



Exploring Algorithmic Features

Algorithmic Exploration

What is Algorithmic
Modeling

Why Use Algorithmic
Modeling

How it Works – Under
the Hood

Practical Applications

Tips and Tricks

Questions and
Answers

Who is Applied CAx?

APPLIED CAx



A Siemens Software Partner built from a joint venture of Predictive Engineering (FEA consulting services) and Applied CAx, a systems integrator.

Focused on A&D and Renewable Energy, Applied was recognized as Siemens North American Partner of the Year: 2023, 2020 & 2016.

NX CAE FEMAP TEAMCENTER LS-DYNA FIBERSIM STAR-CCM+ NX PLANT SIM SIM PROCESS

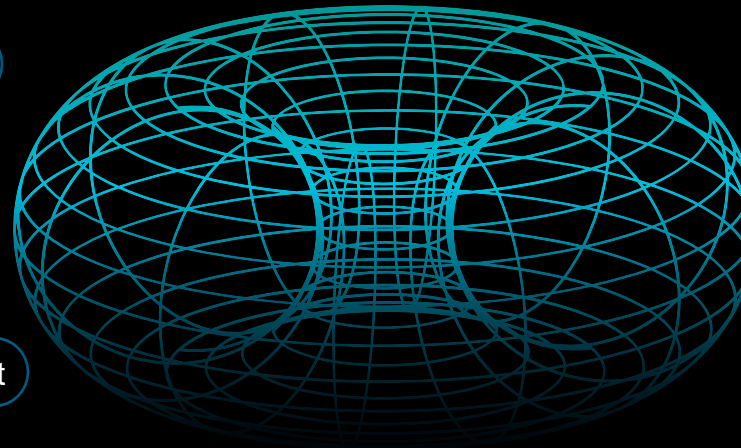
FEA consultants

CFD consultants

5 simulation Engineers (PhDs, MEs, PEs)

