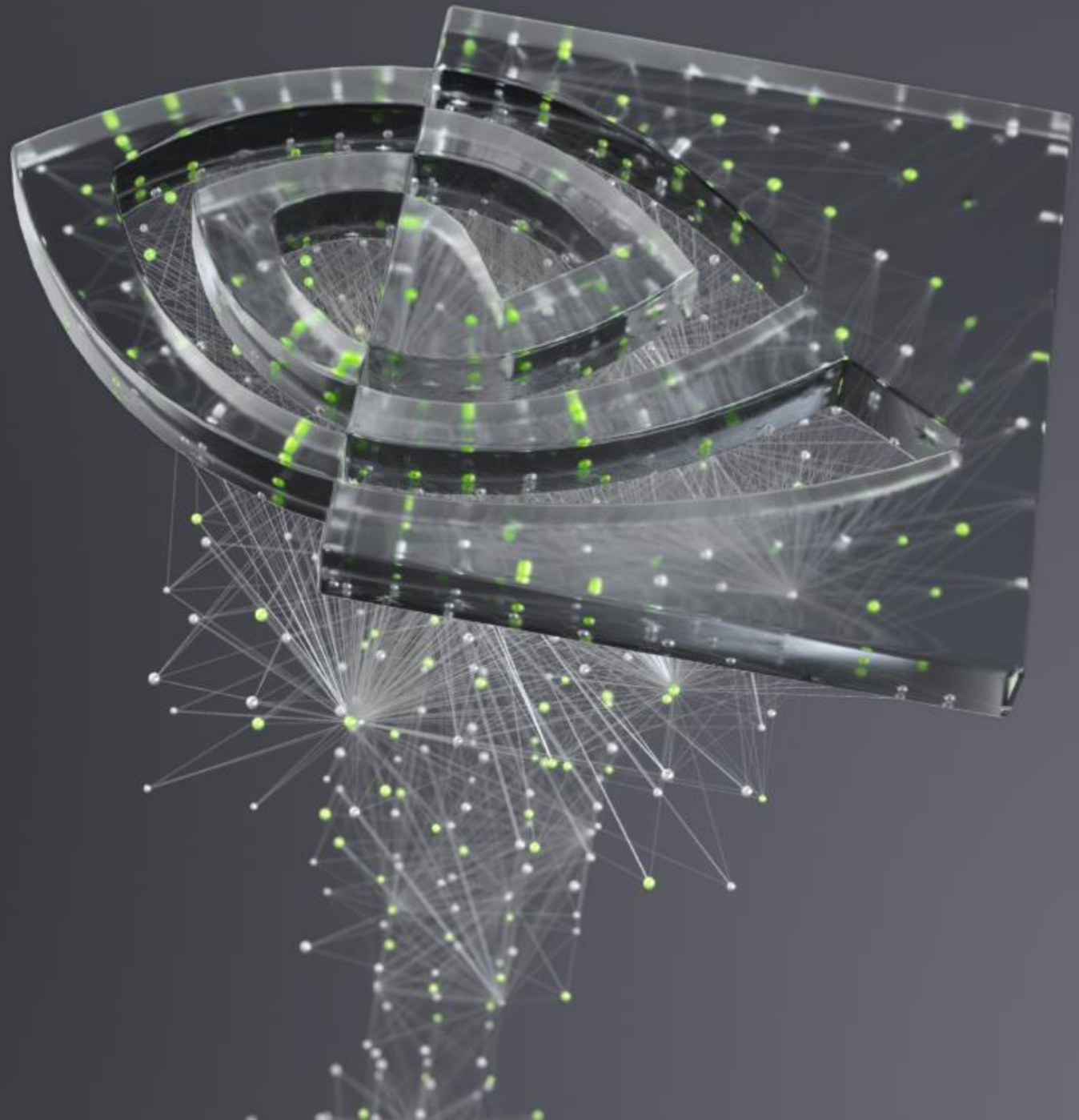


ISAAC & OMNIVERSE

ALISON B LOWNDES


New Datacenter (2020)
NVIDIA Voyager (2021)
NVIDIA Endeavor (2017)
Original NVIDIA Campus

