

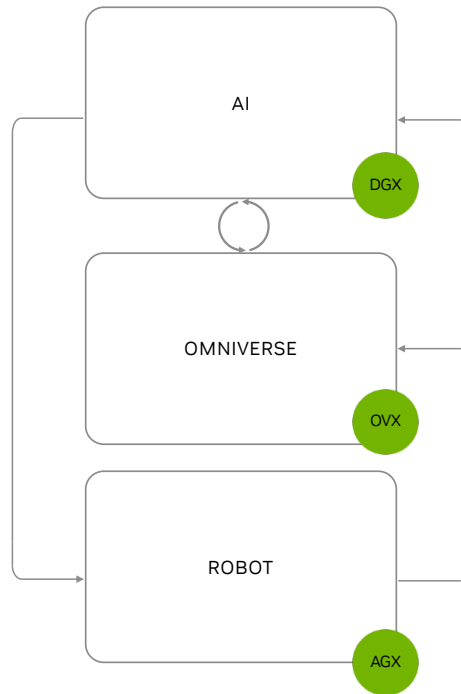


OpenUSD : Physical AI在智能制造领域的应用探索与思考

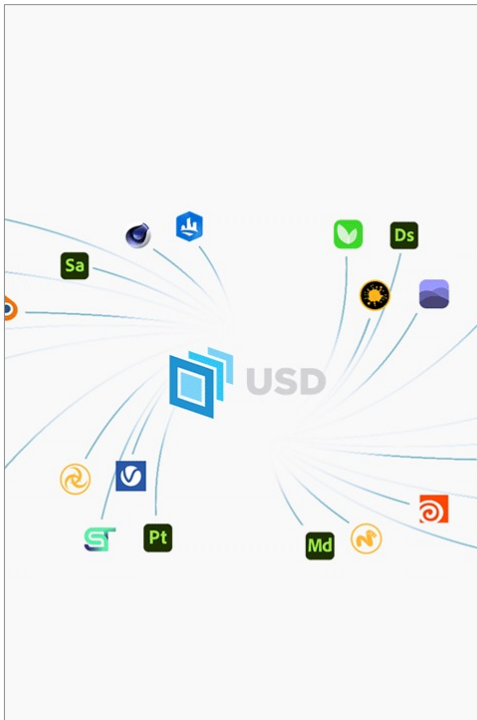
Vigor Cao

Generative AI Enters the Physical World

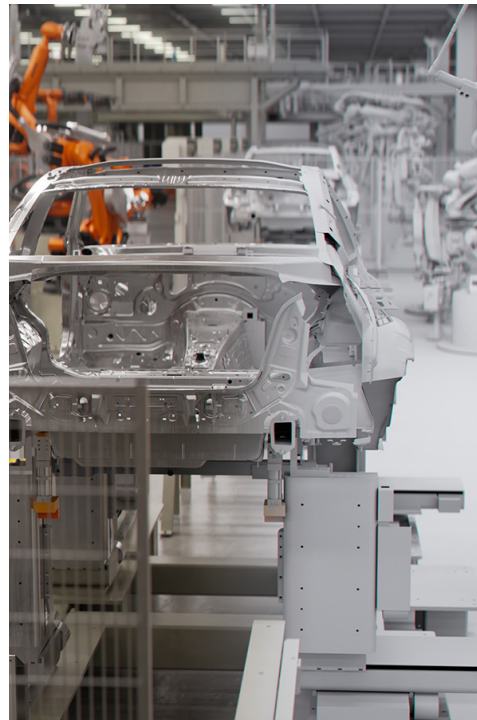
3 Computers Required



The Next Era of Digitalization Relies on Key Technologies



OpenUSD



RTX Technology



Accelerated Computing
Available Everywhere

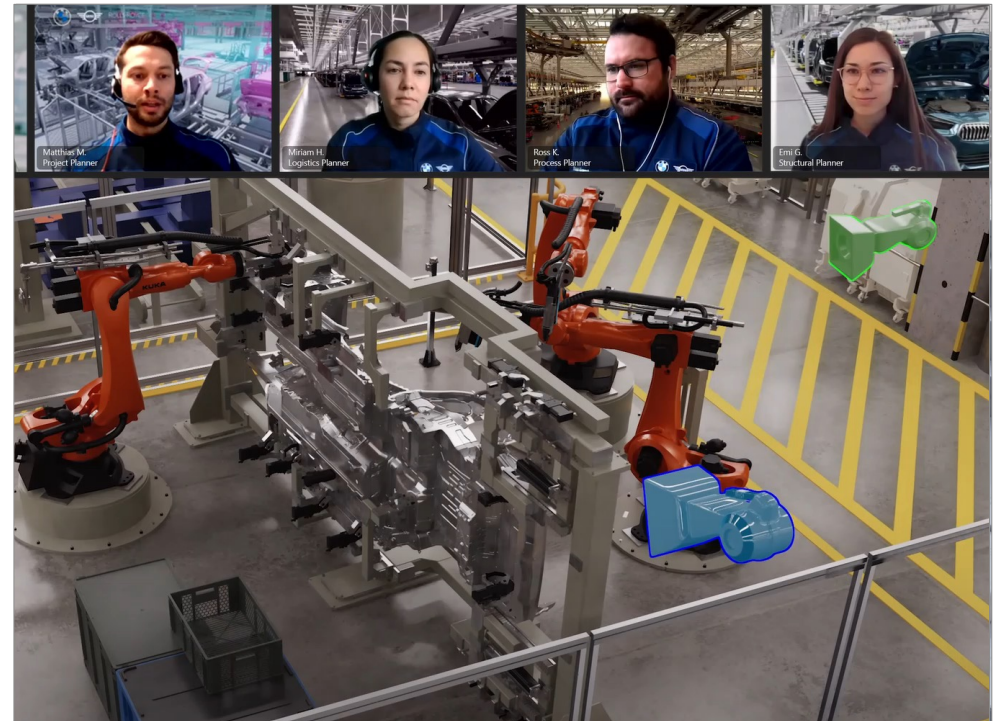


Generative AI, Computer Vision
Revolution

Develop A New Era of 3D Apps & Workflows

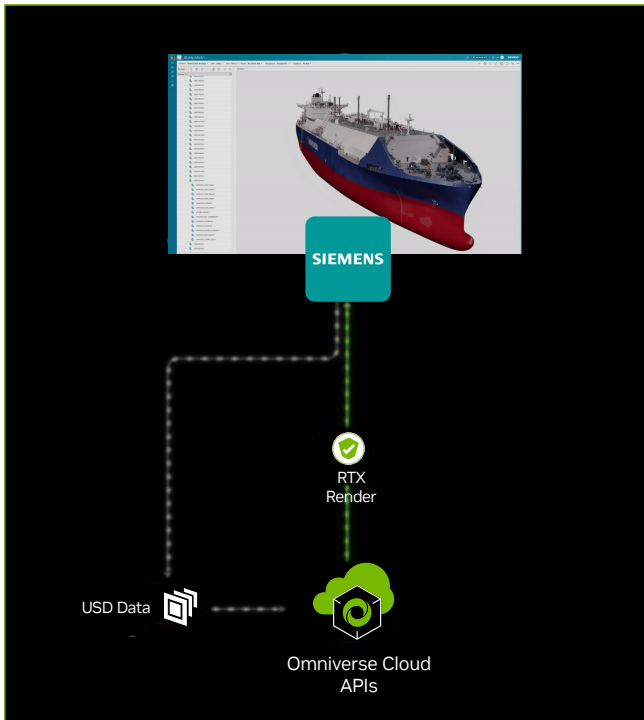


Physically Based Visualization

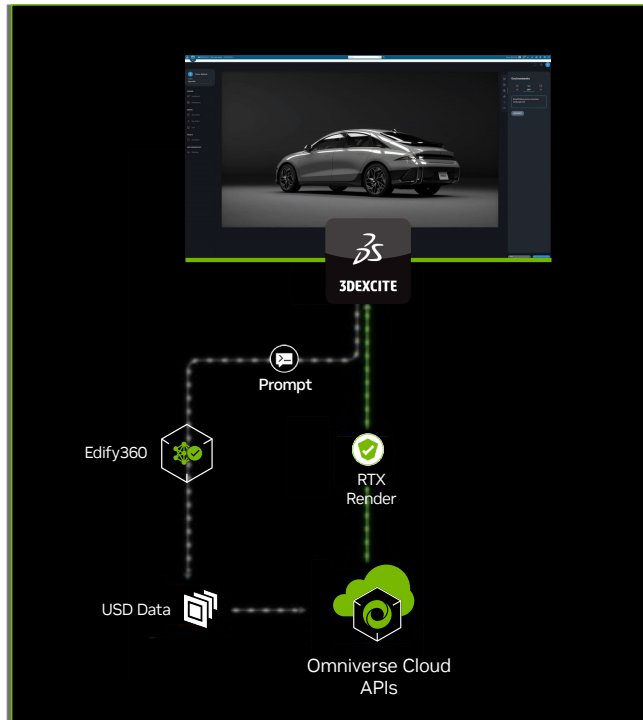


Real-Time Collaboration

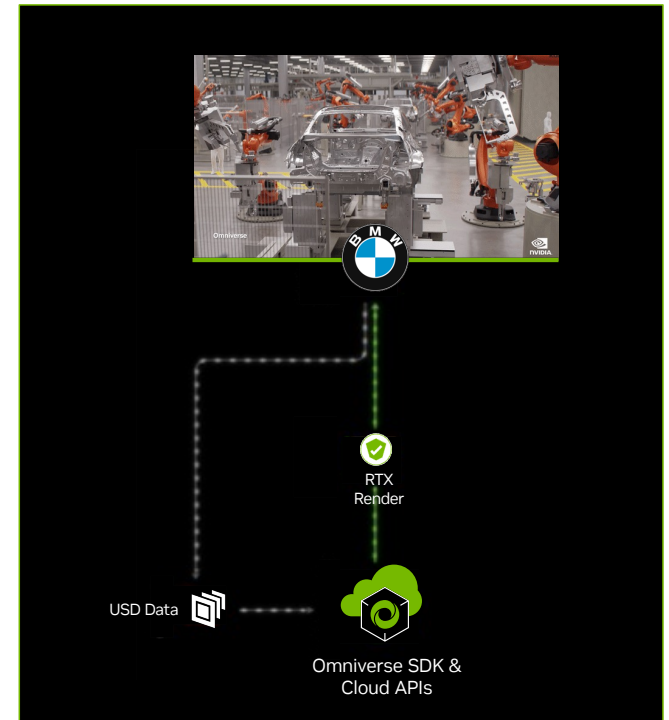
Develop AI-Enabled Digitalization Applications



Siemens Digital Industries



3DEXCITE, Dassault Systemes



BMW Group

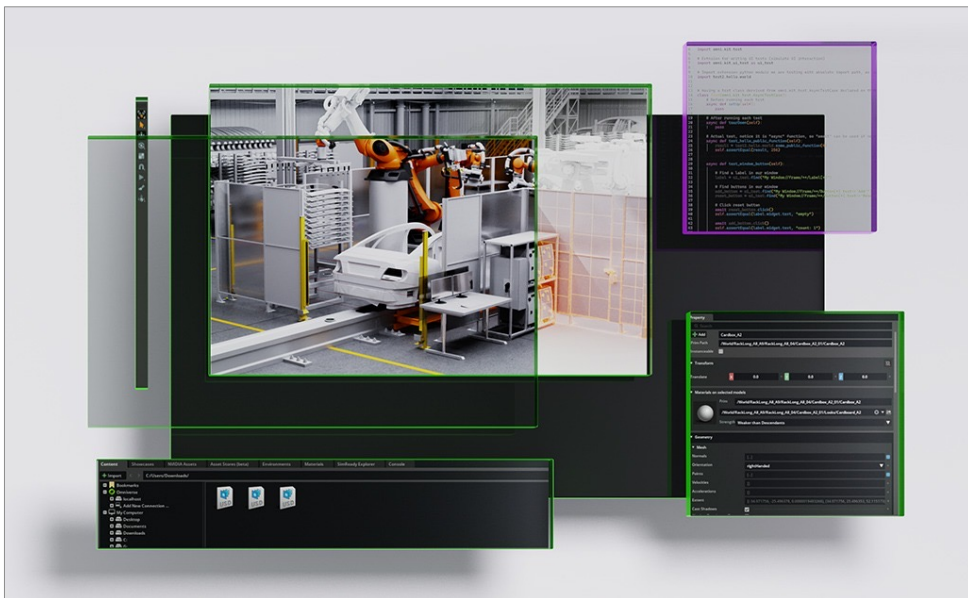
Omniverse Kit App Repository & Templates

Standardized Templates to Bootstrap Development

- Quickly stand up a fully functional Kit-based application with standardized templates
- Tooling enables easy creation, naming and deployment with just a series of questions

Available now on [GitHub](#)

Get started on [omniverse.nvidia.com](https://www.omniverse.nvidia.com)



Omniverse Kit App Templates – Available Now



Base Editor



Service



USD Composer



USD Explorer

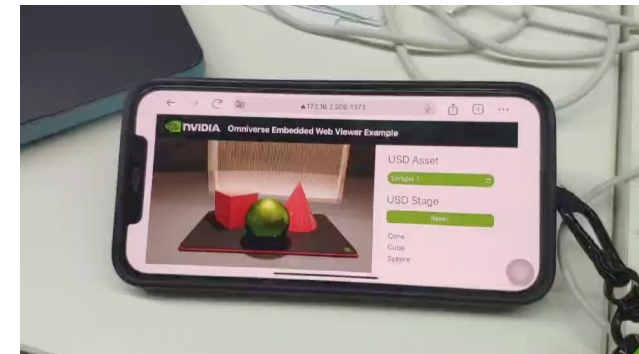


USD Viewer



Embedded Web Viewer


Coming Soon



NVIDIA NIM Microservices for OpenUSD LLM, 3D, Physics and Materials Generative AI


Generative AI for OpenUSD

Available on NVIDIA API Catalog




USD Code USD Search USD Validate

Coming Soon




USD Layout USD SmartMaterial fVDB Mesh Generation fVDB Physics Super-Res fVDB NeRF-XL

OpenUSD for New Industries



Robotics
OpenUSD to URDF



Industrial Design & Engineering
Computational Fluid Dynamics rendering with
OpenUSD

NVIDIA NIM for OpenUSD Generative AI Models

Available in Preview on NVIDIA API Catalog

usdcode-llama3-70b-instruct

State-of-the-art LLM that answers OpenUSD knowledge queries and generates USD-Python code.

Experience Projects Model Card API Reference

AI models generate responses and outputs based on complex algorithms and machine learning techniques, and those responses or outputs may be inaccurate or indecent. By testing this model, you assume the risk of any harm caused by any response or output of the model. Please do not upload any confidential information or personal data. Your use is logged for security.

Preview JS001 Python Node Shell

Say something like

What is LIVRPS?

Write a Python function that finds all the spheres in a stage and sets their radius attribute to 5.0

Write a Python function that finds all the spheres in a stage and sets their radius attribute to 5.0

```
from openai import OpenAI

client = OpenAI(
    base_url = "https://integrate.api.nvidia.com/v1",
    api_key = "$API_KEY_REQUIRED_IF_EXECUTING_OUTSIDE_NGC"
)

completion = client.chat.completions.create(
    model="nvidia/usdcode-llama3-70b-instruct",
    messages=[{"role": "user", "content": "What is LIVRPS?"}],
    temperature=0.1,
    top_p=1,
    max_tokens=1024,
    stream=True
)

for chunk in completion:
    if chunk.choices[0].delta.content is not None:
        print(chunk.choices[0].delta.content, end="")
```

USD Code

usdsearch

AI-powered search for OpenUSD data, 3D models, images, and assets using text or image-based inputs.