NVIDIA SELENE

Now Featuring NVIDIA DGX A100 640GB

4,480 A100 GPUs

560 DGX A100 system

850 Mellanox 200G HDR switches

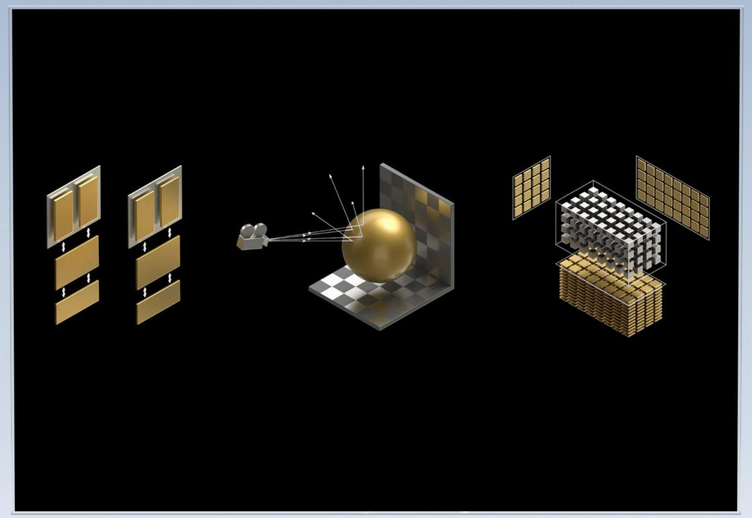
14 PB of high-performance storage

2.8 EFLOPS of AI peak performance

63 PFLOPS HPL @ 24GF/W

NVIDIA AMPERE — A GIANT LEAP

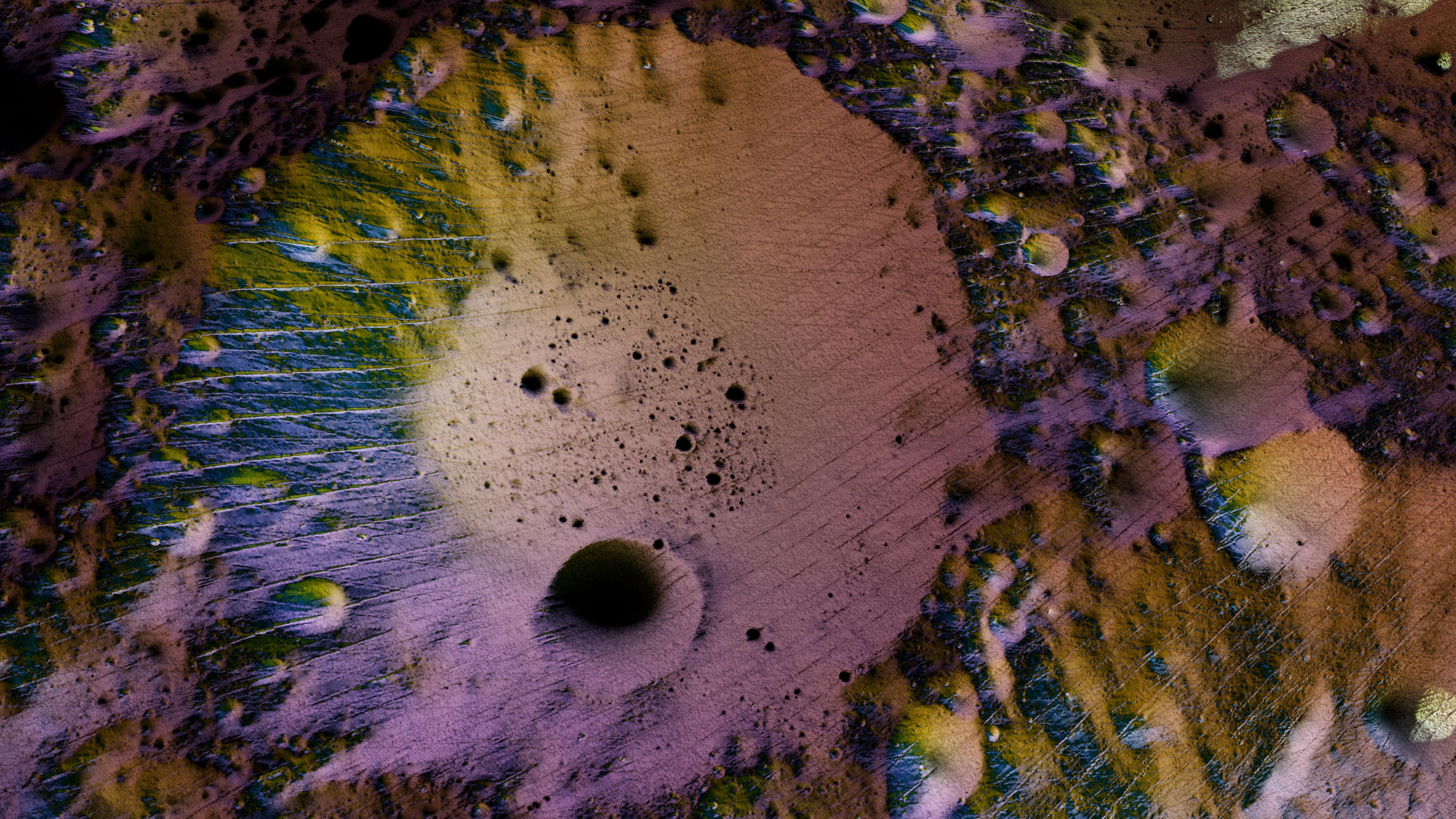
RAY TRACING — THE NEW STANDARD

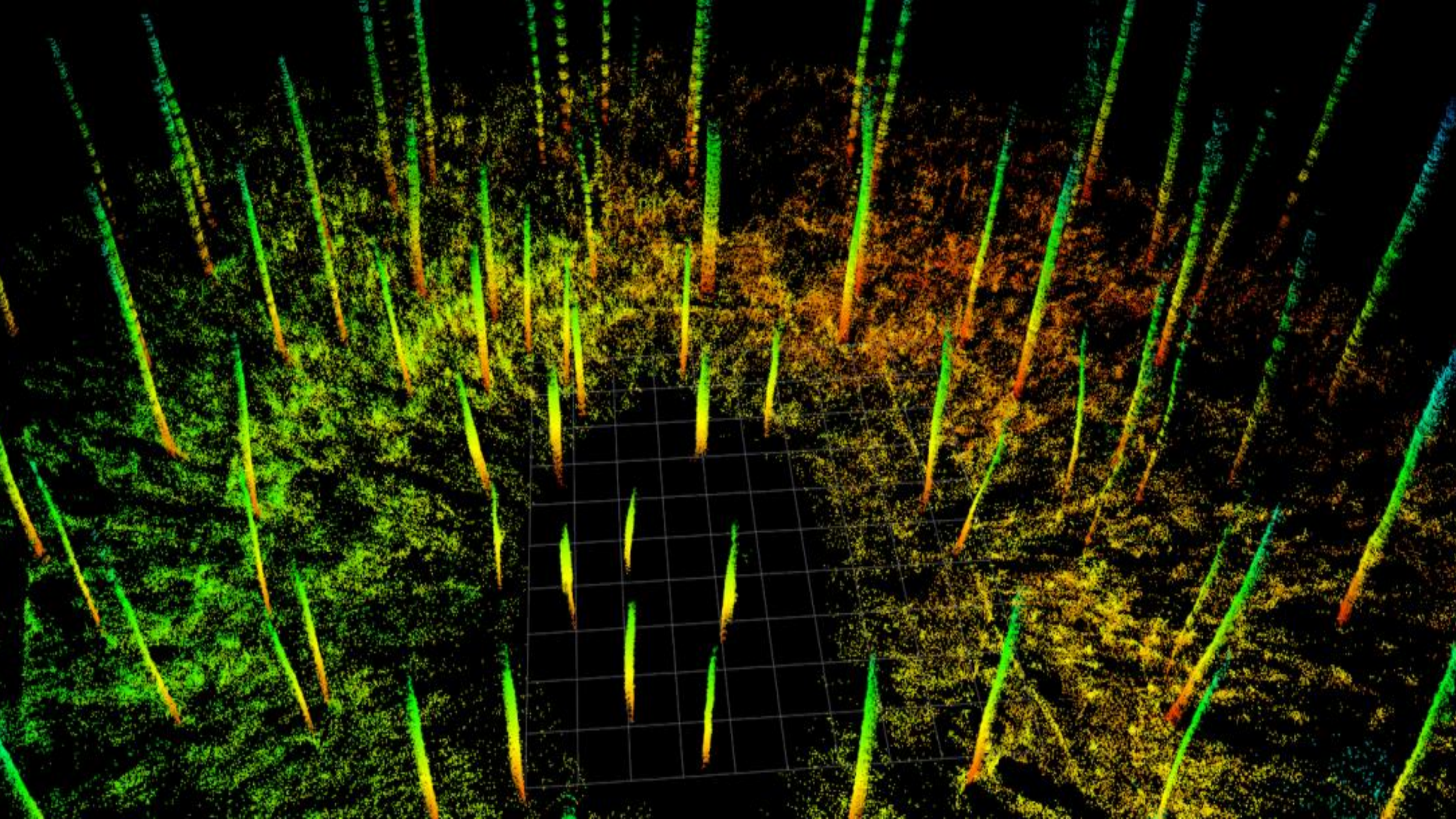


2nd GENERATION RTX

INFINITE WAYS TO PLAY

GeForce RTX
3090
3080
3070





AI FOR EDGE SYSTEM

For the most critical robotics / embedded applications

Network Video Recorder

Machine Vision / AOI

Home /Service Robots

AIoT

JETBOT AI ROBOT KIT

Driven by AI. Powered by Jetson Nano

~$250 DIY Autonomous Deep Learning Robotics Kit

Programmable through Jupyter Notebooks

Trainable DNNs for obstacle detection, object following, path planning, and navigation

ROS support and Gazebo simulator available

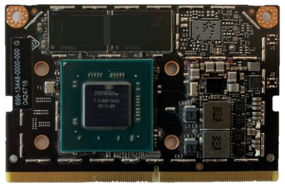
JetBot: jetbot.org

JETSON DEVELOPER KITS

THE JETSON FAMILY

For AI at the Edge and Autonomous System designs

JETSON NANO
0.5 TFLOPS (FP16)

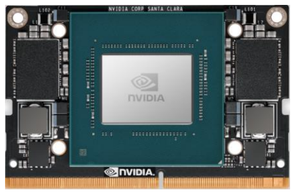


5 - 10W
45mm x 70mm

JETSON TX2 series
1.3 TFLOPS (FP16)

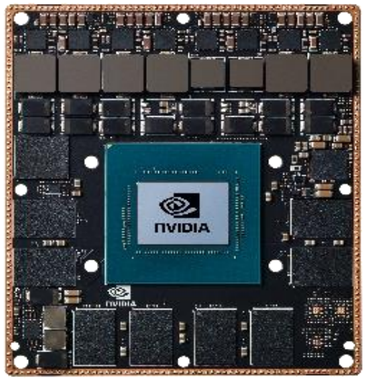
7.5 – 15W*
50mm x 87mm

JETSON Xavier NX
6 TFLOPS (FP16)
21 TOPS (INT8)



10 - 15W
45mm x 70mm

JETSON AGX XAVIER series
11 TFLOPS (FP16)
32 TOPS (INT8)



10 – 30W
100mm x 87mm

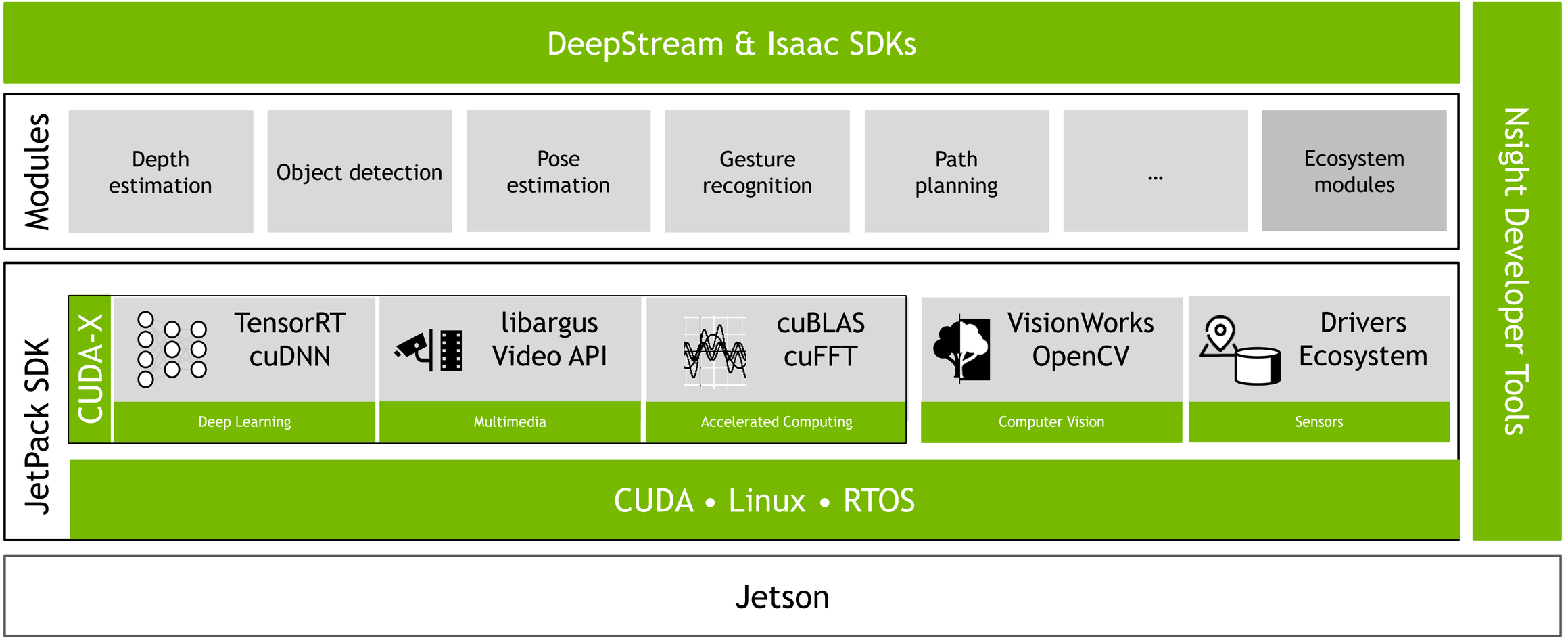
AI at the edge — Fully autonomous machines