Experience Projects Model Card API Reference

AI models generate responses and outputs based on complex algorithms and machine learning techniques, and those responses or outputs may be inaccurate or indecent. By testing this model, you assume the risk of any harm caused by any response or output of the model. Please do not upload any confidential information or personal data. Your use is logged for security.

Input

Try Python Shell

Text Based Search Image Based Search

Enter text to use

shelving

Output

Preview

Name	Score	URL
Industrialsteelshelving_40	1.1433251	https://omniiverse-content-prod-us-west-2.amazonaws.com/assets/ready_content/omni_on_asset4/props/Industrialsteelshelving_40

Displaying search results for shelving

Industrialsteelshelving... Industrialsteelshelving...

GOVERNING TERMS: Use of this trial service is governed by the NVIDIA API

Reset Search

USD Search

usdvalidate

USD Validate NIM for USDZ asset packages.

Experience Projects Model Card API Reference

AI models generate responses and outputs based on complex algorithms and machine learning techniques, and those responses or outputs may be inaccurate or indecent. By testing this model, you assume the risk of any harm caused by any response or output of the model. Please do not upload any confidential information or personal data. Your use is logged for security.

Input

Try Python Node Shell

Upload a USDZ Asset (1GB max):

Upload a File File Types: usdz Upload USDZ Archive

Validation Parameters

Base Rules

- BaseRuleChecker
- ByteAlignmentChecker
- CompressionChecker
- MissingReferenceChecker
- NormalMapTextureChecker
- PrimeEncapsulationChecker
- StageMetadataChecker
- TextureChecker

Reset Run

Output

View Examples

Notes: Proper code that MDL and MaterialX materials are currently unsupported, as well as USDIX textures.

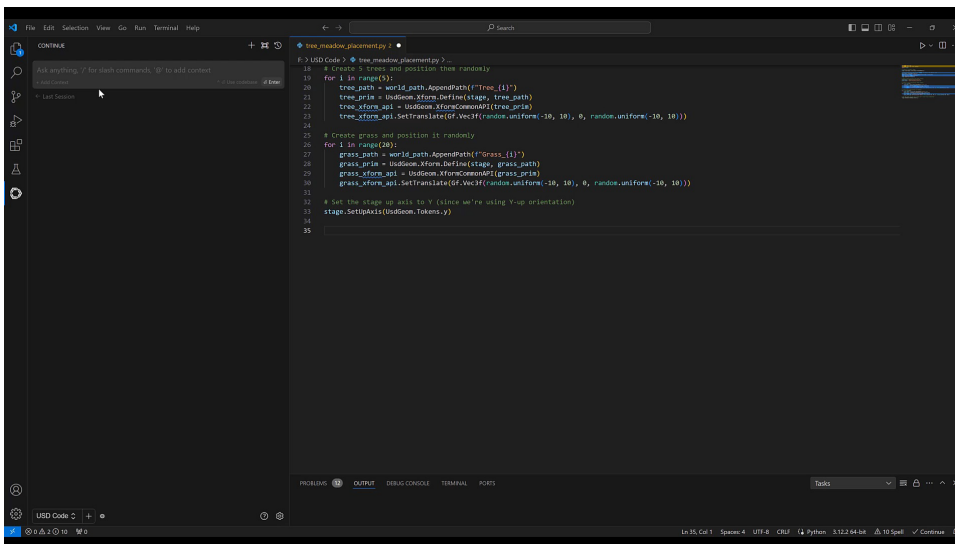
GOVERNING TERMS: Use of this trial service is governed by the NVIDIA Technology Access Terms of Use

PRIVACY Policy: Use of this trial service is covered by the NVIDIA Privacy Policy

USD Validate

Accelerated Digital Twin Development with Generative AI

Streamline your development workflows with NVIDIA USD NIM Inference Microservices

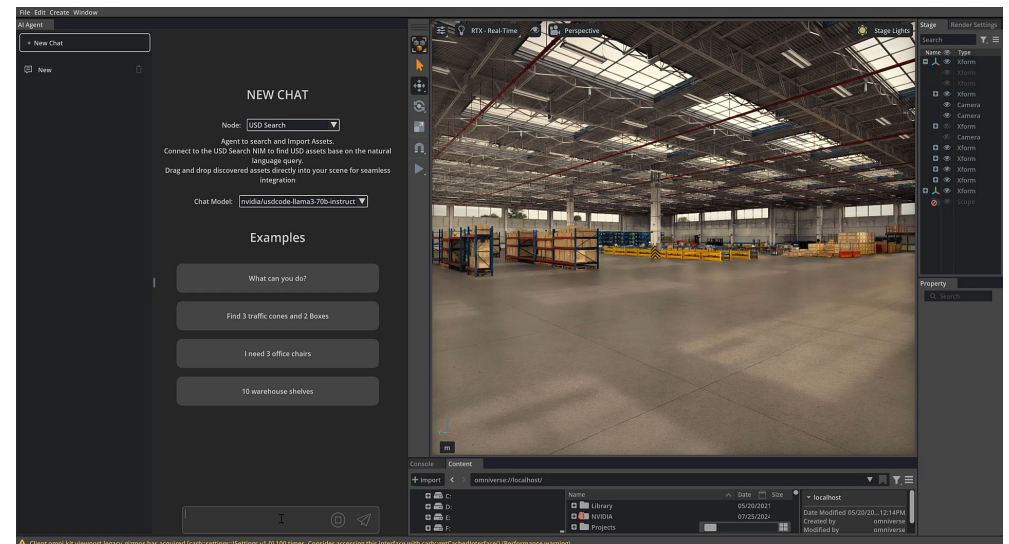


```
18 # Create 5 trees and position them randomly
19 for i in range(5):
20     tree_path = world_path.AppendPath(("Tree_{i}"))
21     tree_prim = UsdGeom.Xform.Define(stage, tree_path)
22     tree_xform_api = UsdGeom.XformCommonAPI(tree_prim)
23     tree_xform_api.SetTranslate(Gf.Vec3f(random.uniform(-10, 10), 0, random.uniform(-10, 10)))
24
25 # Create grass and position it randomly
26 for i in range(20):
27     grass_path = world_path.AppendPath(("Grass_{i}"))
28     grass_prim = UsdGeom.Xform.Define(stage, grass_path)
29     grass_xform_api = UsdGeom.XformCommonAPI(grass_prim)
30     grass_xform_api.SetTranslate(Gf.Vec3f(random.uniform(-10, 10), 0, random.uniform(-10, 10)))
31
32 # Set the stage up axis to Y (since we're using Y-up orientation)
33 stage.SetUpAxis(UsdGeom.Tokens.y)
34
35
```

USD Code

Quickly answer OpenUSD knowledge queries and generate USD Python code

[Try on NVIDIA API Catalog](#)



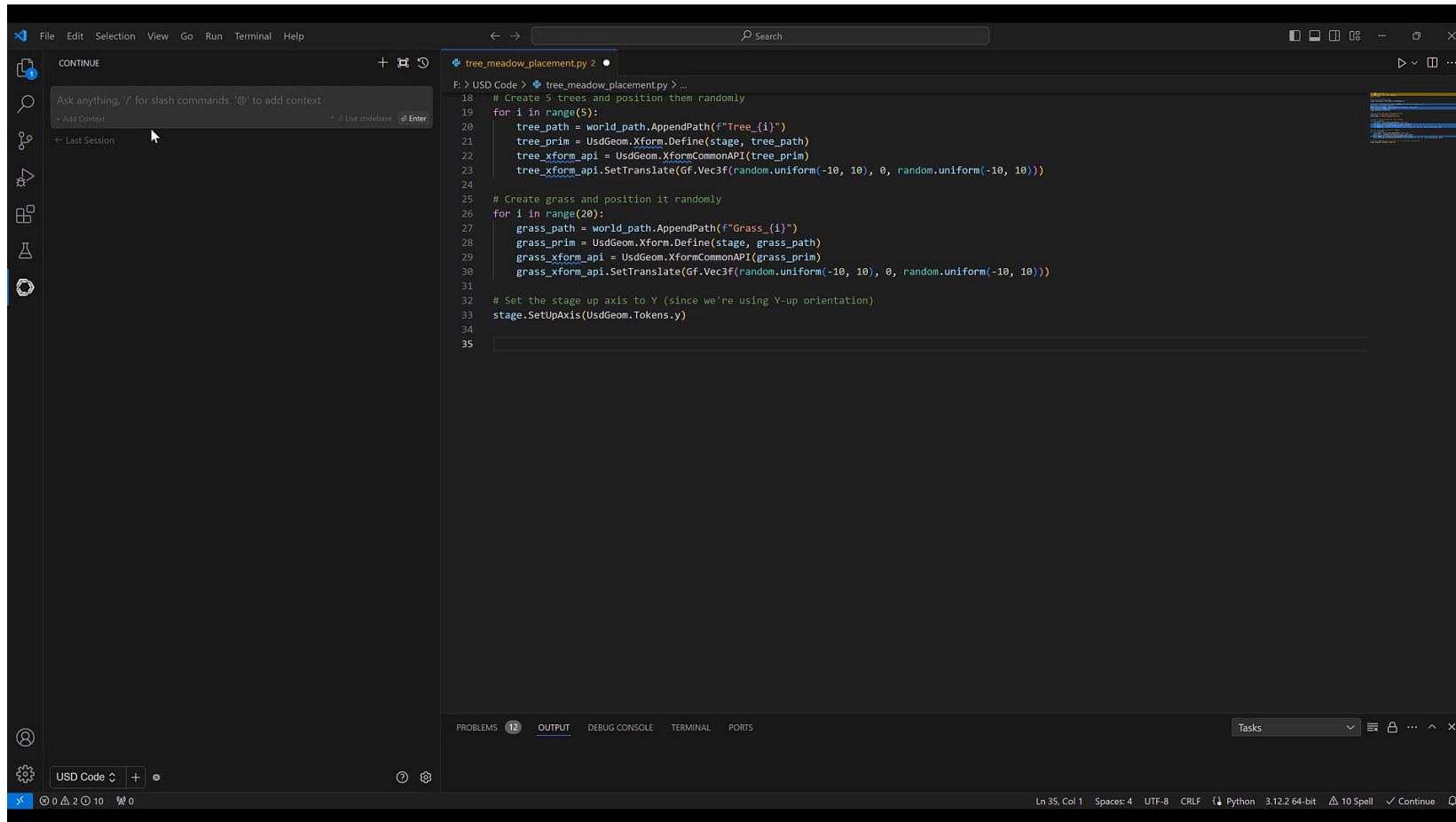
USD Search

Leverage AI-powered search for OpenUSD data, 3D models, images, and assets

[Try on NVIDIA API Catalog](#)

Use Case 1: Code Generation (Python USD)

Simplify development workflows with USD Code



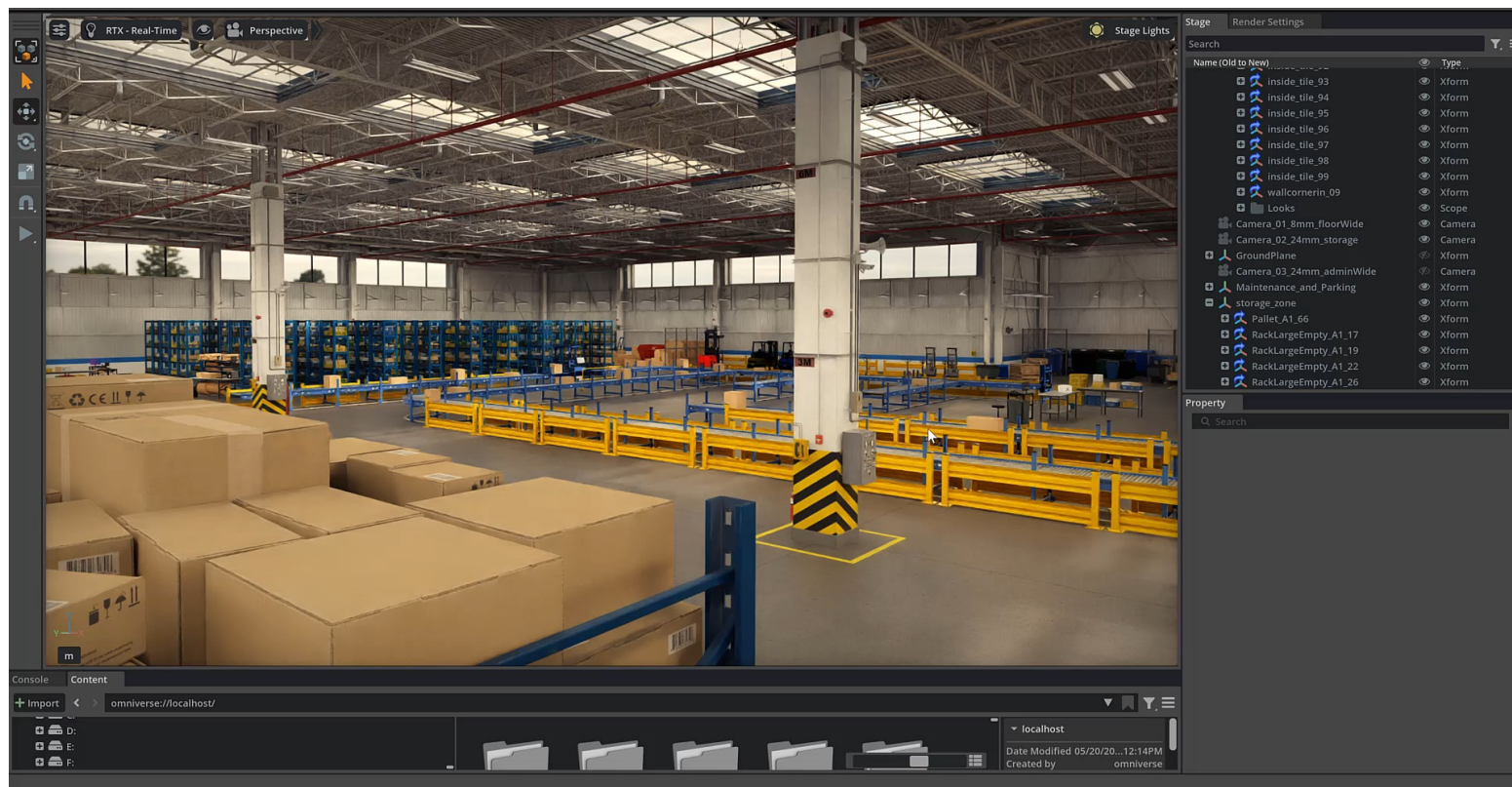
The screenshot shows a code editor with a dark theme. The main editor window displays Python code for generating a USD scene. The code is as follows:

```
F: > USD Code > tree_meadow_placement.py > ...
18 # Create 5 trees and position them randomly
19 for i in range(5):
20     tree_path = world_path.AppendPath(f"Tree_{i}")
21     tree_prim = UsdGeom.Xform.Define(stage, tree_path)
22     tree_xform_api = UsdGeom.XformCommonAPI(tree_prim)
23     tree_xform_api.SetTranslate(Gf.Vec3f(random.uniform(-10, 10), 0, random.uniform(-10, 10)))
24
25 # Create grass and position it randomly
26 for i in range(20):
27     grass_path = world_path.AppendPath(f"Grass_{i}")
28     grass_prim = UsdGeom.Xform.Define(stage, grass_path)
29     grass_xform_api = UsdGeom.XformCommonAPI(grass_prim)
30     grass_xform_api.SetTranslate(Gf.Vec3f(random.uniform(-10, 10), 0, random.uniform(-10, 10)))
31
32 # Set the stage up axis to Y (since we're using Y-up orientation)
33 stage.SetUpAxis(UsdGeom.Tokens.y)
34
35
```

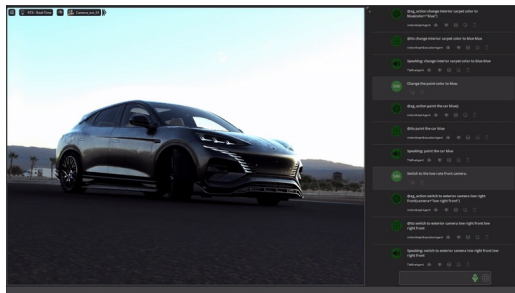
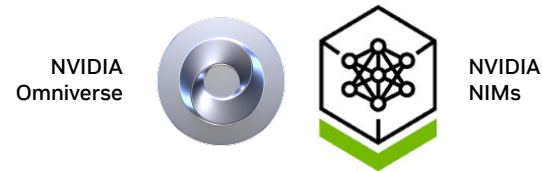
The editor interface includes a sidebar on the left with a search bar and navigation icons. The bottom status bar shows the current file path, line and column numbers (Ln 35, Col 1), and various settings like encoding (UTF-8) and line endings (CRLF).

Use Case 2: Search Assets, Write Python Code

Simplify development and synthetic data generation workflows with USD Search, USD Code

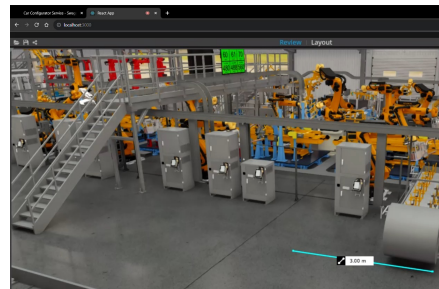


Omniverse connects AI to the physical world



RAG Virtual Salesbot

NVIDIA NeMo, Omniverse Cloud APIs, ChatUSD



RAG Virtual Assistant

NVIDIA NeMo, Omniverse Cloud APIs, ChatUSD



Llama2B NIM in Omniverse

Llama2B, Omniverse Kit Extension, ChatUSD



Virtual Factory Integration

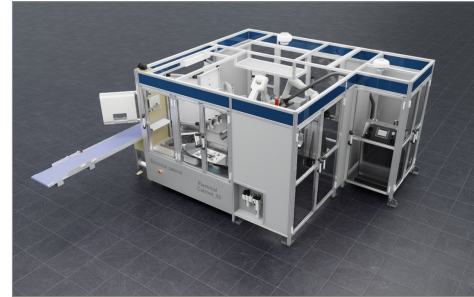
Factory Digital Twins



Amazon Robotics



BMW Group



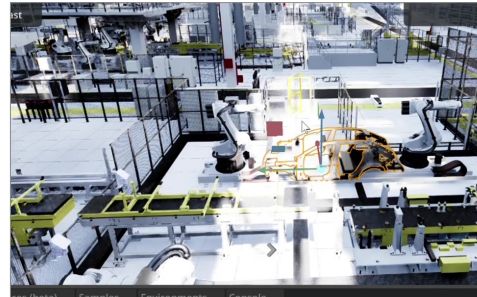
Continental AG



Delta Electronics



Foxconn



Lotus Cars



Toyota



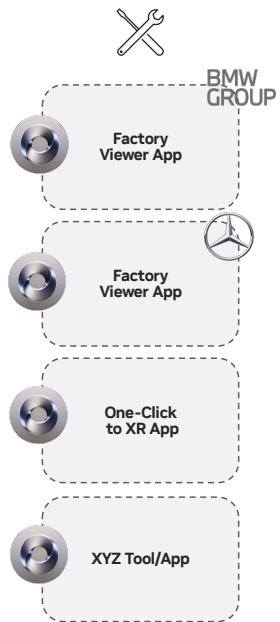
Wistron

Develop Tools, Apps, Workflows for Virtual Factory Integration

Unify industrial CAD, design, datasets, and review, interact and navigate in RTX real time

1

Develop Tools, Apps



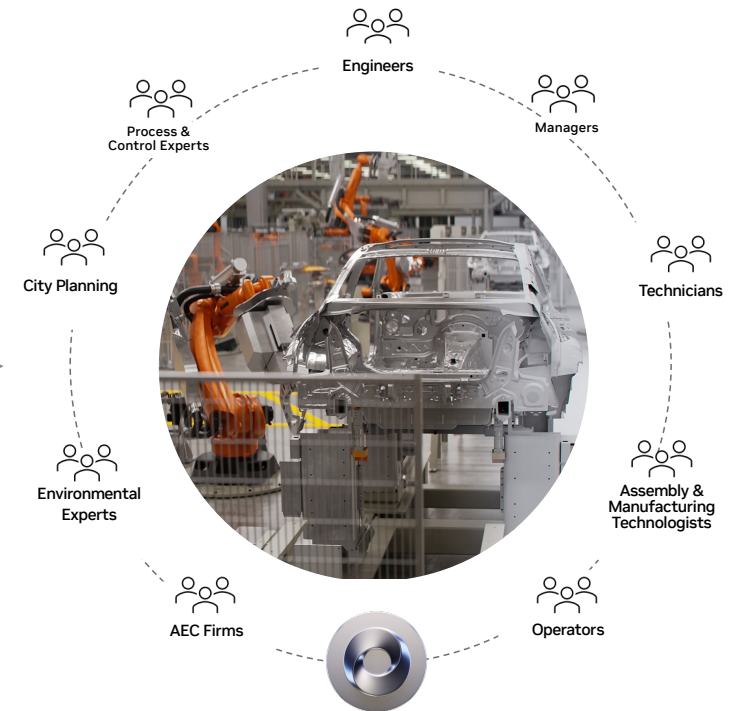
2

Connect Existing Tools, Data



3

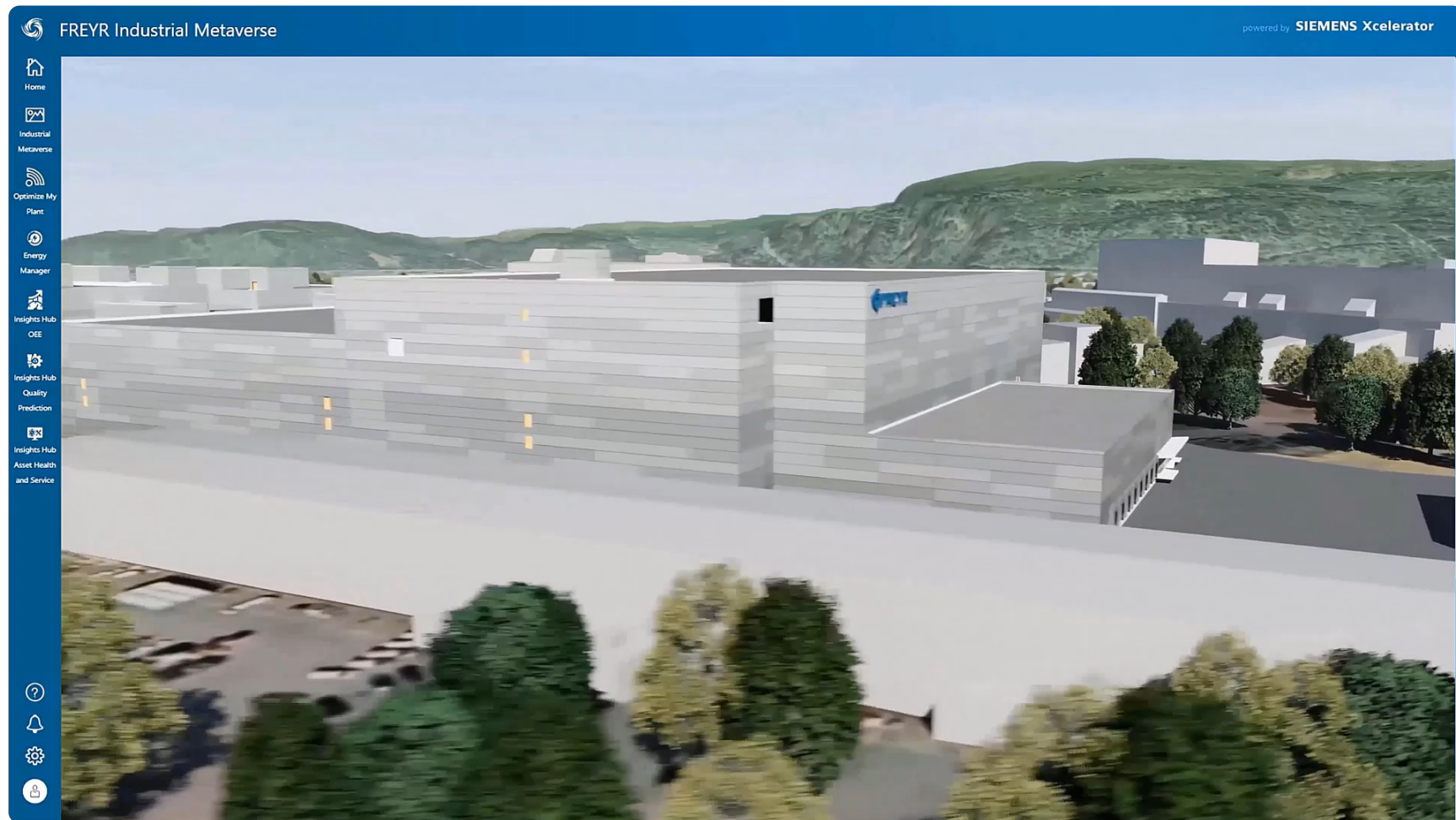
Enable New Workflows, Experiences



High Fidelity Animation



APP STREAMING IN WEB PAGE



CLASH DETECTION

USD Composer 2024.1.0 Beta | F:\Omniverse\project\Collected_all_data_merge\all_data_usd

File Edit Create Window Tools Layout Help

RTX - Real-Time Perspective Clash Viewport Stage Lights

FPS: 108.15, Frame time: 9.25 ms
NVIDIA RTX 5000 Ada Generation: 6.2 GiB used, 24.6 GiB available
NVIDIA RTX 5000 Ada Generation: 3.6 GiB used, 27.1 GiB available
Process Memory: 13.1 GiB used, 30.8 GiB available
2560x1440

Stage Layer Render Settings

Search

Name (Old to New)

- Root (defaultPrim)
- Looks
- Root
- work_2
- work_3
- Looks
- Root
- MFG_Usd
- RectLight

Type

- Xform
- Scope
- Xform
- Xform
- Scope
- Xform
- RectLight

Property Clash Detection Viewport

FPS: 109.31, Frame time: 9.15 ms
NVIDIA RTX 5000 Ada Generation: 6.2 GiB used, 24.6 GiB available
NVIDIA RTX 5000 Ada Generation: 3.6 GiB used, 27.1 GiB available
Process Memory: 13.1 GiB used, 30.8 GiB available
513x480

Selected Clash Query

New Query 1 [Object A:/Root/work_3, Object B:/Root/Root/HD_ER/HD/_U3A7_U38_ED7_ECA_US34]

Run Clash Detection Delete Selected Export...

Showing 519 Item(s)

#	Present	Type	Tolerance	Max Overlaps	Clash Start	Clash End	Records	Object A	Object B	State	Priority	Person In Charge	First Detected	Last Modified	Comment
379	Yes	Hard	0.000000	1691 tris	00:35:45	00:48:16	308 mesh	mesh	mesh	New	P-0	<None>	17:41:27 04/29/24	17:41:27 04/29/24	
478	Yes	Hard	0.000000	896 tris	00:08:4	01:39:95	1099 mesh	mesh	mesh	New	P-0	<None>	17:41:32 04/29/24	17:41:32 04/29/24	
36	Yes	Hard	0.000000	782 tris	00:01:50	00:54:16	392 mesh	mesh	mesh	New	P-0	<None>	17:41:06 04/29/24	17:41:06 04/29/24	
273	Yes	Hard	0.000000	782 tris	00:00:12	00:55:12	18 mesh	mesh	mesh	New	P-0	<None>	17:41:26 04/29/24	17:41:26 04/29/24	
149	Yes	Hard	0.000000	746 tris	00:00:91	00:52:20	24 mesh	mesh	mesh	New	P-0	<None>	17:41:11 04/29/24	17:41:11 04/29/24	
361	Yes	Hard	0.000000	683 tris	00:01:45	00:50:12	388 mesh	mesh	mesh	New	P-0	<None>	17:41:25 04/29/24	17:41:25 04/29/24	
196	Yes	Hard	0.000000	620 tris	00:35:29	00:48:33	314 mesh	mesh	mesh	New	P-0	<None>	17:41:16 04/29/24	17:41:16 04/29/24	
49	Yes	Hard	0.000000	602 tris	00:01:16	00:52:83	9 mesh	mesh	mesh	New	P-0	<None>	17:41:04 04/29/24	17:41:04 04/29/24	
53	Yes	Hard	0.000000	583 tris	00:00:4	01:39:95	1092 mesh	mesh	mesh	New	P-0	<None>	17:41:06 04/29/24	17:41:06 04/29/24	
502	Yes	Hard	0.000000	464 tris	00:01:08	00:53:45	11 mesh	mesh	mesh	New	P-0	<None>	17:41:33 04/29/24	17:41:33 04/29/24	
319	Yes	Hard	0.000000	455 tris	00:00:4	01:39:95	1091 mesh	mesh	mesh	New	P-0	<None>	17:41:23 04/29/24	17:41:23 04/29/24	
127	Yes	Hard	0.000000	445 tris	00:07:79	00:08:16	10 mesh	mesh	mesh	New	P-0	<None>	17:41:11 04/29/24	17:41:11 04/29/24	
382	Yes	Hard	0.000000	442 tris	00:00:4	01:39:95	1088 mesh	mesh	mesh	New	P-0	<None>	17:41:29 04/29/24	17:41:29 04/29/24	

USD Composer 2024.1.0 Beta | F:\Omniverse\project\Collected_all_data_merge\all_data_usd

File Edit Create Window Tools Layout Help

RTX - Real-Time Perspective Clash Viewport Stage Lights

FPS: 108.15, Frame time: 9.25 ms
NVIDIA RTX 5000 Ada Generation: 6.2 GiB used, 24.6 GiB available
NVIDIA RTX 5000 Ada Generation: 3.6 GiB used, 27.1 GiB available
Process Memory: 13.1 GiB used, 30.8 GiB available
2560x1440

Stage Layer Render Settings

Search

Name (Old to New)

- Root (defaultPrim)
- Looks
- Root
- work_2
- work_3
- Looks
- Root
- MFG_Usd
- RectLight

Type

- Xform
- Scope
- Xform
- Xform
- Scope
- Xform
- RectLight

Property Clash Detection Viewport

FPS: 109.31, Frame time: 9.15 ms
NVIDIA RTX 5000 Ada Generation: 6.2 GiB used, 24.6 GiB available
NVIDIA RTX 5000 Ada Generation: 3.6 GiB used, 27.1 GiB available
Process Memory: 13.1 GiB used, 30.8 GiB available
513x480

Selected Clash Query

New Query 1 [Object A:/Root/work_3, Object B:/Root/Root/HD_ER/HD/_U3A7_U38_ED7_ECA_US34]

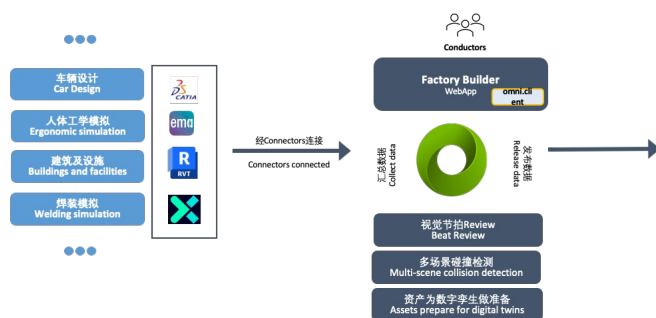
Run Clash Detection Delete Selected Export...