Same software

Full specs at developer.nvidia.com/embedded-computing

* TX2i: 10-20W

JETSON SOFTWARE



Jetson software: developer.nvidia.com/embedded/jetpack

NVIDIA ISAAC SDK

Optimized for Jetson Platform

Isaac Engine

Isaac GEMs

Isaac Applications

Isaac Sim

ISAAC SIM

- Domain Randomization
- Scenario Management
- Sensor Models
- Robot Models

ISAAC Apps

- CARTER (Indoor Robot)
- Kaya (Getting Started)
- Leonardo (Manipulation)
- Custom Applications

ISAAC GEMS

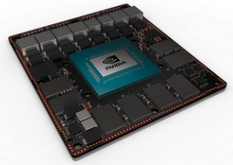
- Multi-class Segmentation DNN
- 3D Object Pose Estimation
- Object Detection DNN
- Stereo Depth
- Stereo Visual Inertial Odometry
- Superpixels
- AprilTags
- 2D Skeleton Pose Estimation DNN
- DeepStream for Robotics
- ORB Feature Tracker
- Sensor Drivers
- Planning and Control
- Image Warping
- Navigation
- Text to Speech and Keyword Detection DNNs
- … and more

ISAAC Engine

- Computational Graph & CUDA Messaging
- Visualization Tools
- Advanced Build System & C API

NVIDIA HW Acceleration

- TensorRT
- cuDNN
- CUDA-X
- RTX
- PhysX



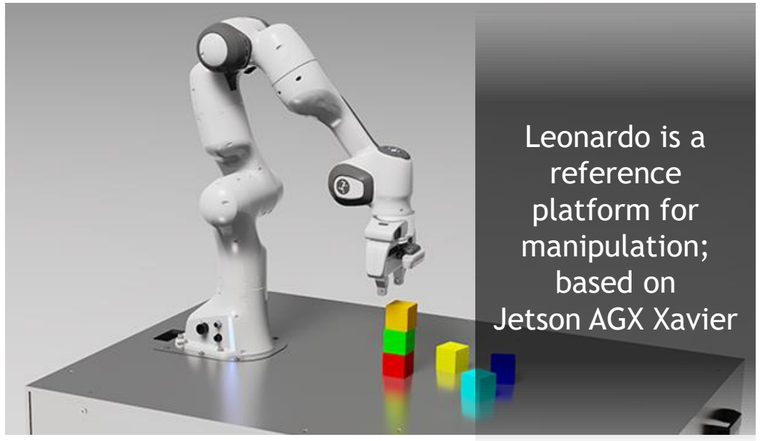
NVIDIA AGX

NVIDIA DGX

HARDWARE REFERENCE DESIGNS

Carter

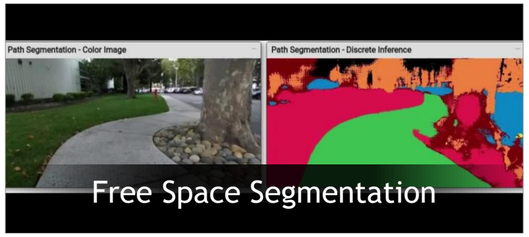
Kaya

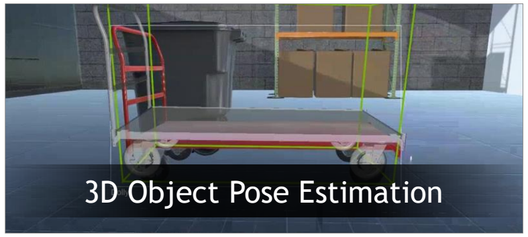


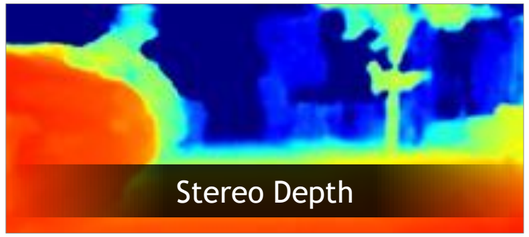
Leonardo

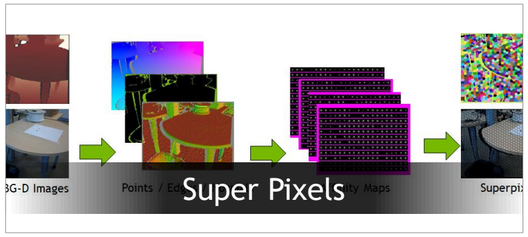
NVIDIA ISAAC SDK

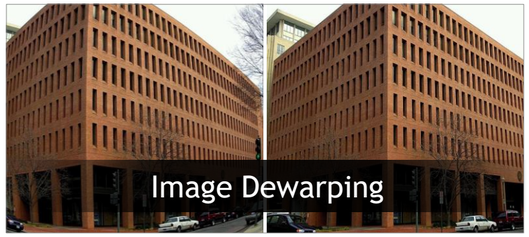
GPU Accelerated Algorithms/DNNs (GEMs)

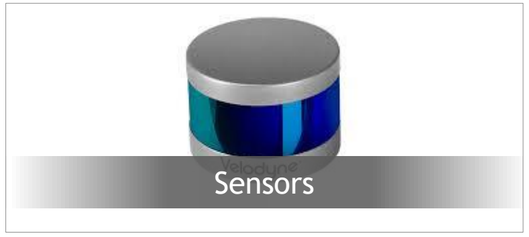


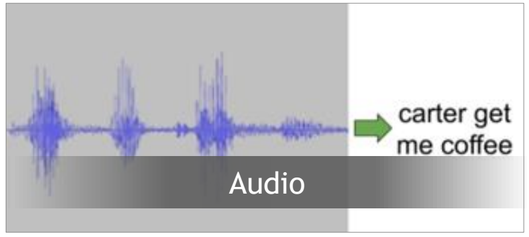












And more…

WE BUILT A SOLUTION FOR OURSELVES

Connect our Teams

Bringing real-time collaborative performance to our teams across the globe.

Streamline our Development

Connecting industry tools, removing the hassle of import and export, and preserving asset security and integrity.

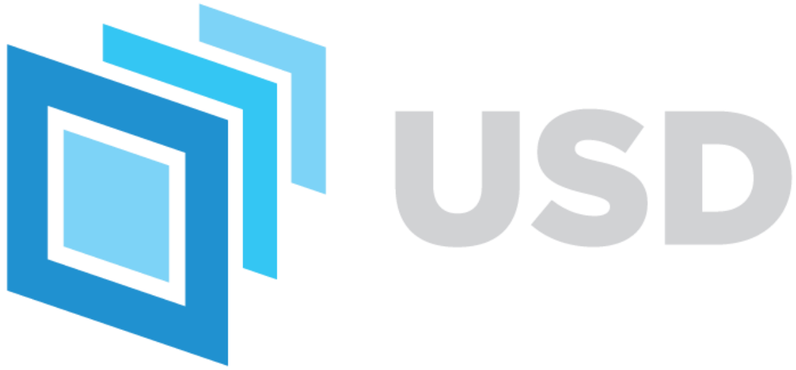
Build Complex Virtual Worlds

Enabling instant use of new NVIDIA technologies like PhysX, Flow, Blast, or new AI SDKs across applications.