Showing 519 Item(s)

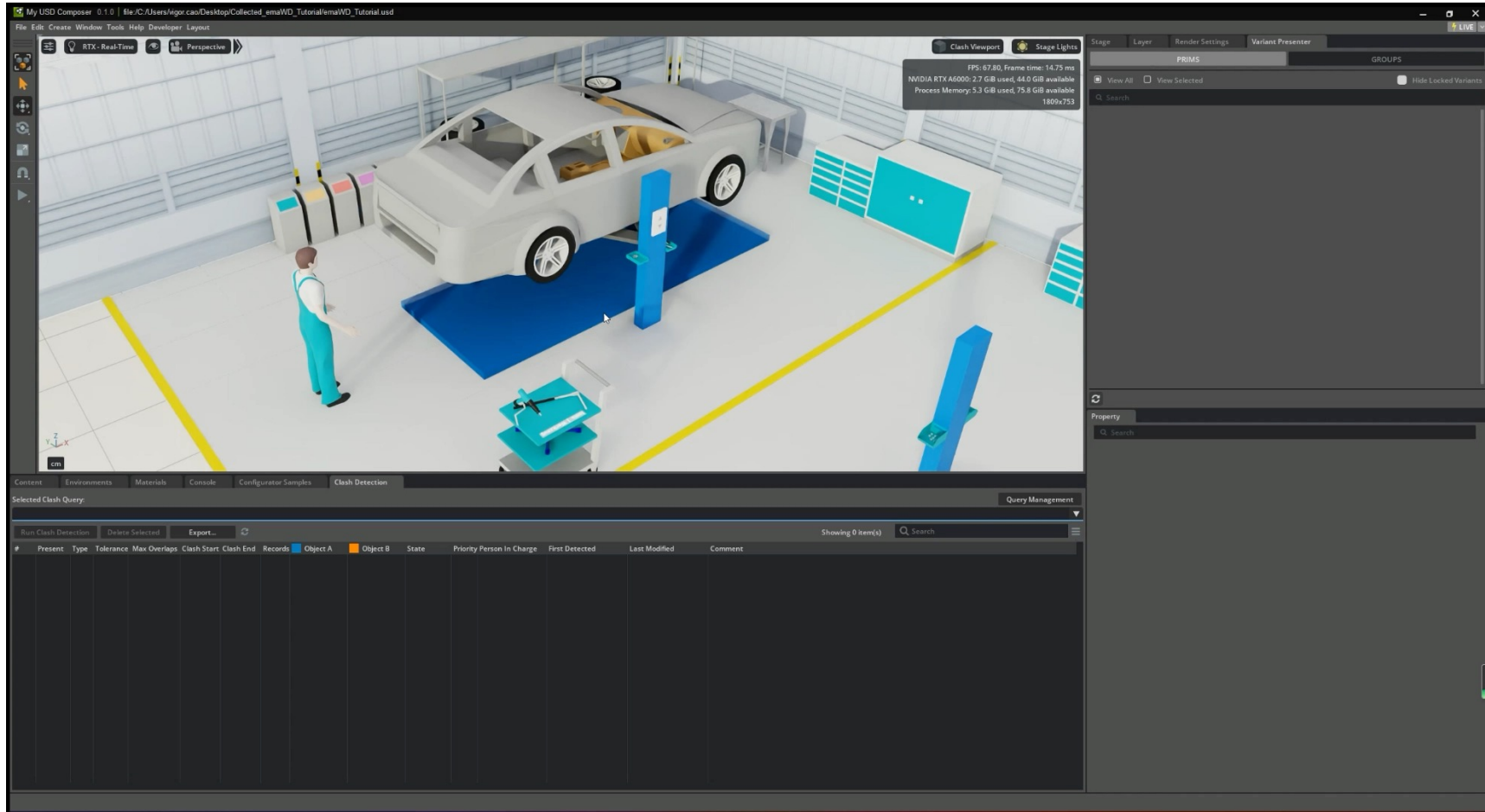
#	Present	Type	Tolerance	Max Overlaps	Clash Start	Clash End	Records	Object A	Object B	State	Priority	Person In Charge	First Detected	Last Modified	Comment
379	Yes	Hard	0.000000	1691 tris	00:35:45	00:48:16	308 mesh	mesh	mesh	New	P-0	<None>	17:41:27 04/29/24	17:41:27 04/29/24	
478	Yes	Hard	0.000000	896 tris	00:08:4	01:39:95	1099 mesh	mesh	mesh	New	P-0	<None>	17:41:32 04/29/24	17:41:32 04/29/24	
36	Yes	Hard	0.000000	782 tris	00:01:50	00:54:16	392 mesh	mesh	mesh	New	P-0	<None>	17:41:06 04/29/24	17:41:06 04/29/24	
273	Yes	Hard	0.000000	782 tris	00:00:12	00:55:12	18 mesh	mesh	mesh	New	P-0	<None>	17:41:26 04/29/24	17:41:26 04/29/24	
149	Yes	Hard	0.000000	746 tris	00:00:91	00:52:20	24 mesh	mesh	mesh	New	P-0	<None>	17:41:11 04/29/24	17:41:11 04/29/24	
361	Yes	Hard	0.000000	683 tris	00:01:45	00:50:12	388 mesh	mesh	mesh	New	P-0	<None>	17:41:25 04/29/24	17:41:25 04/29/24	
196	Yes	Hard	0.000000	620 tris	00:35:29	00:48:33	314 mesh	mesh	mesh	New	P-0	<None>	17:41:16 04/29/24	17:41:16 04/29/24	
49	Yes	Hard	0.000000	602 tris	00:01:16	00:52:83	9 mesh	mesh	mesh	New	P-0	<None>	17:41:04 04/29/24	17:41:04 04/29/24	
53	Yes	Hard	0.000000	583 tris	00:00:4	01:39:95	1092 mesh	mesh	mesh	New	P-0	<None>	17:41:06 04/29/24	17:41:06 04/29/24	
502	Yes	Hard	0.000000	464 tris	00:01:08	00:53:45	11 mesh	mesh	mesh	New	P-0	<None>	17:41:33 04/29/24	17:41:33 04/29/24	
319	Yes	Hard	0.000000	455 tris	00:00:4	01:39:95	1091 mesh	mesh	mesh	New	P-0	<None>	17:41:23 04/29/24	17:41:23 04/29/24	
127	Yes	Hard	0.000000	445 tris	00:07:79	00:08:16	10 mesh	mesh	mesh	New	P-0	<None>	17:41:11 04/29/24	17:41:11 04/29/24	
382	Yes	Hard	0.000000	442 tris	00:00:4	01:39:95	1088 mesh	mesh	mesh	New	P-0	<None>	17:41:29 04/29/24	17:41:29 04/29/24	

https://docs.omniverse.nvidia.com/scene-graph/scene-graph-extensions/latest/ext_html

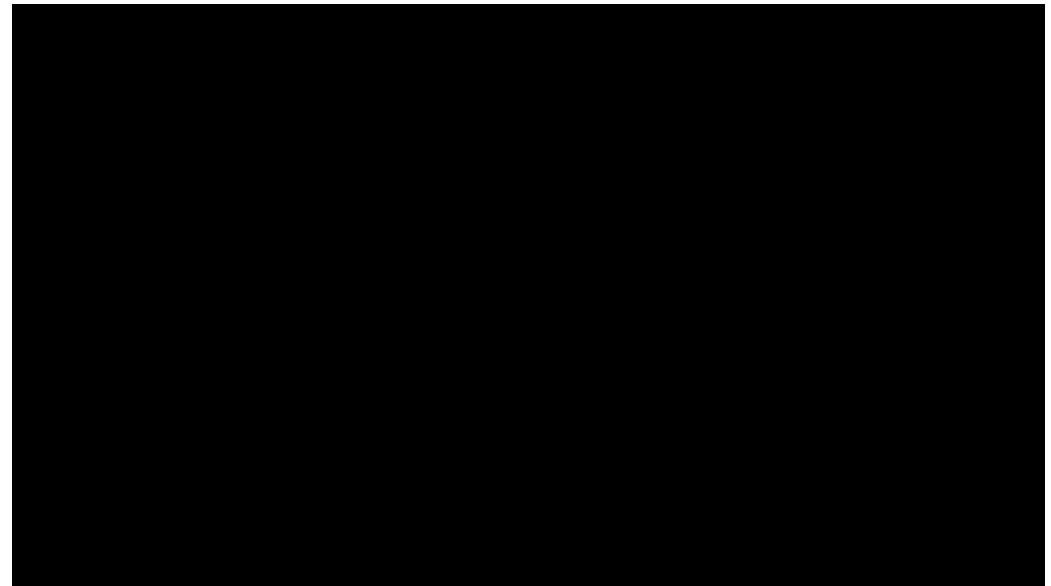
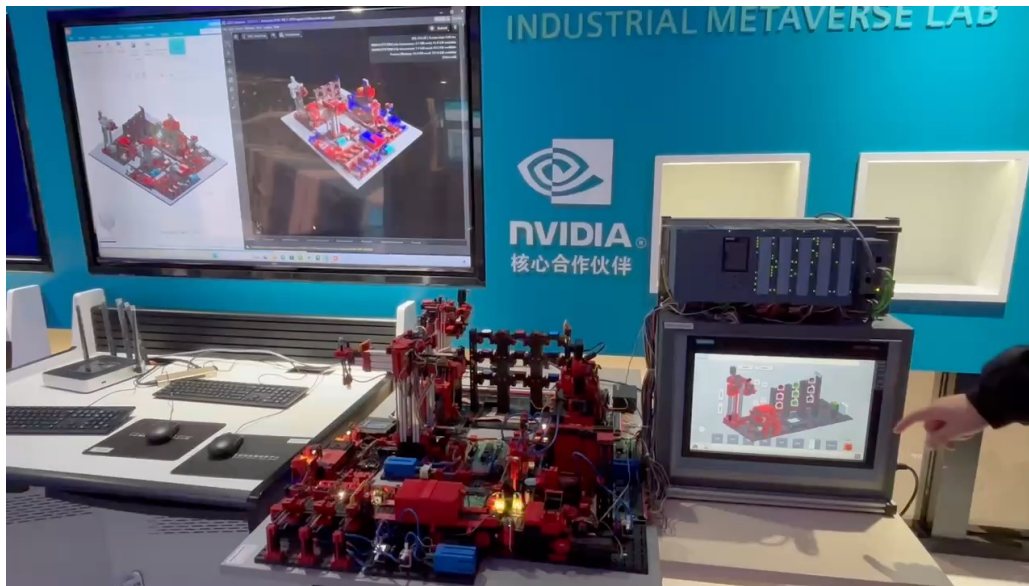
The Result of Human Simulation in Omniverse



Clash Detection in Multi-Software

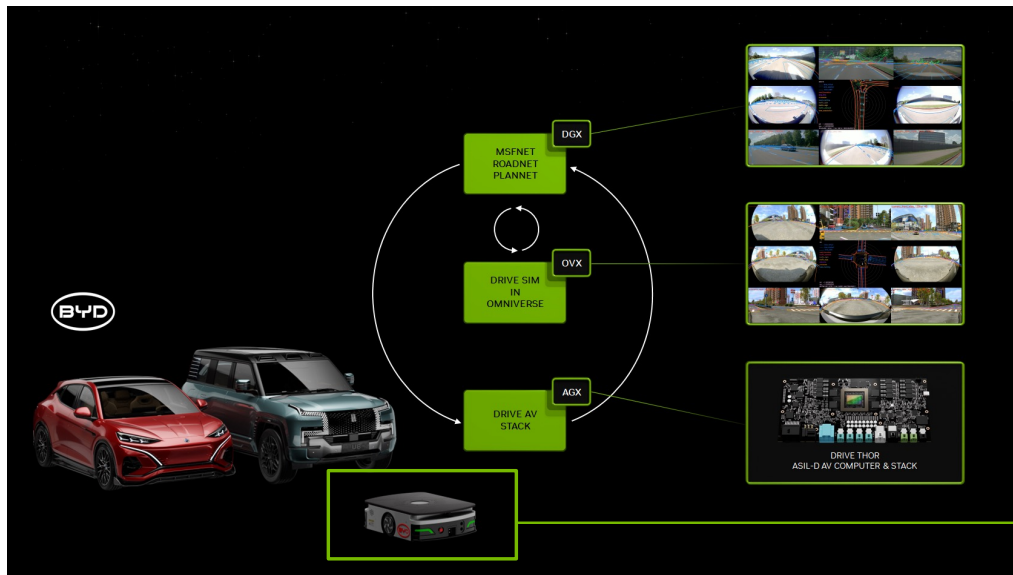


PLC Live Sync with Omniverse

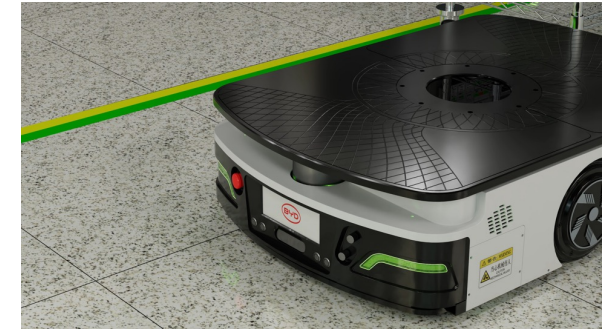


The Phase Result of AMR

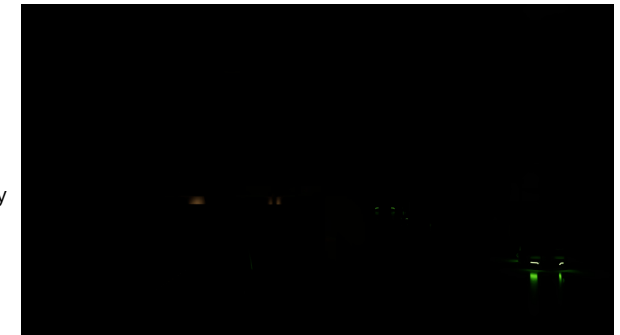
- Using Omniverse's features, digitize the scene and provide the accuracy of the visual AI algorithm for the car in simulation mode



Reconstruction of AMR

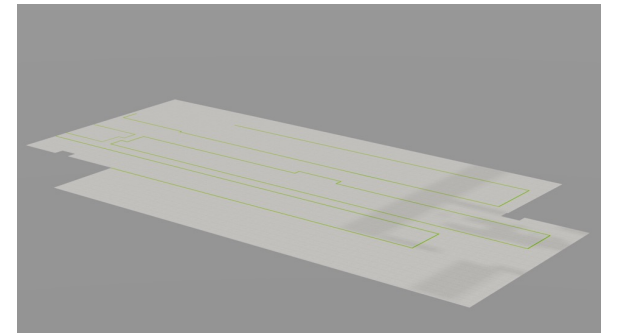
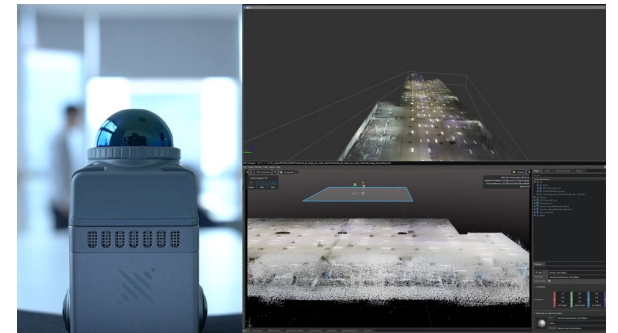
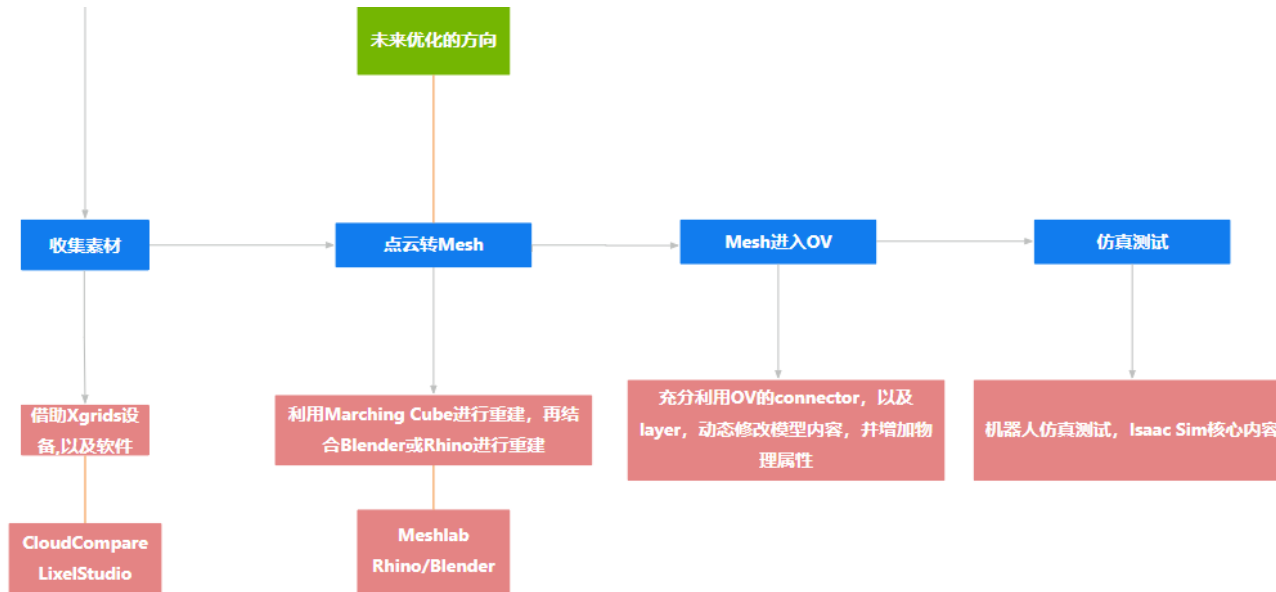


Reconstruction of Factory



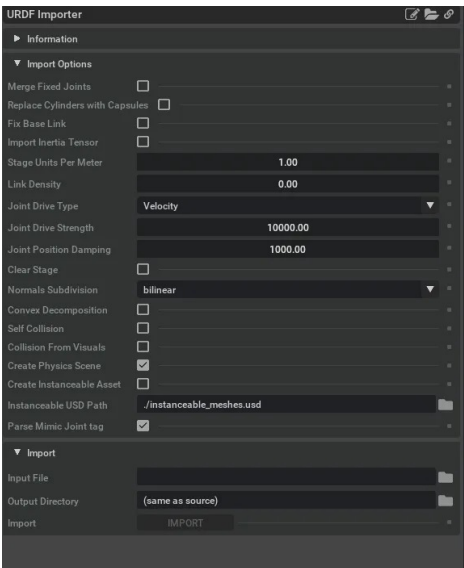
The Phase Result of AMR

- The workflow of The PoC



AMR仿真阶段性成果

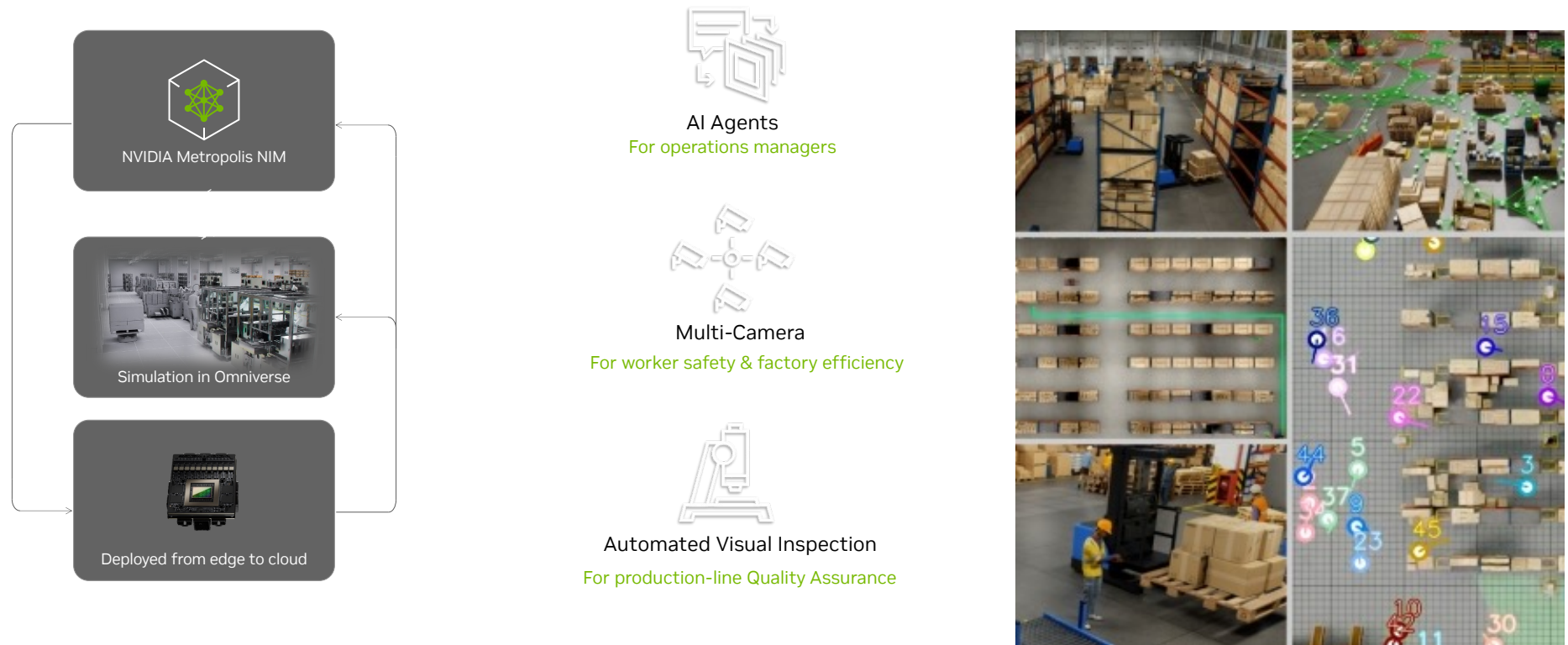
- 仿真的目的：是为了更好提高AMR小车实际工作的效率。



Omniverse 能帮助我们很好的优化整个产线业务流程
Omniverse can help us optimize the entire production line business process

NVIDIA Metropolis

Development platform for building AI-powered Infrastructure



人体工程监控预测

AI+Monitor

- <https://www.nvidia.com/en-us/on-demand/session/other2024-dtwintracking/?playlistId=playList-62b777fa-766f-4773-8ae4-a70e564d7848>



Service Quotas

Dashboard
AWS services
Quota request history

Organization
Quota request template

Service Quotas > AWS services > Amazon Elastic Compute Cloud (Amazon EC2)

Amazon Elastic Compute Cloud (Amazon EC2)

Amazon Elastic Compute Cloud (EC2) provides resizable compute capacity through virtual machines (VM's or instances) in the cloud.

Service quotas info

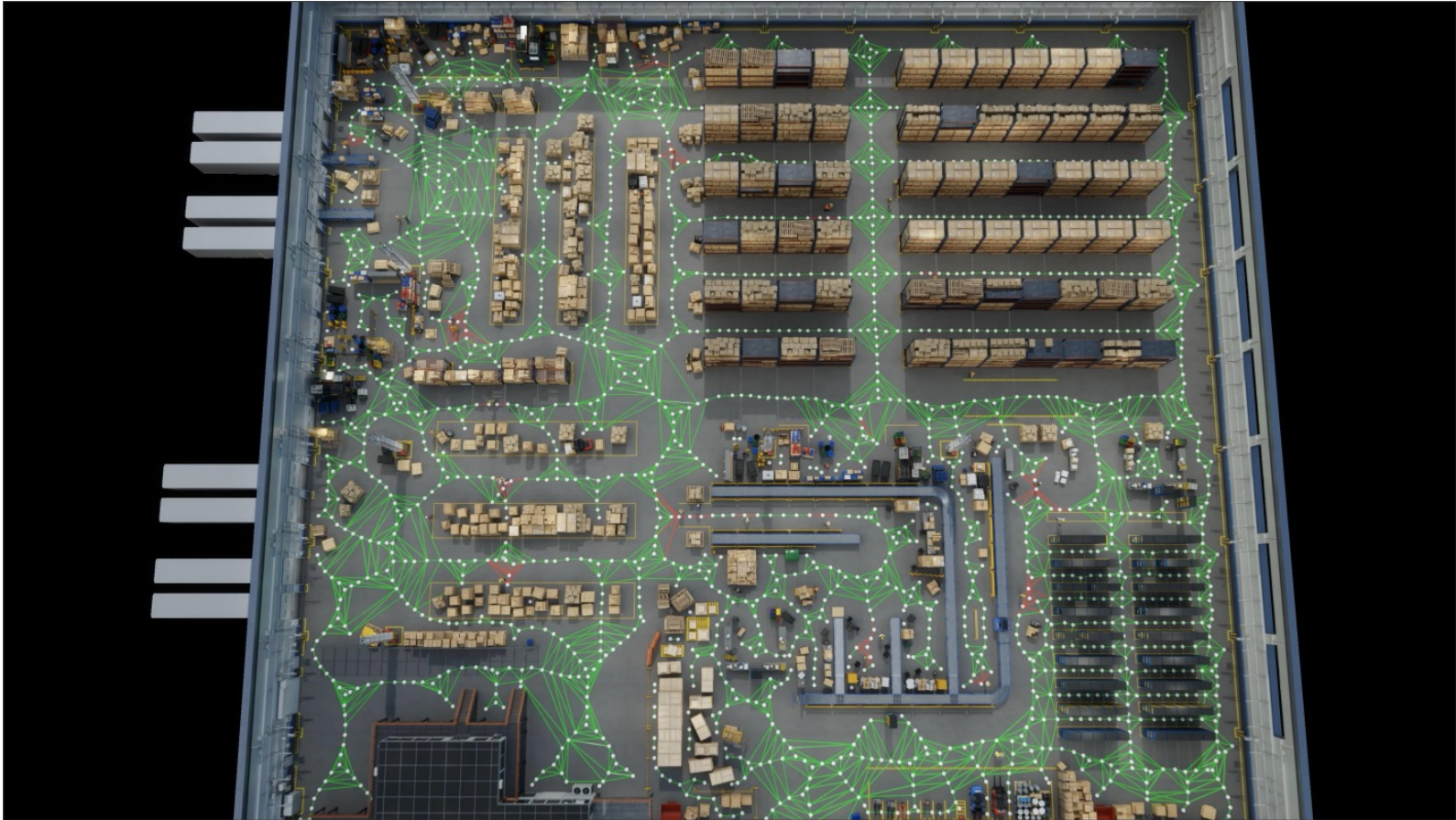
View your applied quota values, default quota values, and request quota increases for quotas. [Learn more](#)

Search by quota name

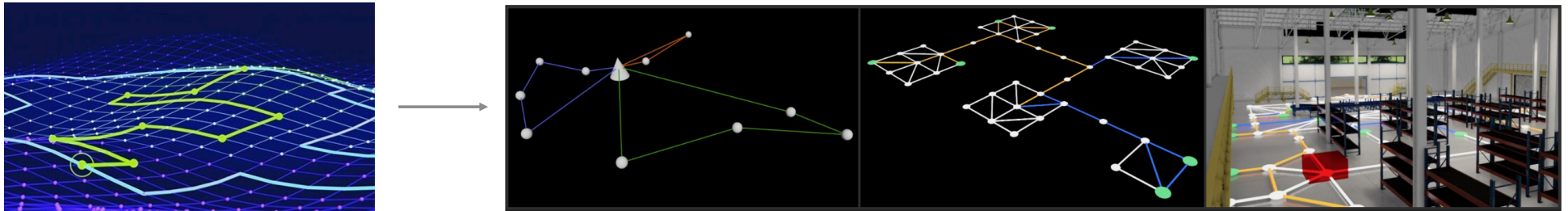
Quota name	Applied account-level quota value	AWS default quota value	Utilization
All DL Spot Instance Requests	96	0	0%
All F Spot Instance Requests	128	0	0%
All G and VT Spot Instance Requests	1,000	0	0%
All Inf Spot Instance Requests	64	0	0%
All P4, P3 and P2 Spot Instance Requests	64	0	0%
All P5 Spot Instance Requests	192	0	0%
All Standard (A, C, D, H, I, M, R, T, Z) Spot Instance Requests	640	5	0%
All Trn Spot Instance Requests	256	0	0%
All X Spot Instance Requests	128	0	0%

NVIDIA Metropolis

Development platform for building AI-powered Infrastructure

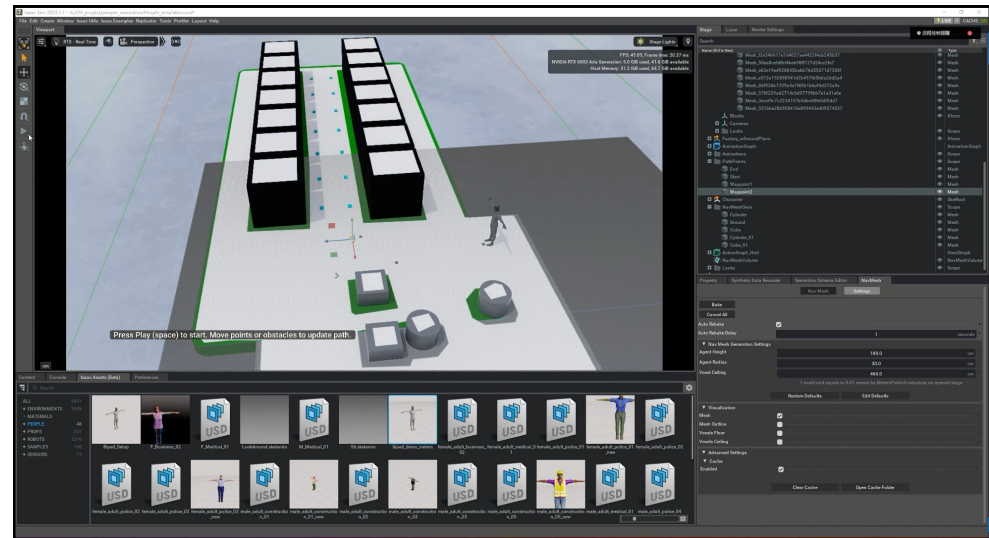


Cuopt与Navigate Mesh的工作流



- Cuopt algorithm from NVIDIA NGC

- Navigate Mesh in Omniverse





SDG



Synthetic Data Generation (SDG)

Using NVIDIA Omniverse replicator extension



Scene Creation

Build-realistic scenes in Omniverse to begin data generation



Domain Randomization

Randomize lighting, materials, colors, positions, and more to help the AI train on relevant information



Ground Truth Annotation

Perfectly labeled image for model training

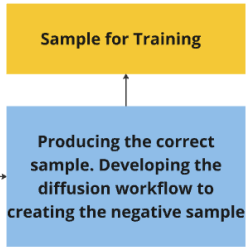
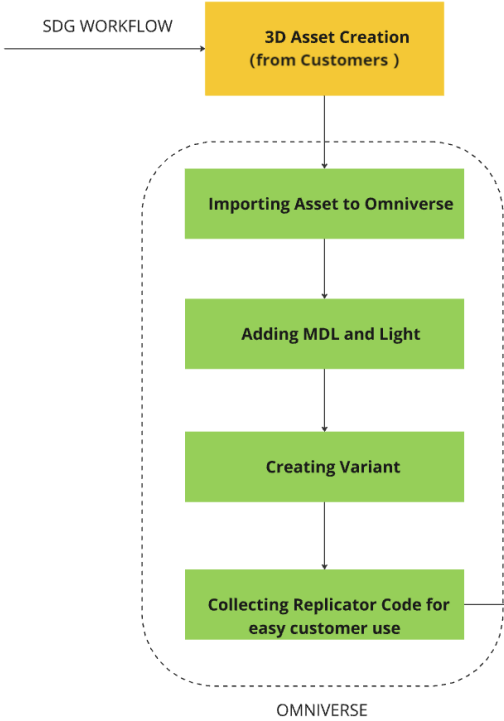