THE UNIFYING SIMULATION PLATFORM

OMNIVERSE

CONNECT	NUCLEUS	KIT	SIMULATION	RTX RENDERER
				
Connection SDK / Plugins	Core Services / On Prem / Cloud	Viewer / Editor / Framework	Physics / AI / Animation / Behavior	Realtime / Scalable / Accurate / MDL

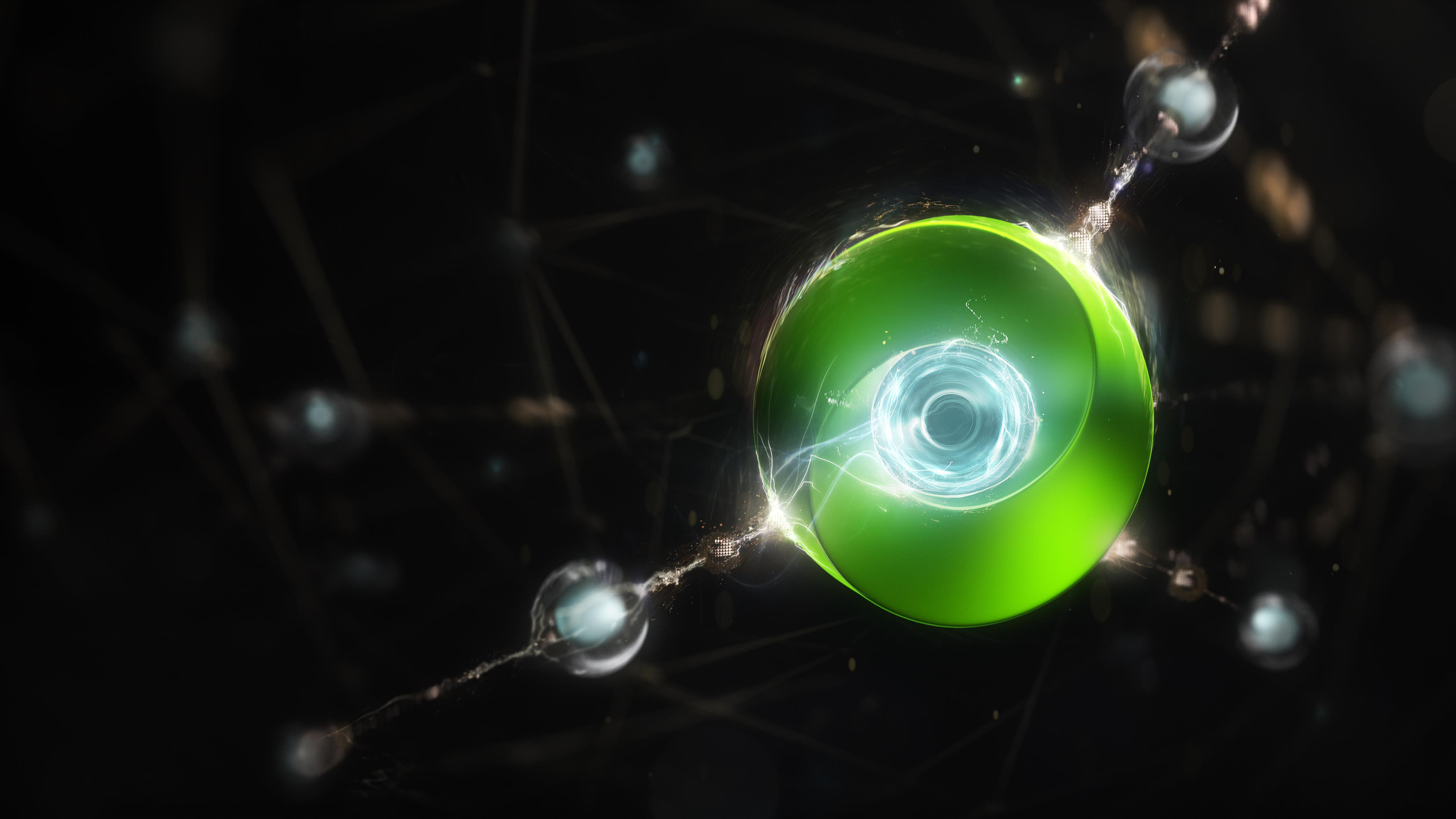


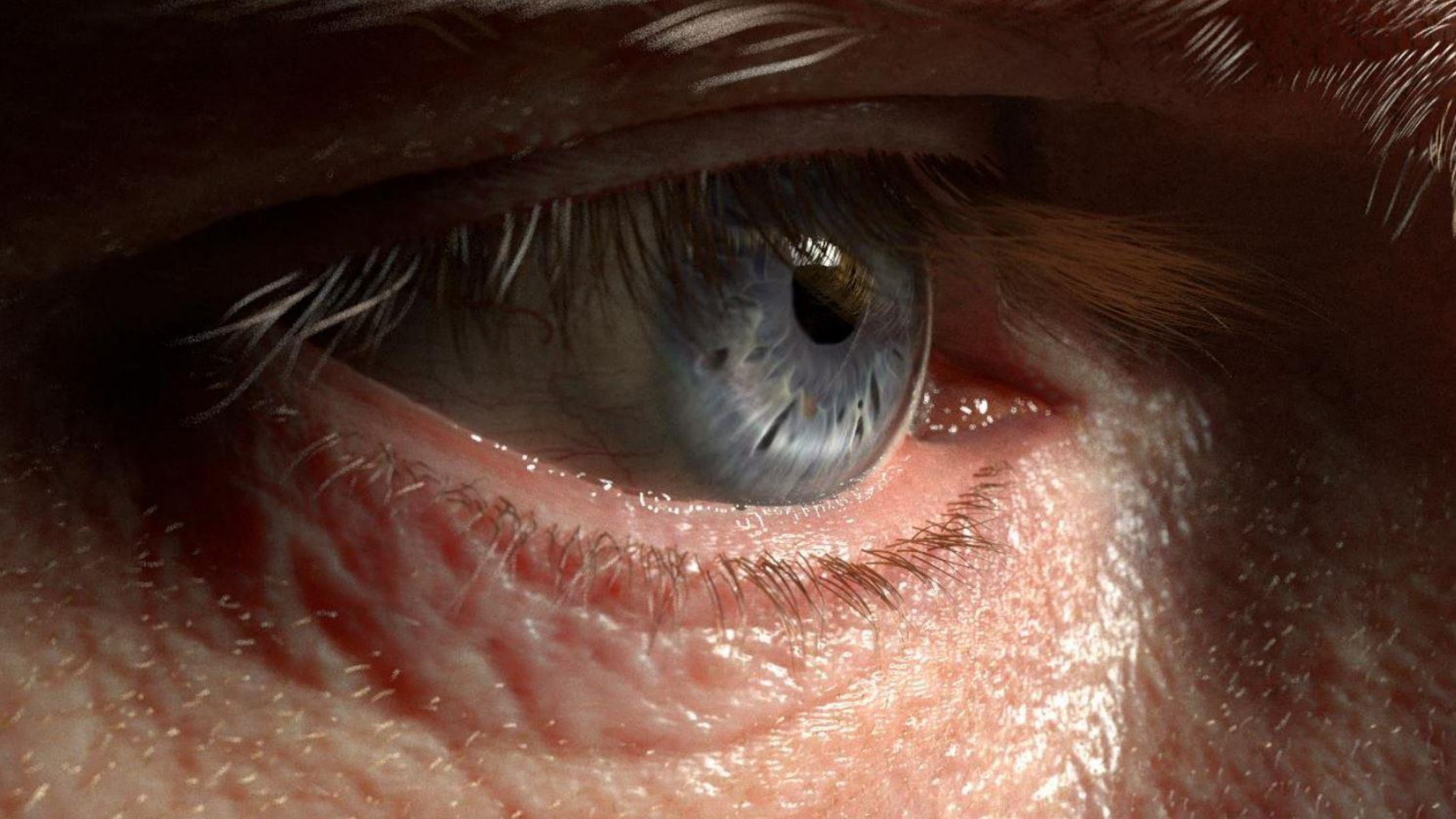
UNIVERSAL SCENE DESCRIPTION

The “HTML” of 3D Virtual Worlds

- Developed by Pixar
- Foundation for NVIDIA Omniverse
- Open-sourced API and file format 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

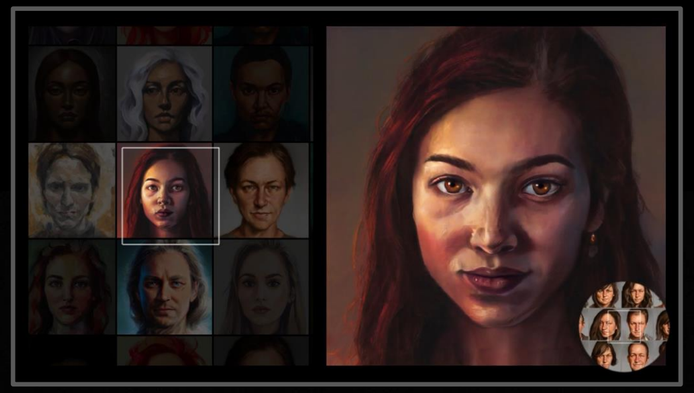
"If the renderer is our brush, materials are the paint through which we see the world".





Adding Physics to USD

THE MAGIC OF DEEP LEARNING



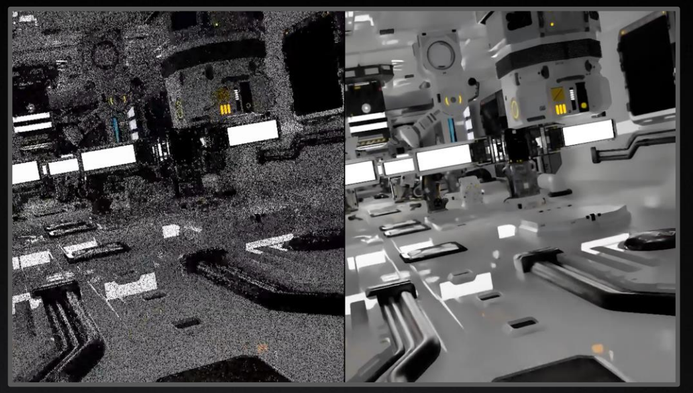
CHARACTER CONCEPTING

AUDIO TO FACIAL ANIMATION

CHARACTER LOCOMOTION

VIDEO TO 3D

PHYSICS SIMULATION



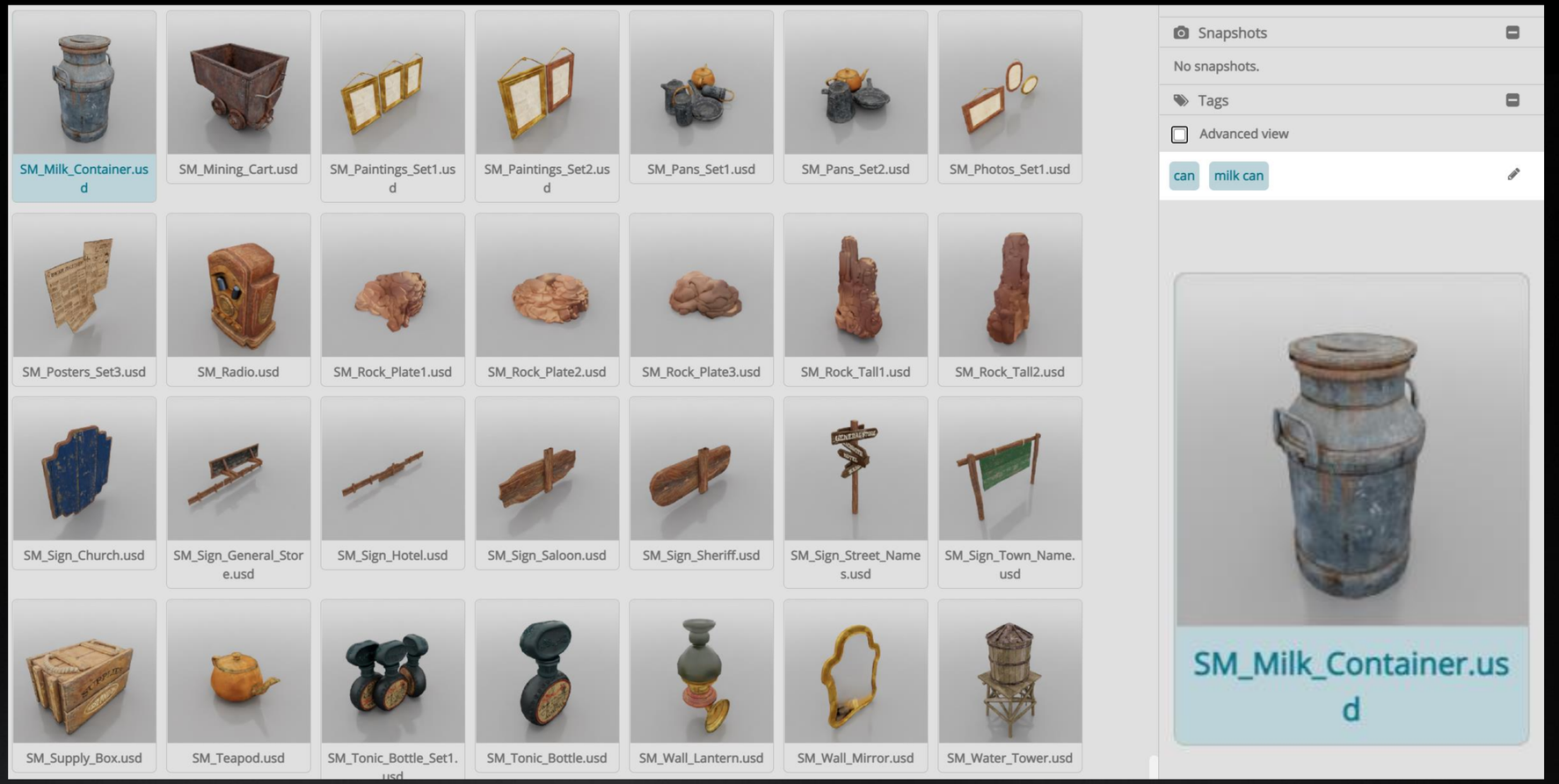
RT DENOISING

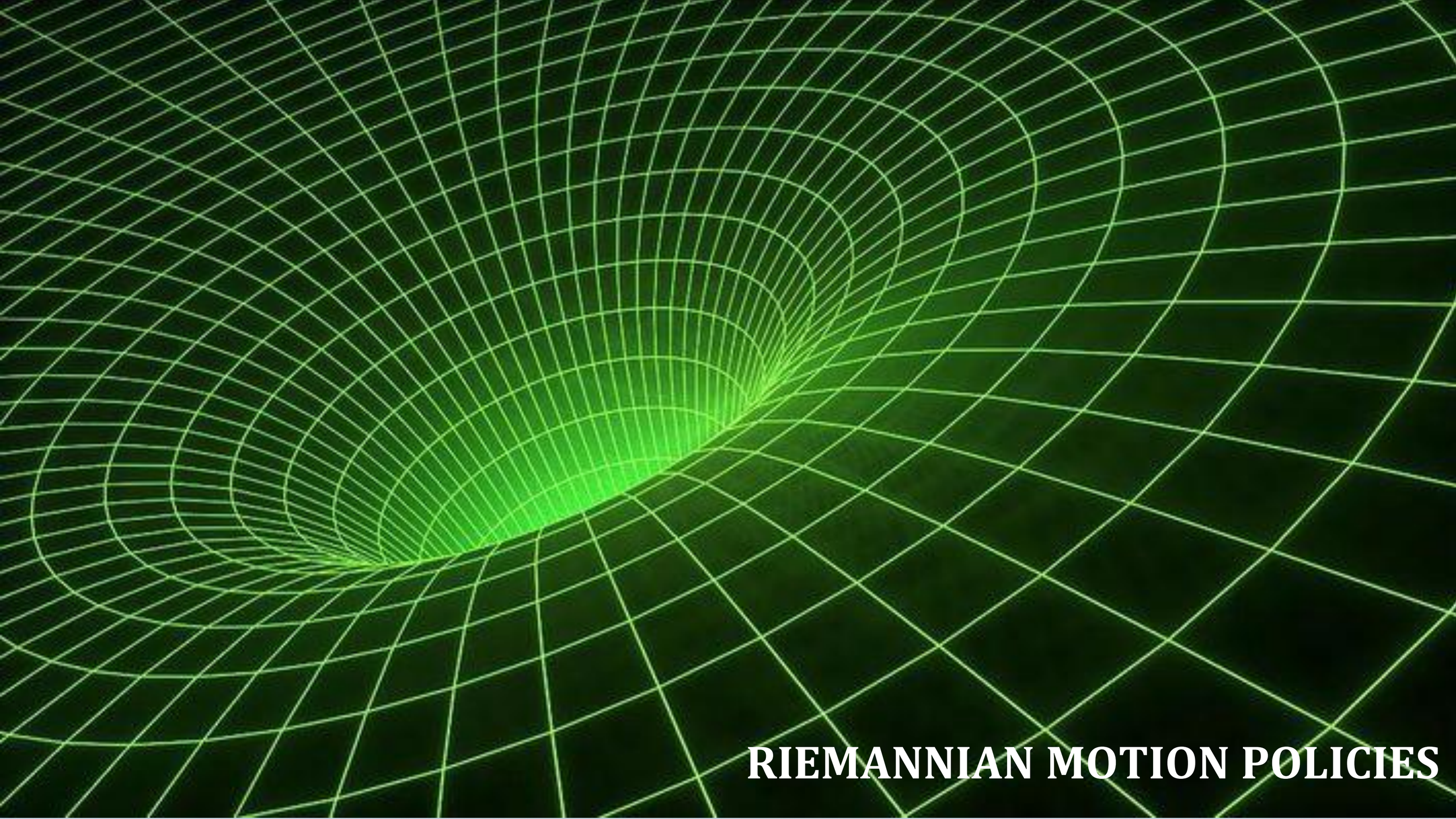
Clothing models from UC Berkeley Garment Library