Data Generation and Output

Output data in the right format to seamlessly work with TAO toolkit and streamline the training workflow

NVIDIA Omniverse for Synthetic Data Generation

Generative AI-enabled synthetic data generation pipeline for Seat Scenario



▼ Last week



_seat_example_10_rgb_0002_sdg.jpg



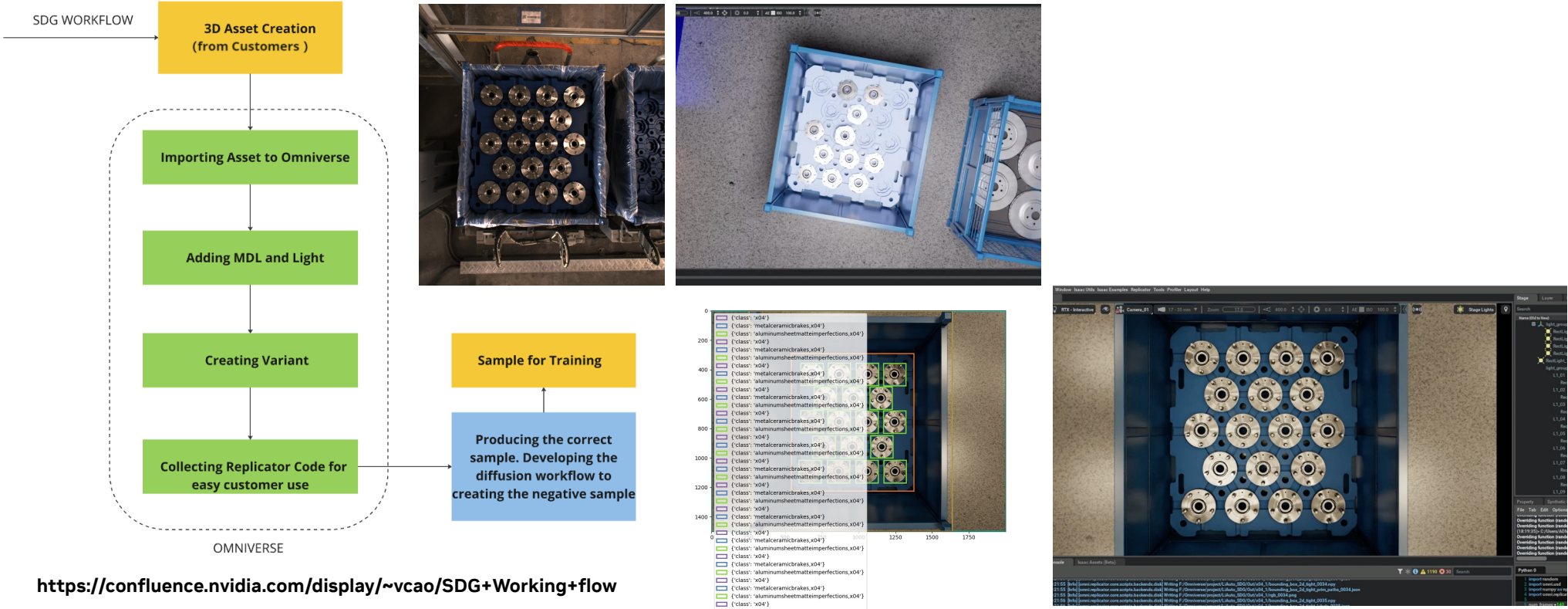
_seat_example_9_rgb_0002_sdg.jpg



_seat_example_6_rgb_0002_sdg.jpg

NVIDIA Omniverse for Synthetic Data Generation

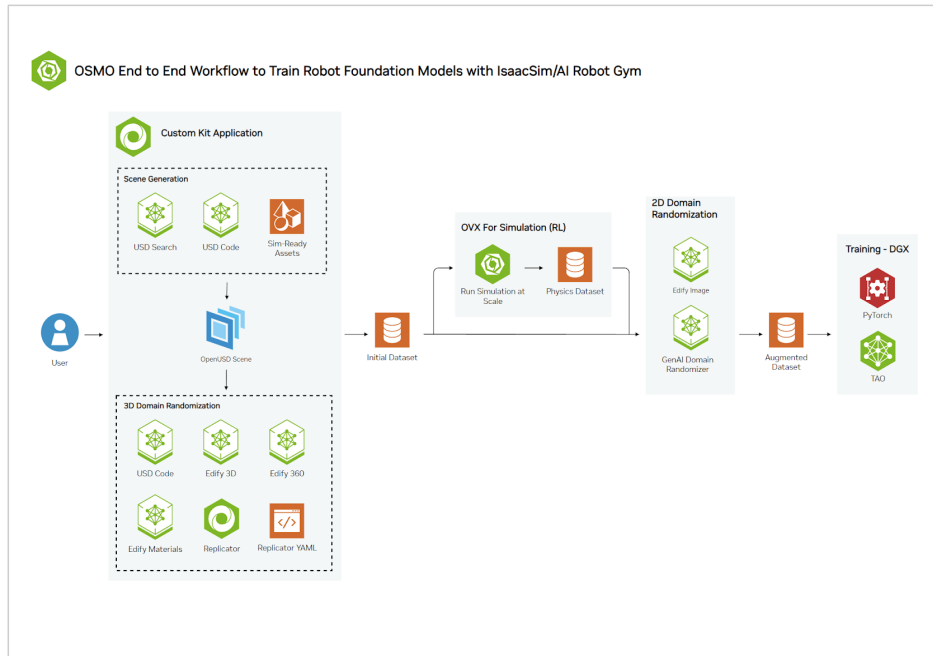
Generative AI-enabled synthetic data generation pipeline for Seat Scenario



NVIDIA Omniverse and NIM for Synthetic Data Generation

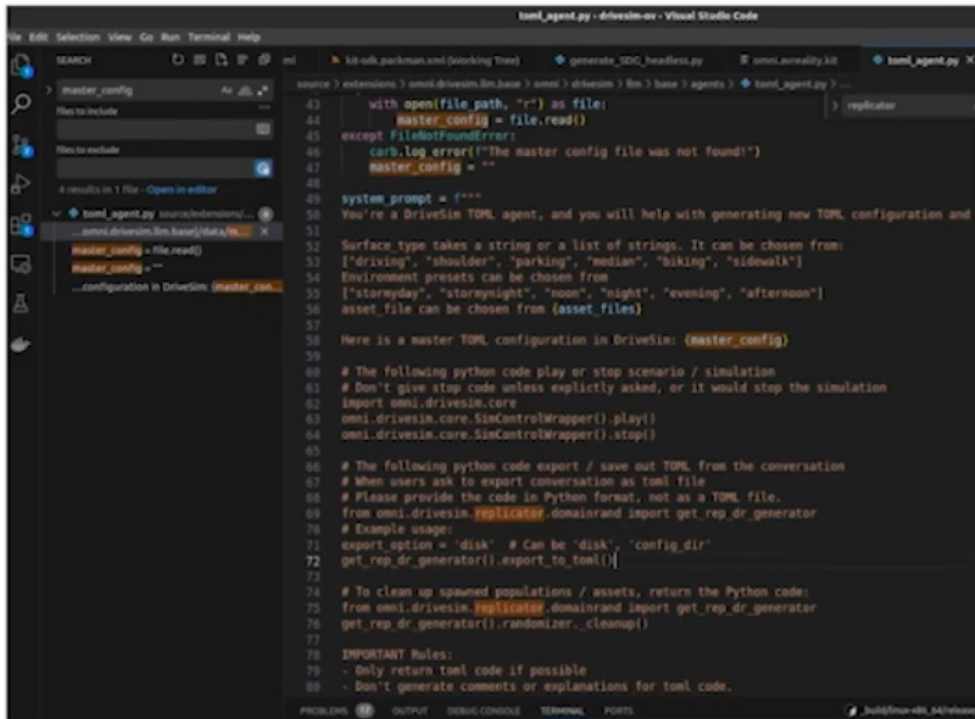
Generative AI-enabled synthetic data generation pipeline for perception robot models

Omniverse, Isaac Sim, USD NIM, SDXL NIM

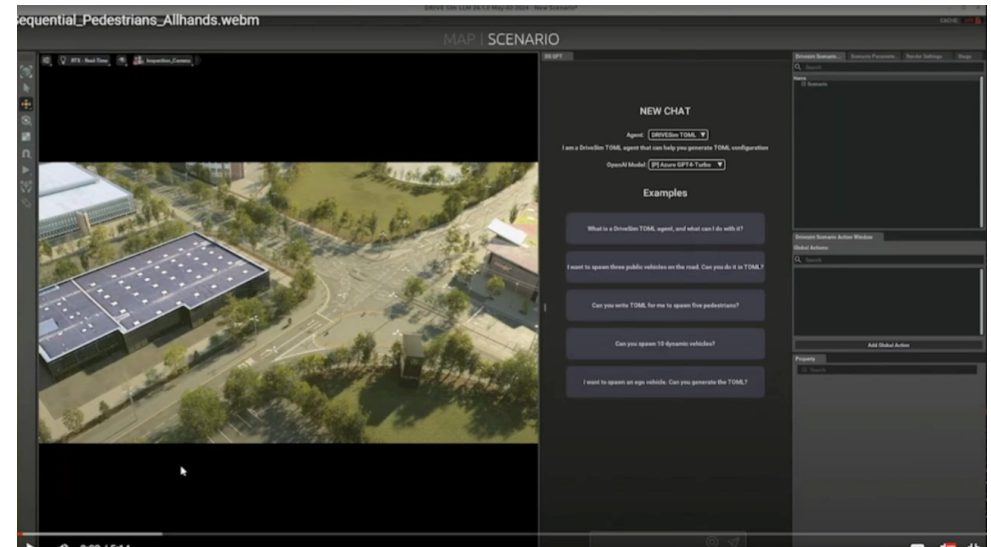


Generative AI Scenario

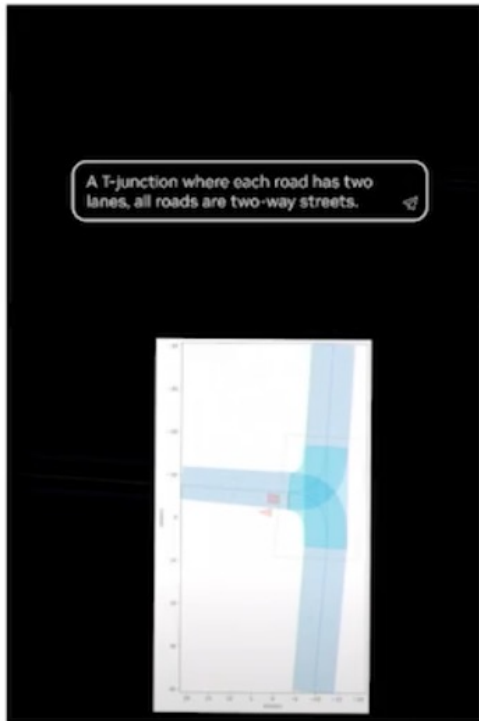
LLM2Scenario: How we use generative AI to scale up scenario creation



```
43 with openfile_path, "r") as file:
44     master_config = file.read()
45 except FileNotFoundError:
46     carb.log_error("The master config file was not found!")
47     master_config = ""
48
49 system_prompt = """
50 You're a DriveSim TOML agent, and you will help with generating new TOML configuration and
51
52 Surface.type takes a string or a list of strings. It can be chosen from:
53 ['driving', 'shoulder', 'parking', 'median', 'biking', 'sidewalk']
54 Environment presets can be chosen from
55 ['stormyday', 'stormynight', 'noon', 'night', 'evening', 'afternoon']
56 asset_file can be chosen from (asset_files)
57
58 Here is a master TOML configuration in DriveSim: (master_config)
59
60 # The following python code play or stop scenario / simulation
61 # Don't give stop code unless explicitly asked, or it would stop the simulation
62 import omni.drivesim.core
63 omni.drivesim.core.SimControlWrapper().play()
64 omni.drivesim.core.SimControlWrapper().stop()
65
66 # The following python code export / save out TOML from the conversation
67 # When users ask to export conversation as toml file
68 # Please provide the code in Python format, not as a TOML file.
69 from omni.drivesim.replicator.domainrand import get_rep_dr_generator
70 # Example usage:
71 export_option = 'disk' # Can be 'disk', 'config_dir'
72 get_rep_dr_generator().export_to_toml()
73
74 # To clean up spawned populations / assets, return the Python code:
75 from omni.drivesim.replicator.domainrand import get_rep_dr_generator
76 get_rep_dr_generator().randomizer_cleanup()
77
78 IMPORTANT Rules:
79 - Only return toml code if possible
80 - Don't generate comments or explanations for toml code.
```



Scaling SDG with 4 Pillars: Content



LLM-Generated Maps



Content API via OpenUSD



SDG GTs with NeRF

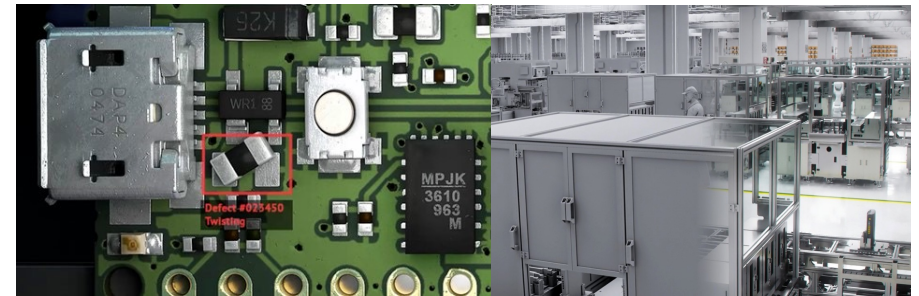
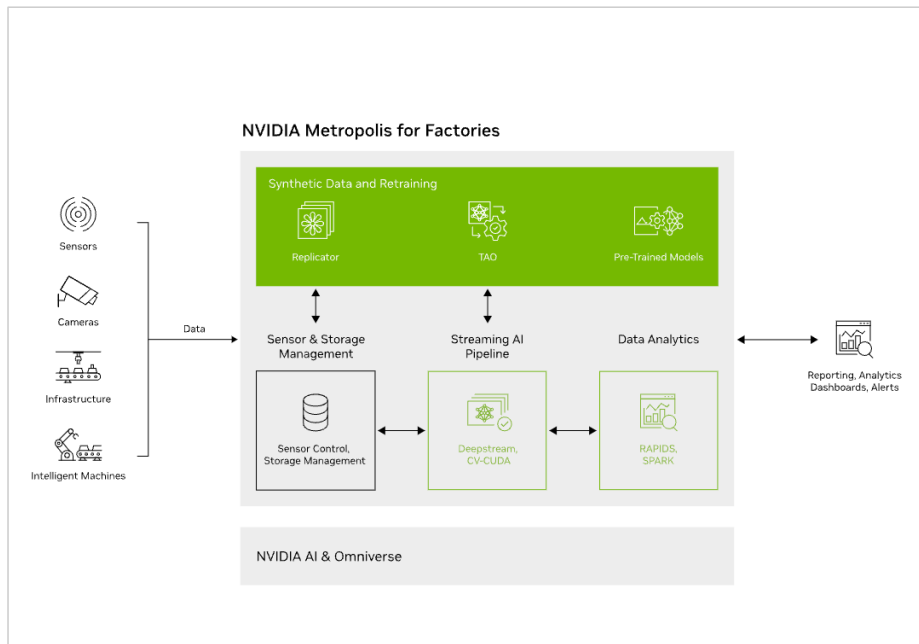
NeRF with SDG GTs

- Occupancy Voxels, built on top of fvDB
- 3D boxes
- Freespace



Automated Optical Inspection

Metropolis & Omniverse VFI

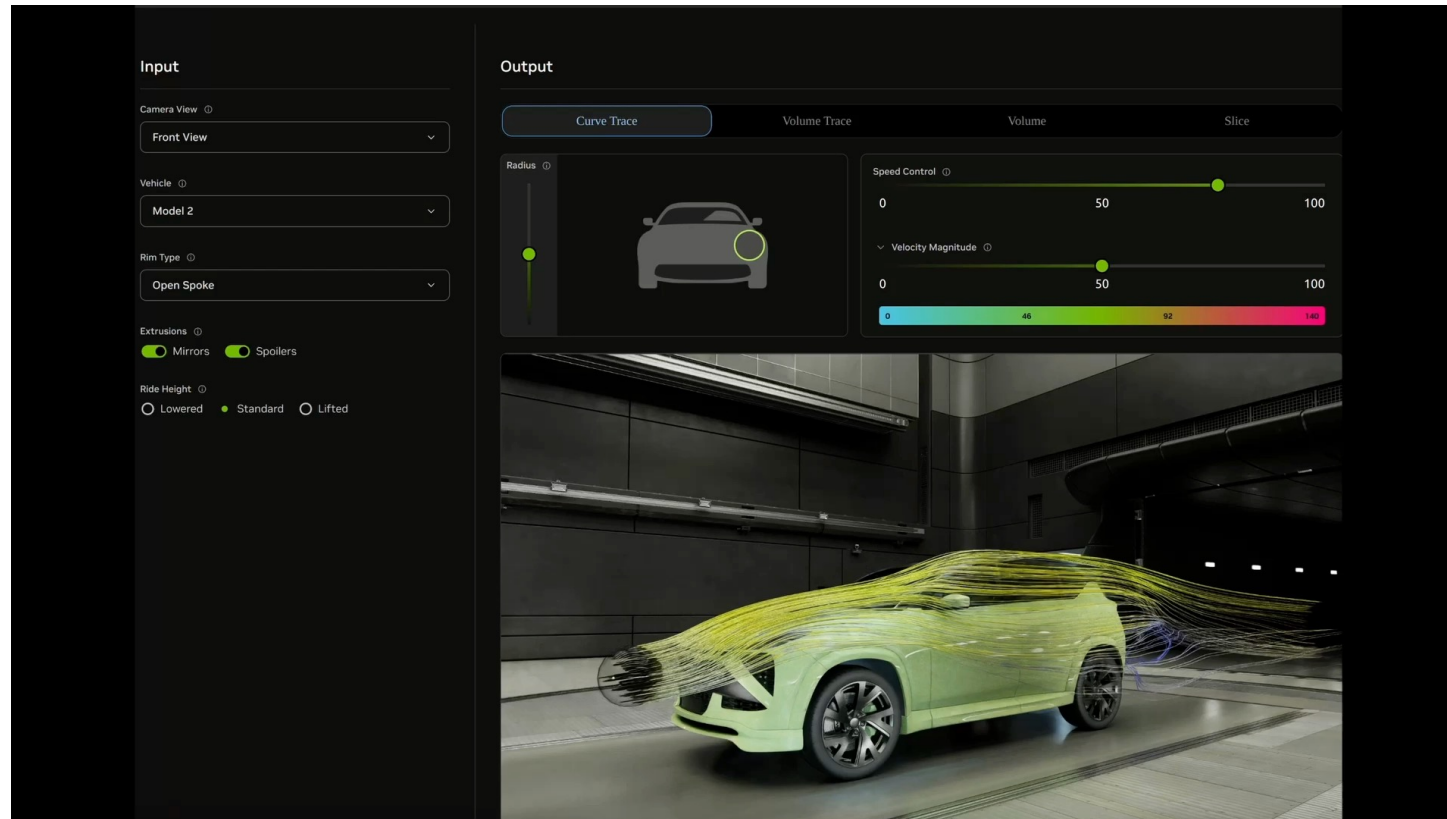


- [Webpage](#)
- [Early Access Link](#)
- [Explainer Blog](#)
- [GPU Genius Hub](#)