DEEPTAG

Automatic asset classification and search in Omniverse

- Automatic USD data classification
- Automatic Preview generation
- Tag-based search
- Enterprise service
- Scalability using Kubernetes





RIEMANNIAN MOTION POLICIES

MULTI-LAYER FOR MULTIPLE AUDIENCES

For Creators, Designers, Engineers, Roboticist – and even Gamers

- Use Omniverse Apps tailored to specific workflows
- Ability to access core NVIDIA AI, graphics, and simulation technologies across applications
- Unite preferred software tools, assets, and workloads on a single platform

INDUSTRY USERS

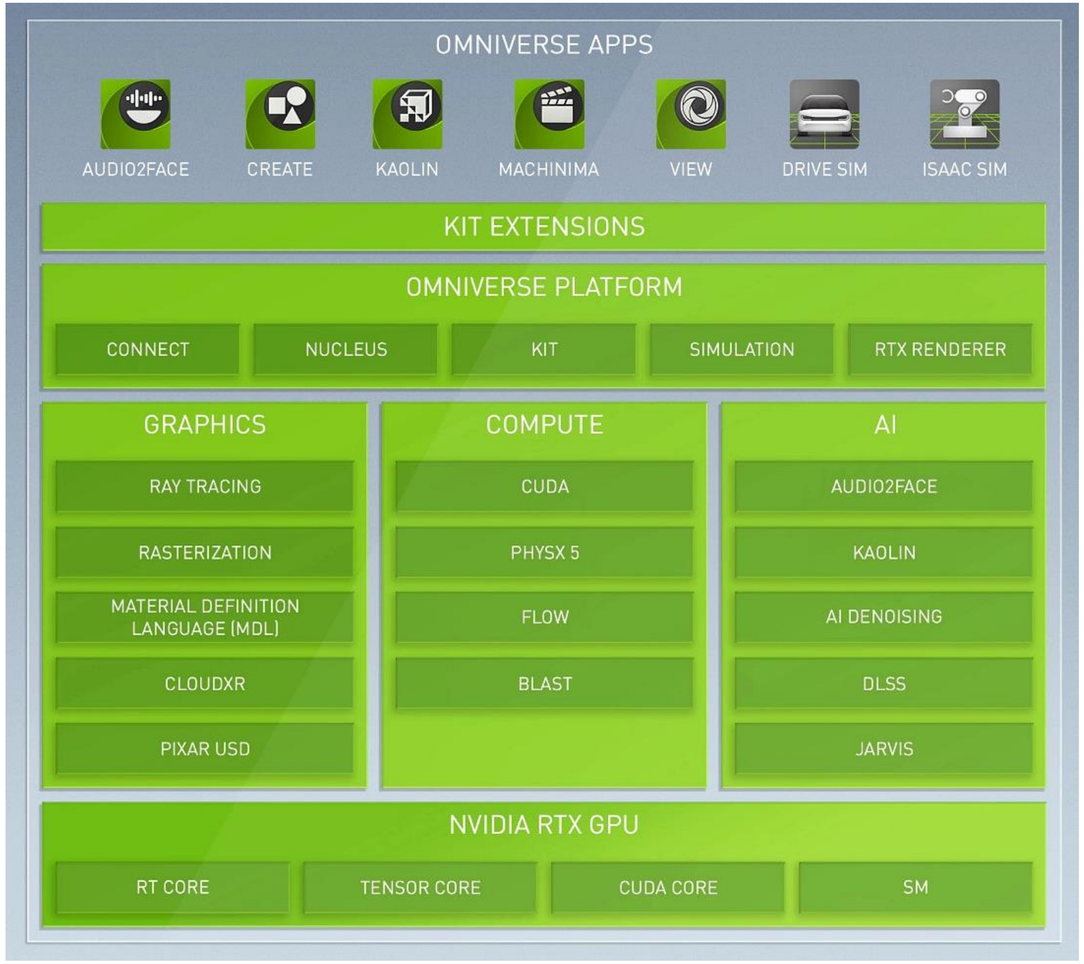
DEVELOPERS, ISV PARTNERS

NVIDIA OMNIVERSE

A PLATFORM BUILT FOR THE FUTURE

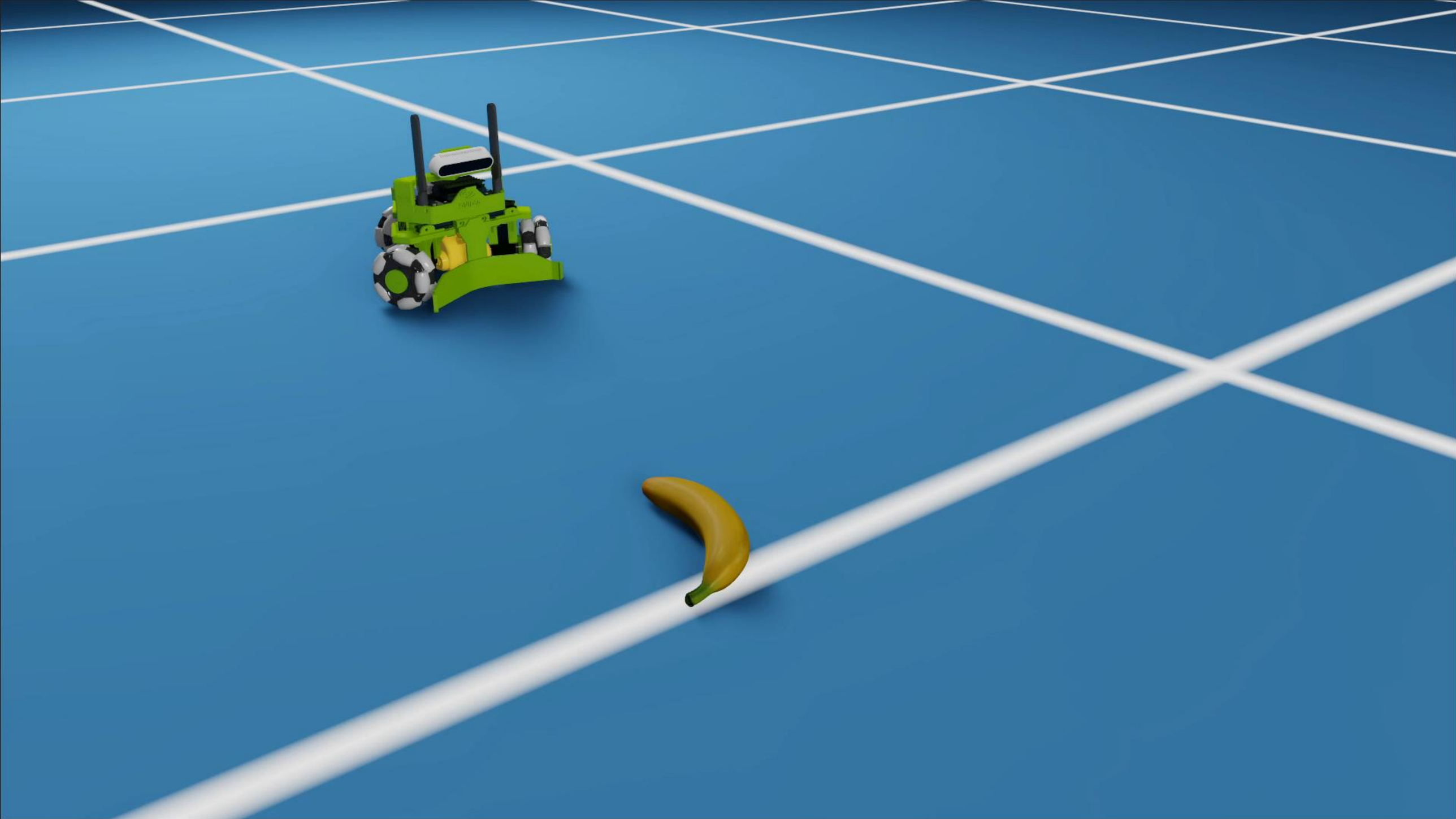
For Creators, Designers, Engineers, Roboticist – and even Gamers

- Cloud-native
- Multi-GPU Enabled
- Open standards for cross-team, tool and workflow collaboration, built on Pixar's USD
- Scalable computing to address all workloads
- Works on all NVIDIA RTX™ solutions, from laptops to data centers