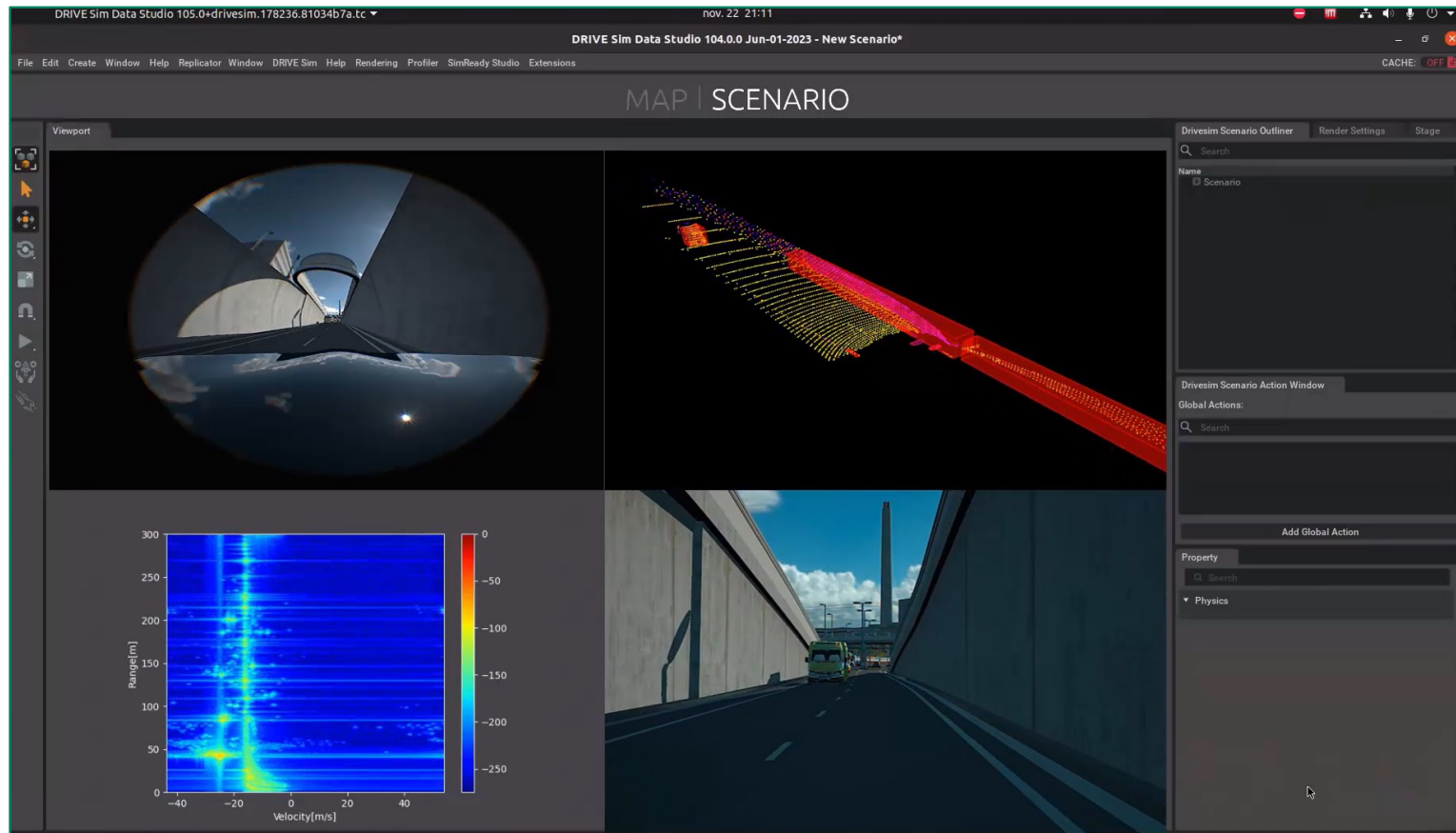


CAE Simulation

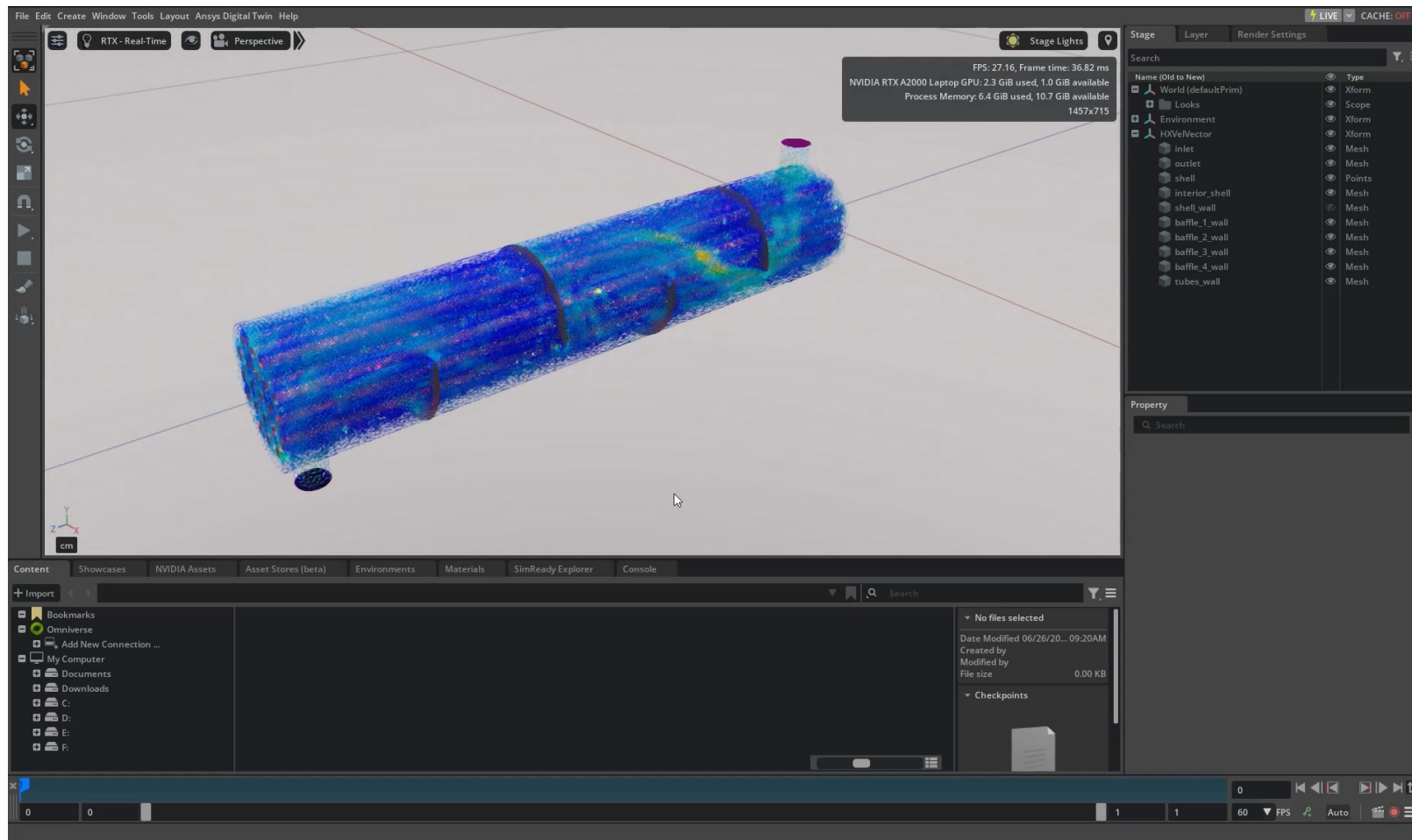
Modulus Simulation Display in Omniverse



Augmenting Drive Sim with Ansys Avxcelerate Physics



Particle System Display

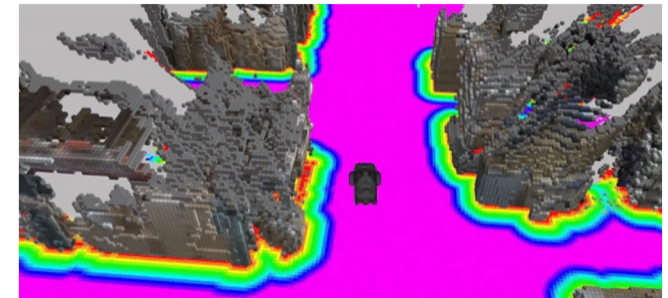




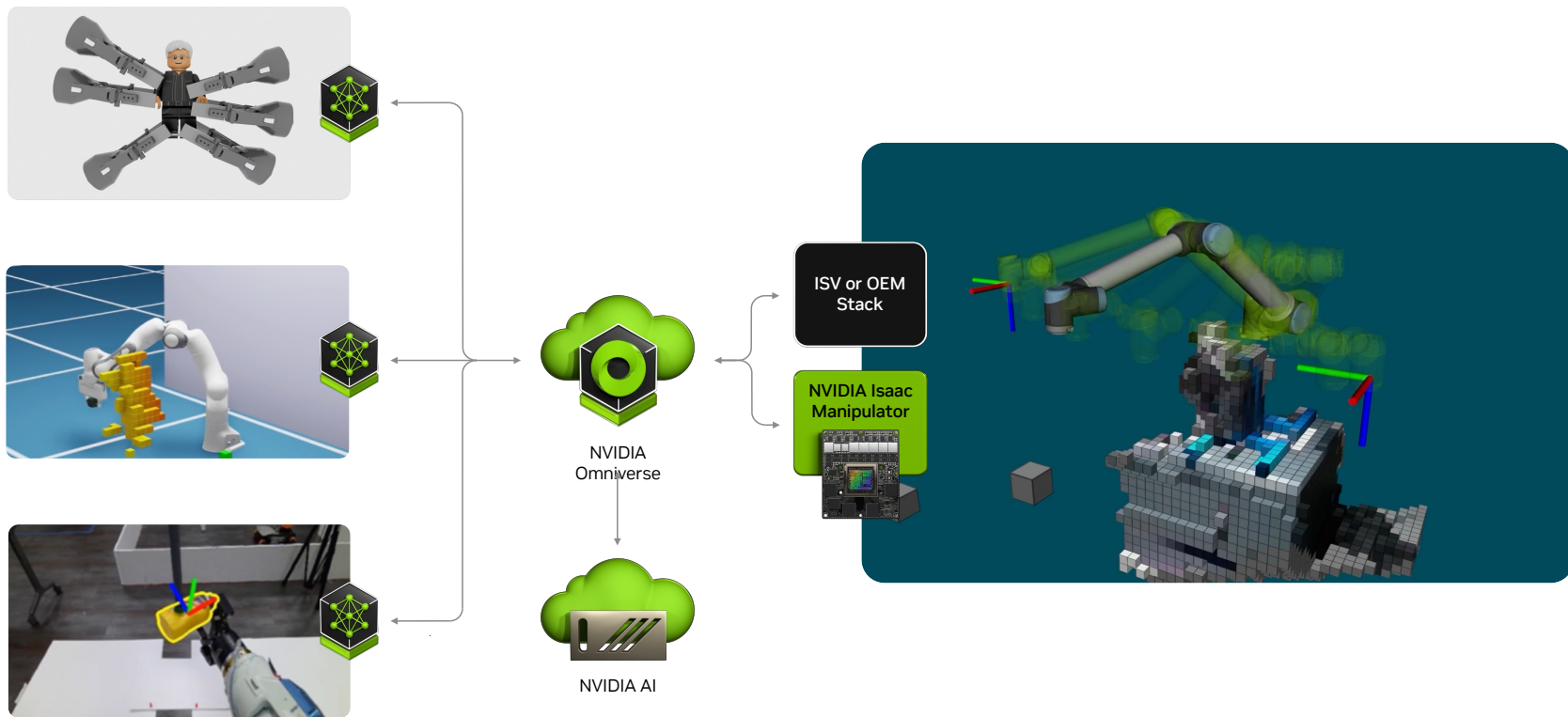
Robotics & Physical AI

Digital Twins are Where Robots Learn to be Robots

Virtual training grounds for simulation, testing, synthetic data generation



Integrating Isaac Manipulator into our Ecosystem



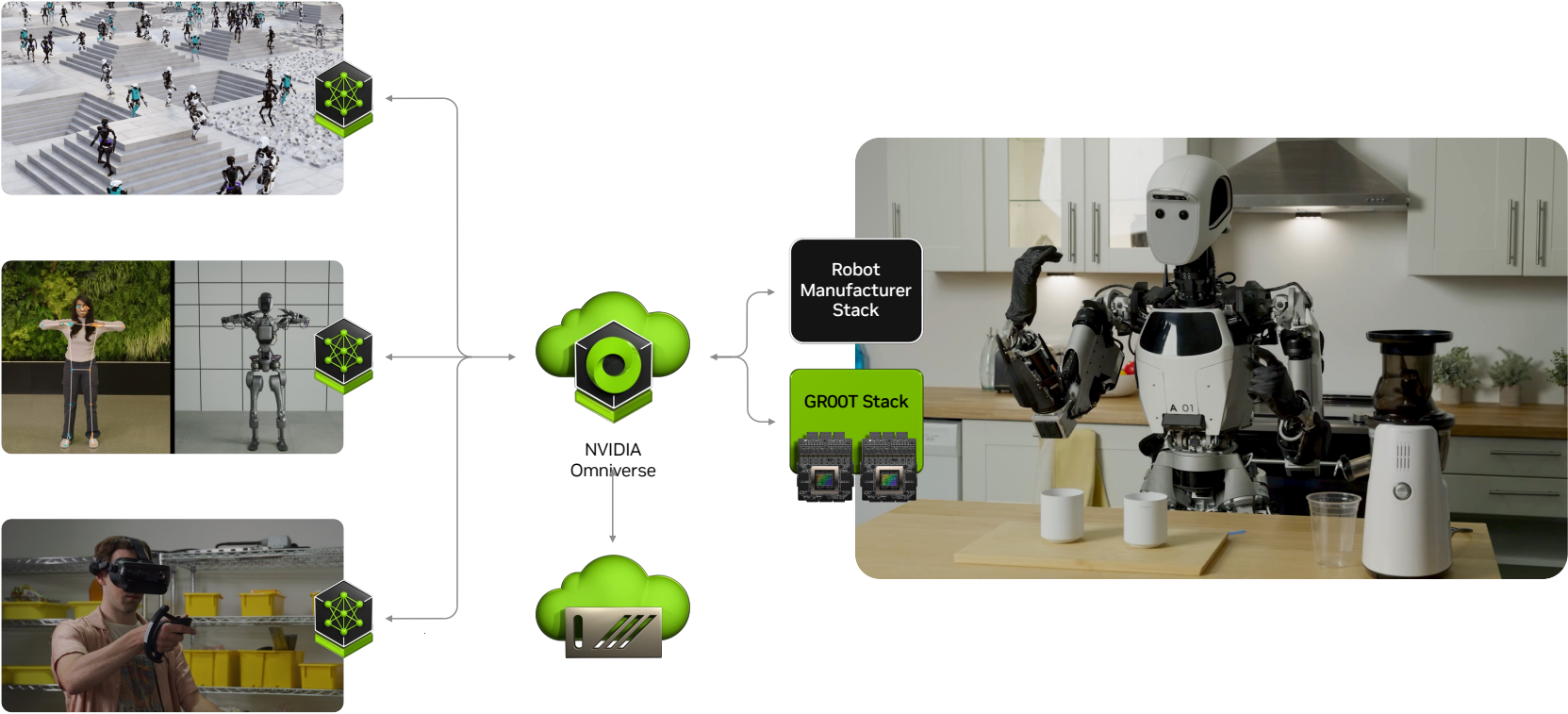
INTRINSIC

SIEMENS

IRIMR
TETRA Technologies

VENTION

Integrating Isaac & Project GROOT into our Ecosystem



APPTRONIX

NVIDIA Accelerates Humanoid Robotics Development

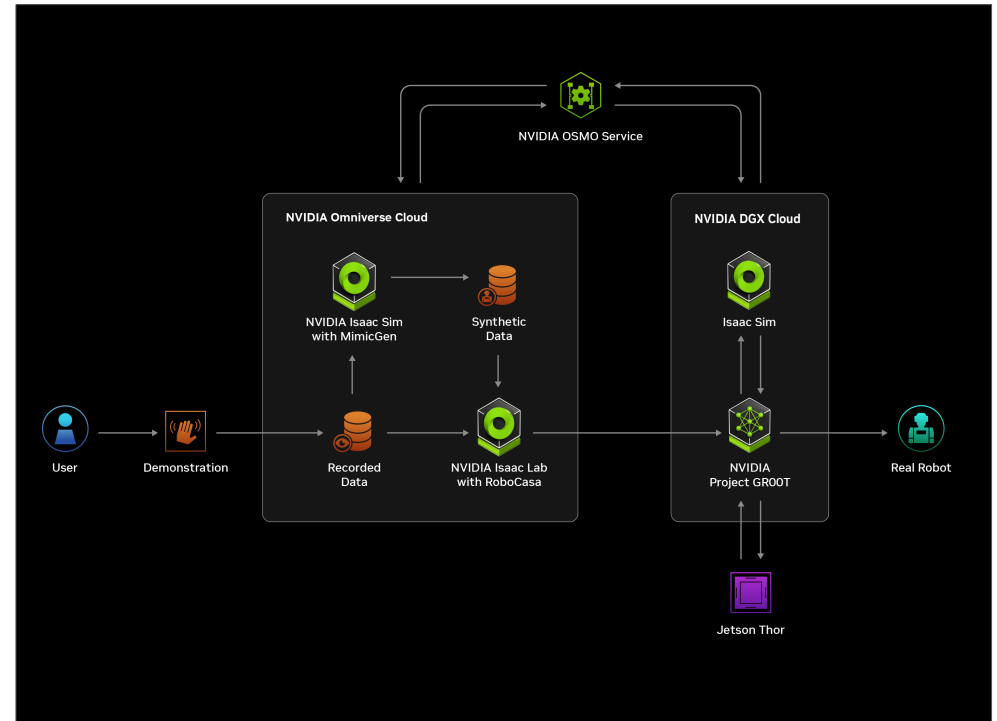
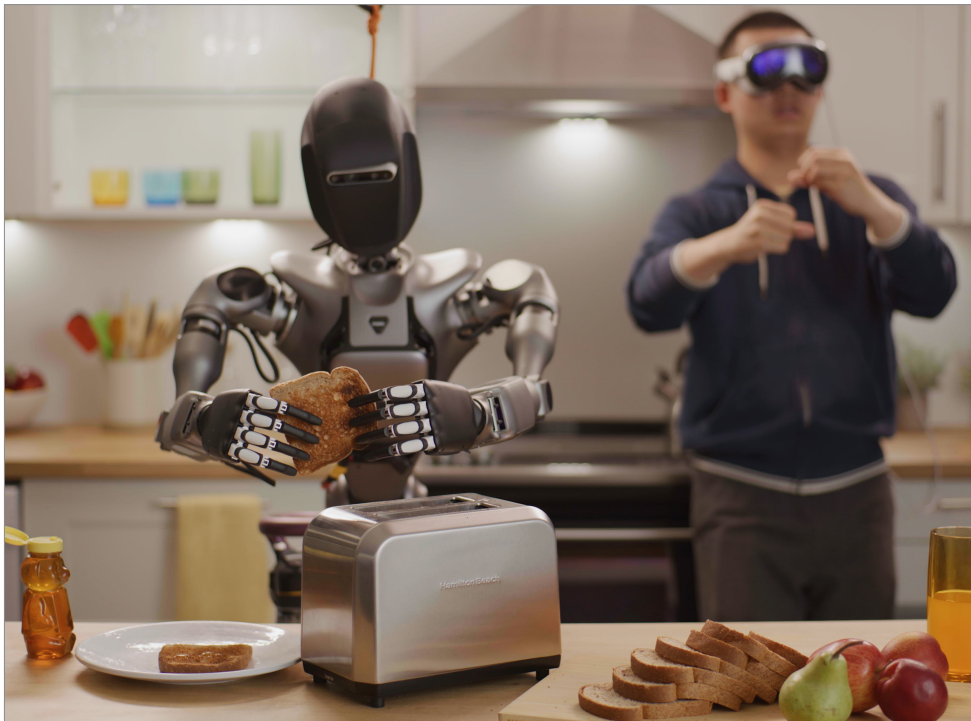


MimicGen



Robocasa

NVIDIA Accelerates Humanoid Robotics Development





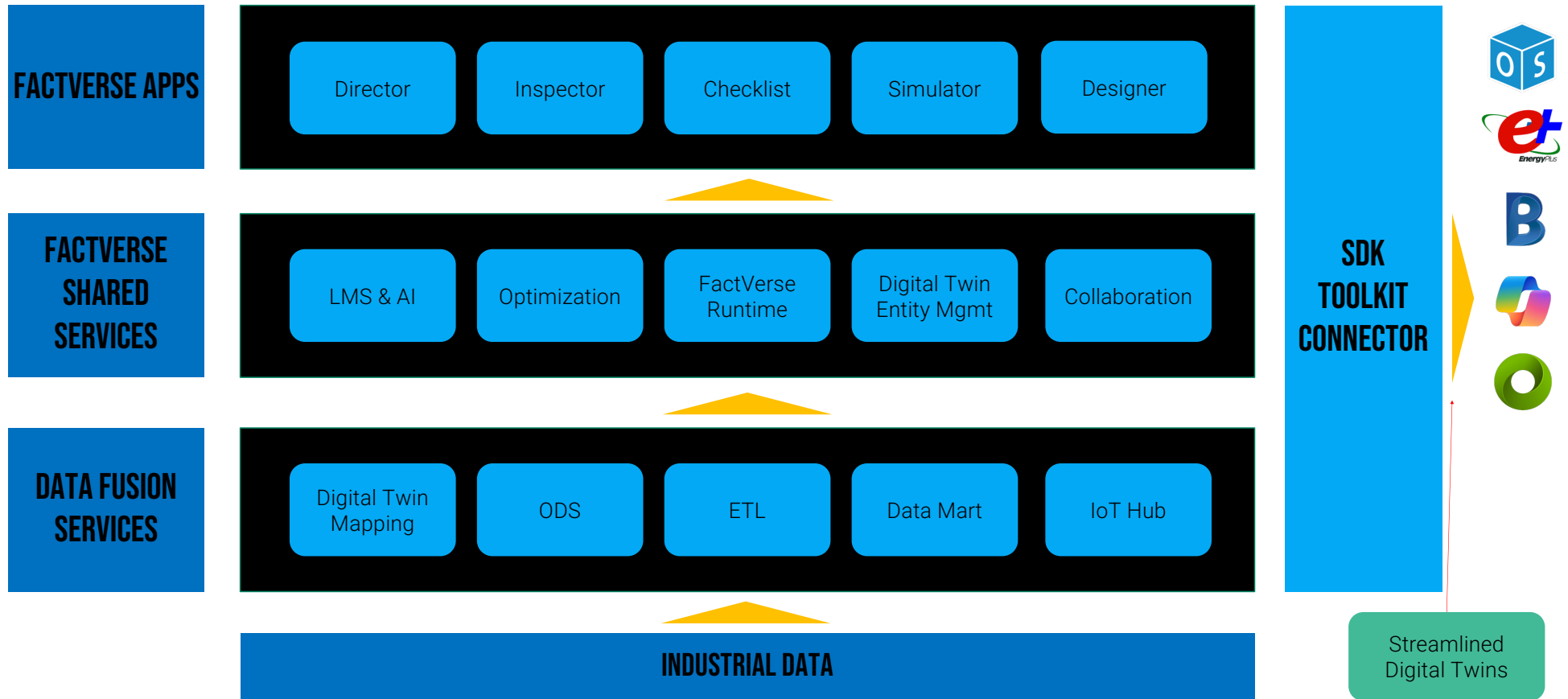
Ecosystem

DATAMESH FACTVERSE

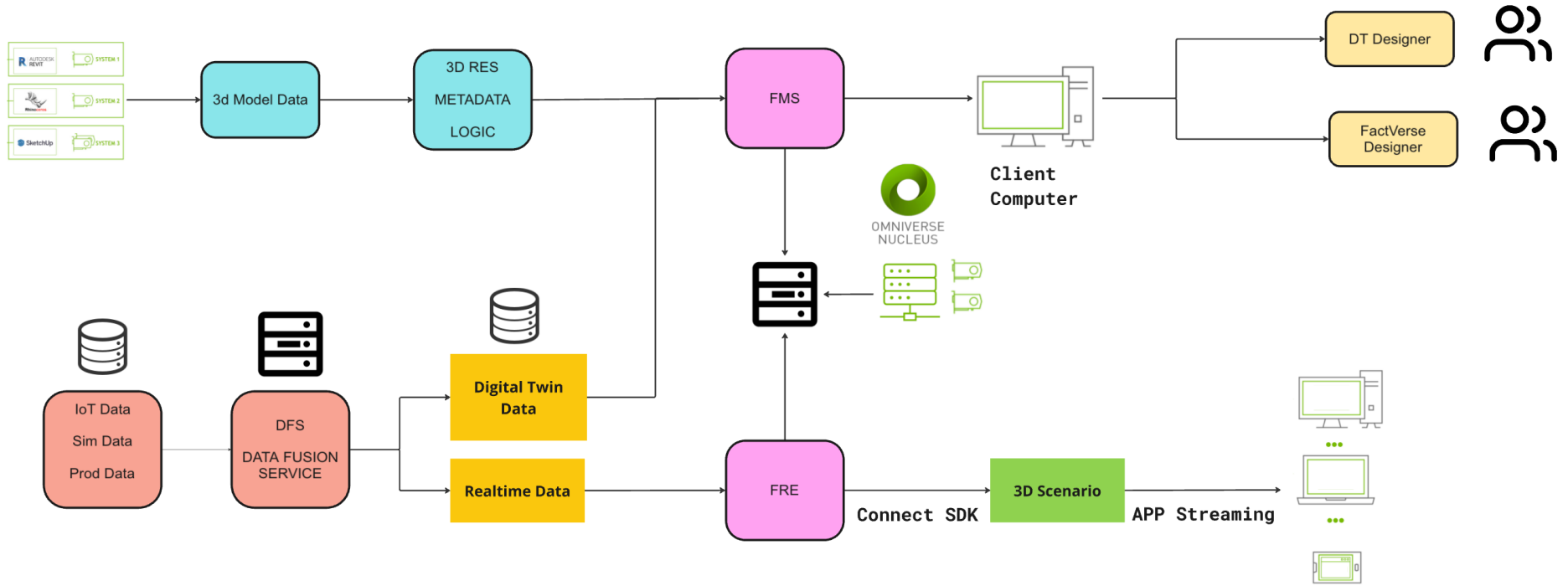


基于仿真级数字孪生 (SDT) 的技术驱动, 优化改进业务流程中的难点问题

FACTVERSE PLATFORM AND APPS(DATA MESH)



THE WORKFLOW IN BETWEEN DATAMESH AND OMNIVERSE



THE WORKFLOW IN BETWEEN DATAMESH AND OMNIVERSE