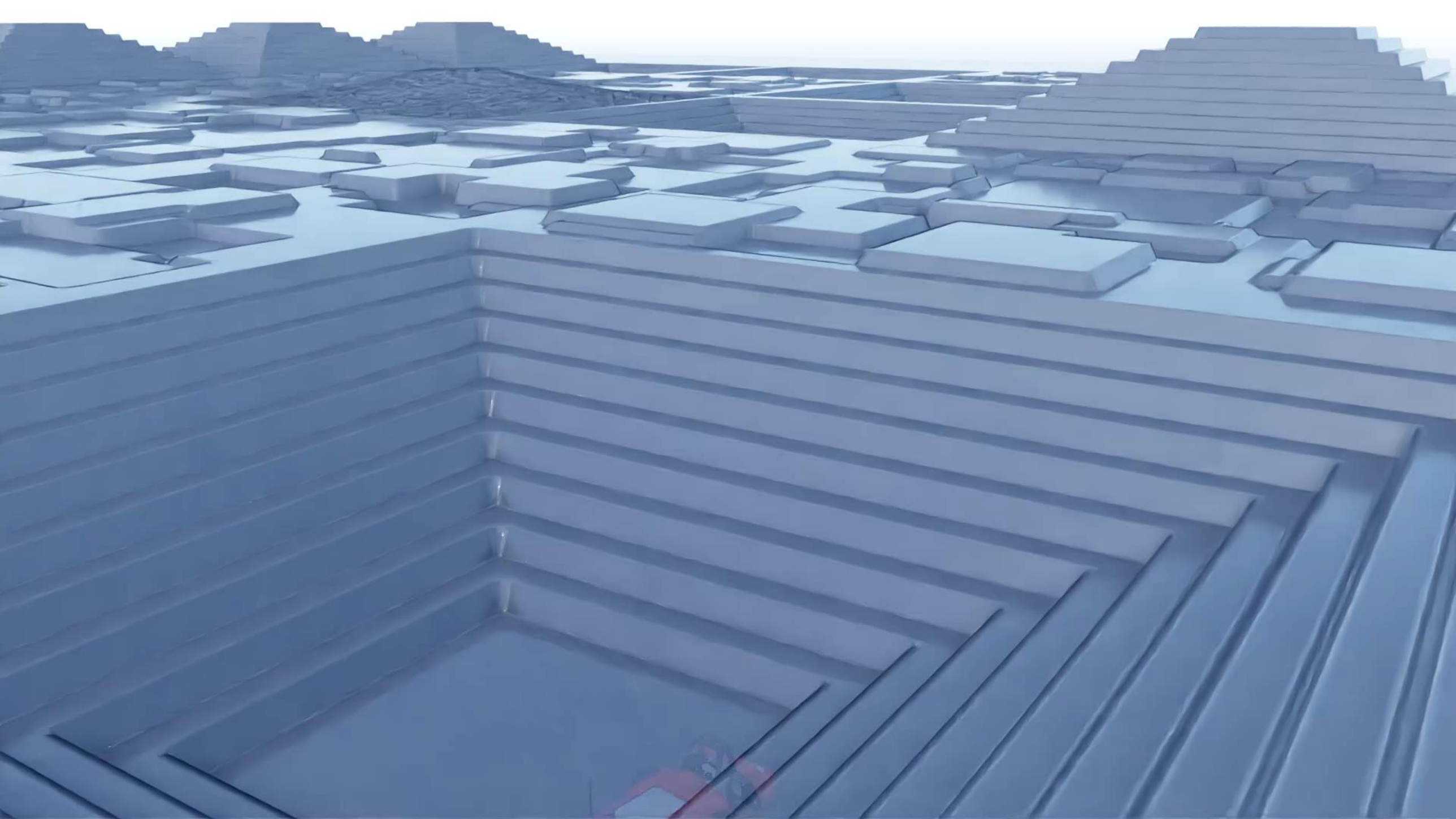


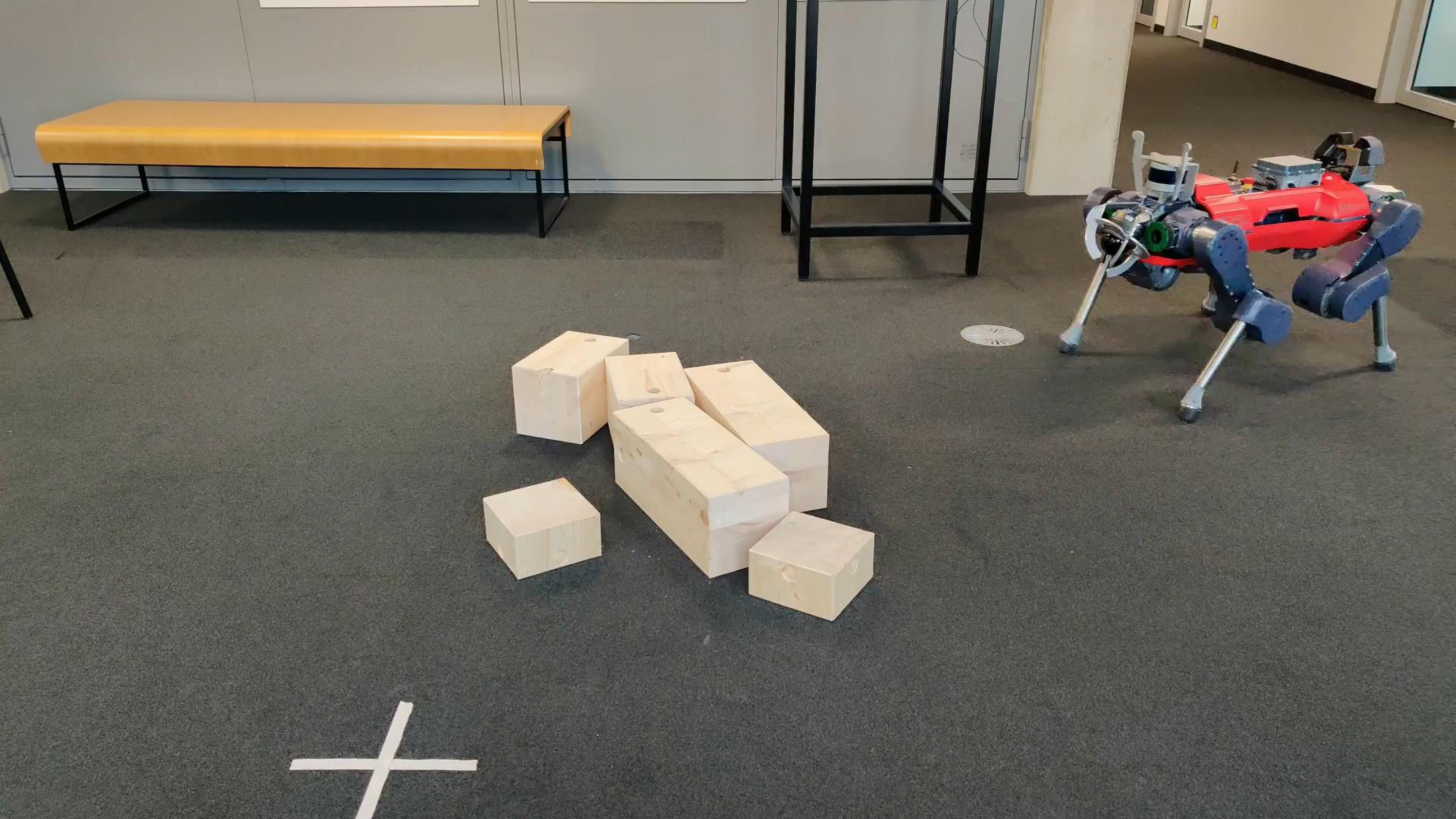
NVIDIA OMNIVERSE™


05
BOXES
M - O
06
BOXES
P - R
06
BOXES
P - R
CAUTION
WET FLOOR
CUIDADO
PISO
MOJADO
NVIDIA

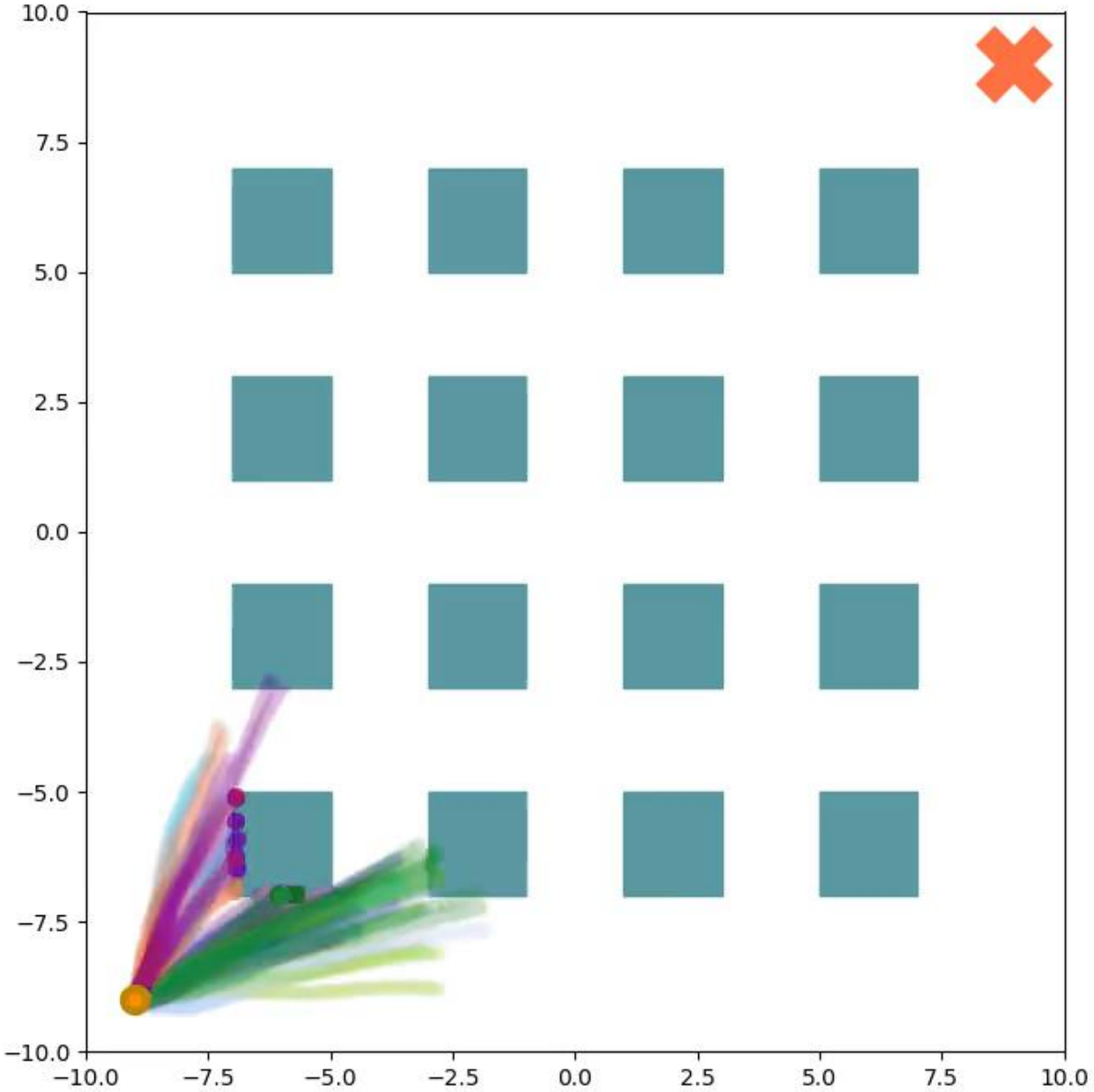



KEEP CLEAR





BAYESIAN MODELLING FOR ROBOTICS



A massive Deep Learning challenge

NVIDIA DRIVE SIM

Environment

Sensors

Vehicle Dynamics

Traffic

Scenario

NVIDIA GPU CATALOGUE

Build AI Faster, Deploy Anywhere

ngc.nvidia.com

Catalogue

CONTAINERS	TRAINED MODELS	INDUSTRY APP FRAMEWORKS	HELM CHARTS	COLLECTIONS
				
100+	30+	End-to-End AI Workflows	ML, Inference	Curated Software Assets

x86 | ARM | POWER


CLOUD

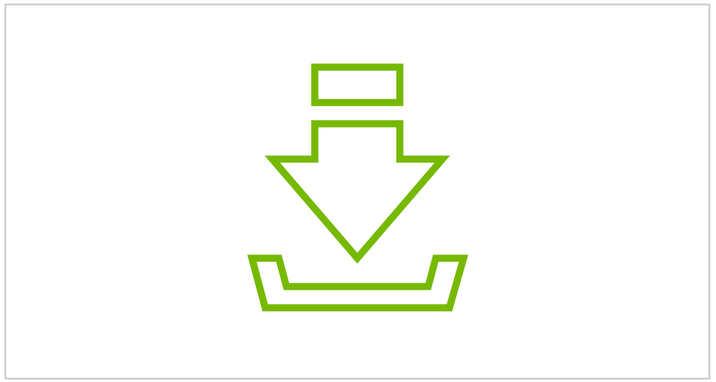

ON-PREM


HYBRID CLOUD

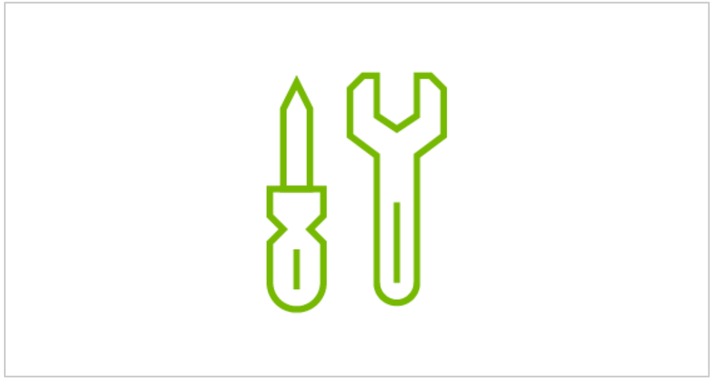

EDGE

LEARN MORE ABOUT OMNIVERSE

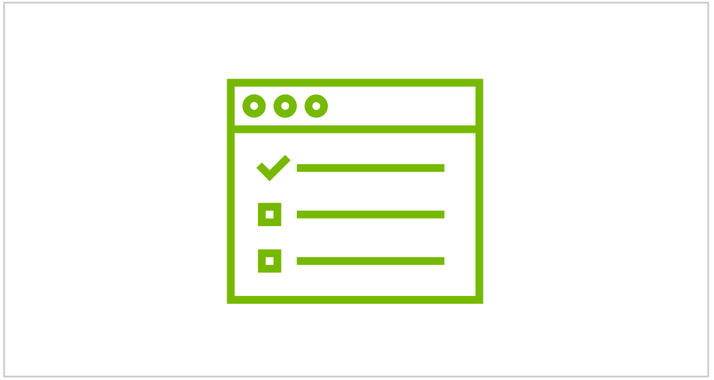
WEBSITE



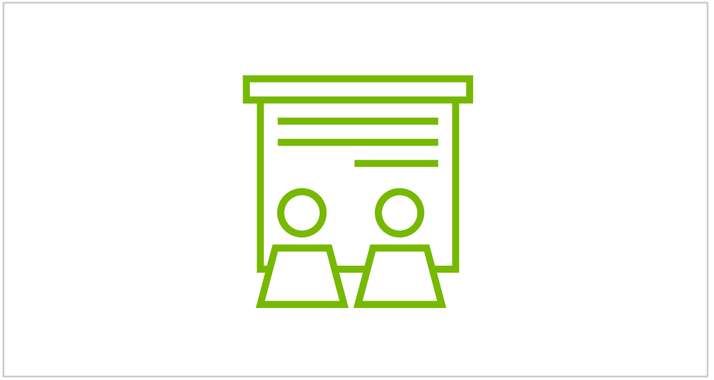
OPEN BETA DOWNLOAD



DEVELOPER TOOLS



EARLY ACCESS CLOSED BETA



TUTORIAL COLLECTION

NVIDIA GTC 21

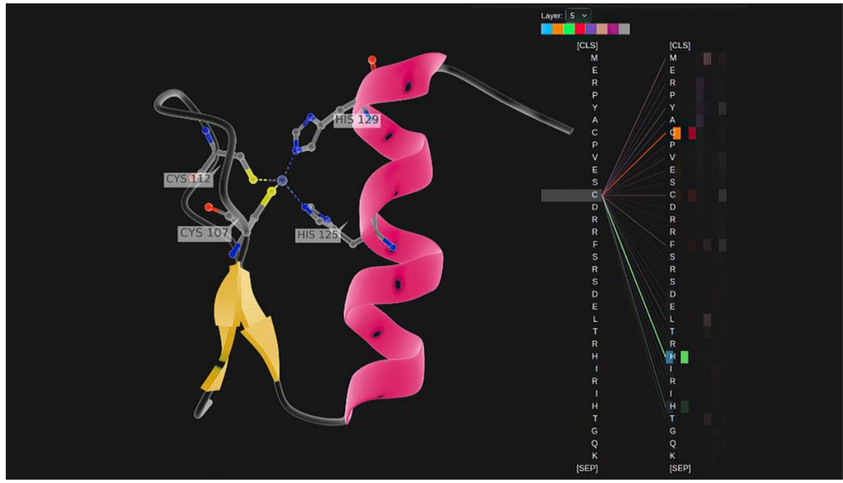
THE CONFERENCE FOR AI INNOVATORS, TECHNOLOGISTS, AND CREATIVES

Join us at GTC 2021 on April 12 - 16 for the latest in AI, HPC, healthcare, game development, networking, and more.

NVIDIA's GTC brings together a global community of developers, researchers, engineers, and innovators to experience global innovation and collaboration.

Don't miss out on the exclusive GTC keynote by Jensen Huang on **April 12**, available to everyone.

Visit www.nvidia.com/gtc to learn more and be notified when registration opens.




alowndes@nvidia.com