Training for FEMAP & NX Nastran

Training for LS-DYNA Implicit & Explicit



Veteran Teamcenter Architects

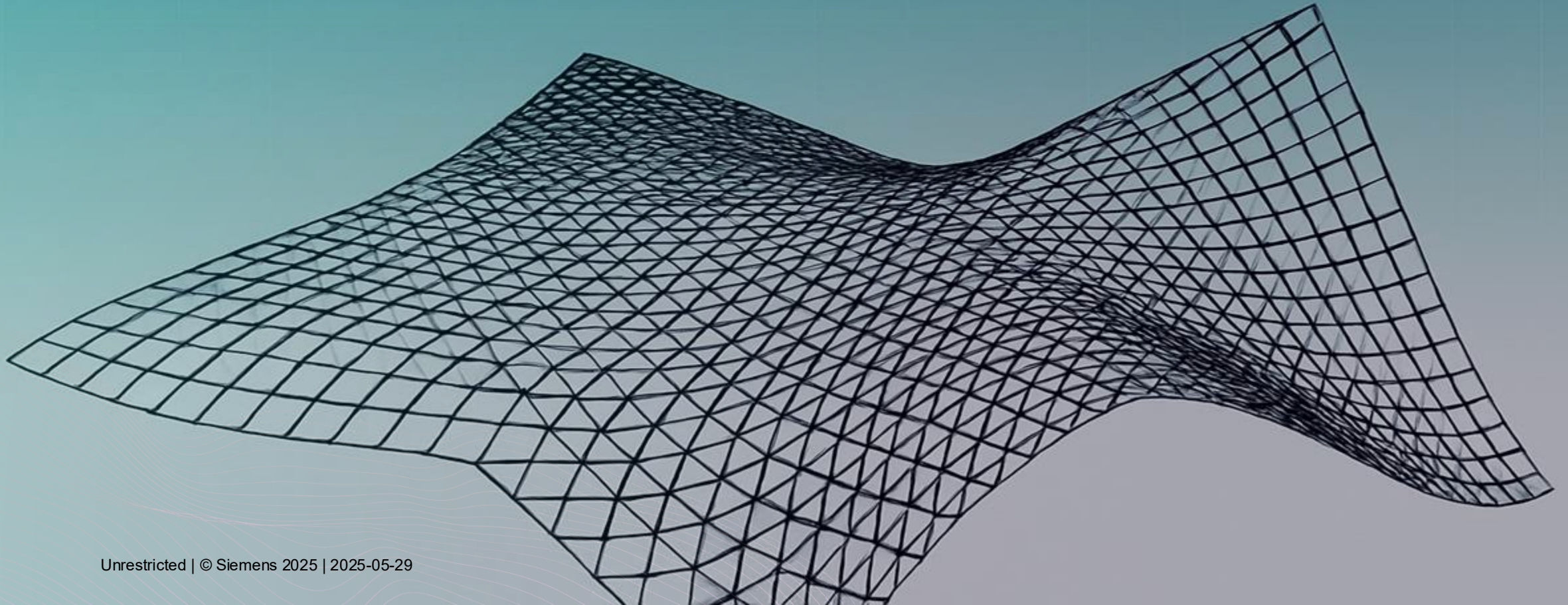
Senior NX Application Engineers

Training for NX CAD/CAM & Teamcenter

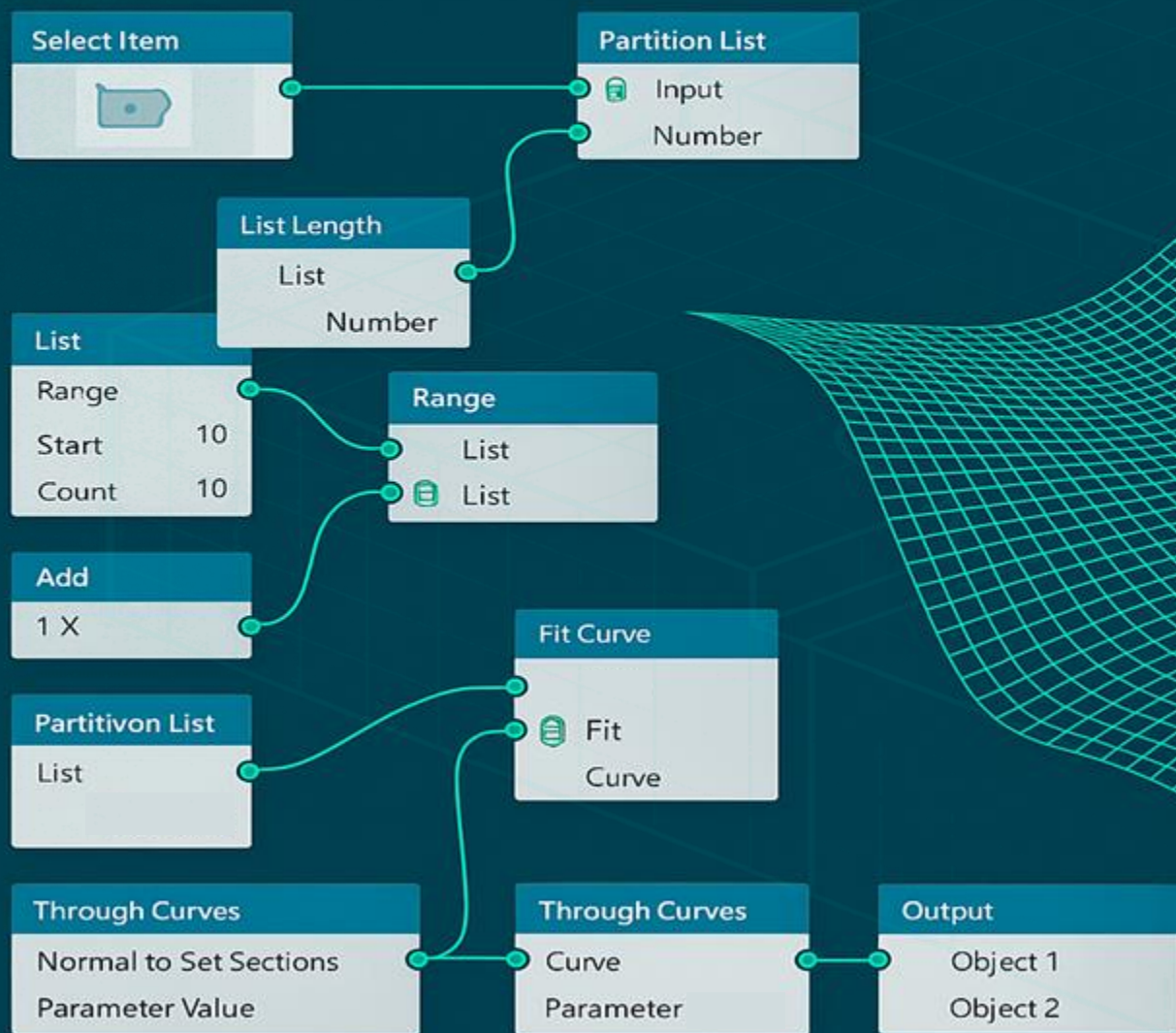
Deep Design Experience

PDM Expertise

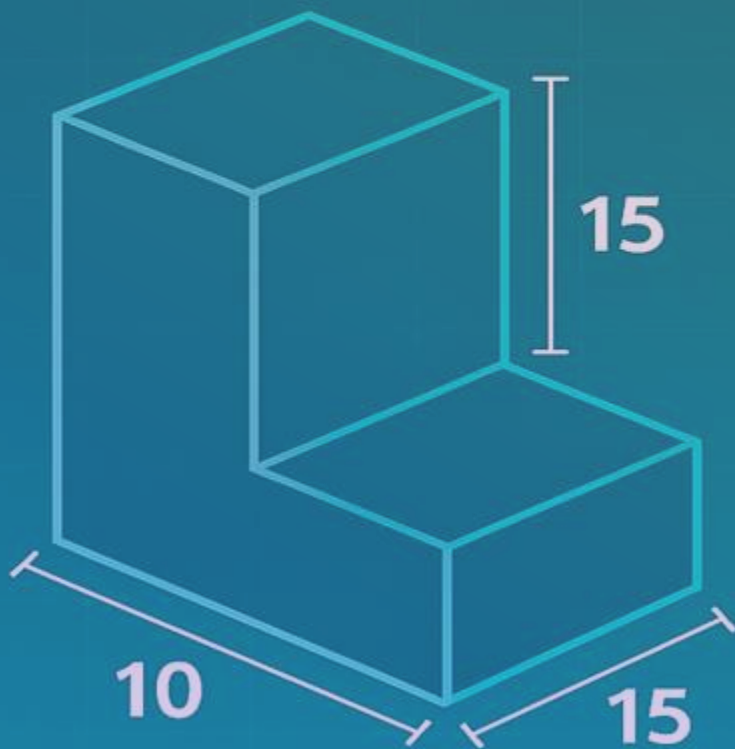
What is Algorithmic Modeling



Algorithmic Modeling



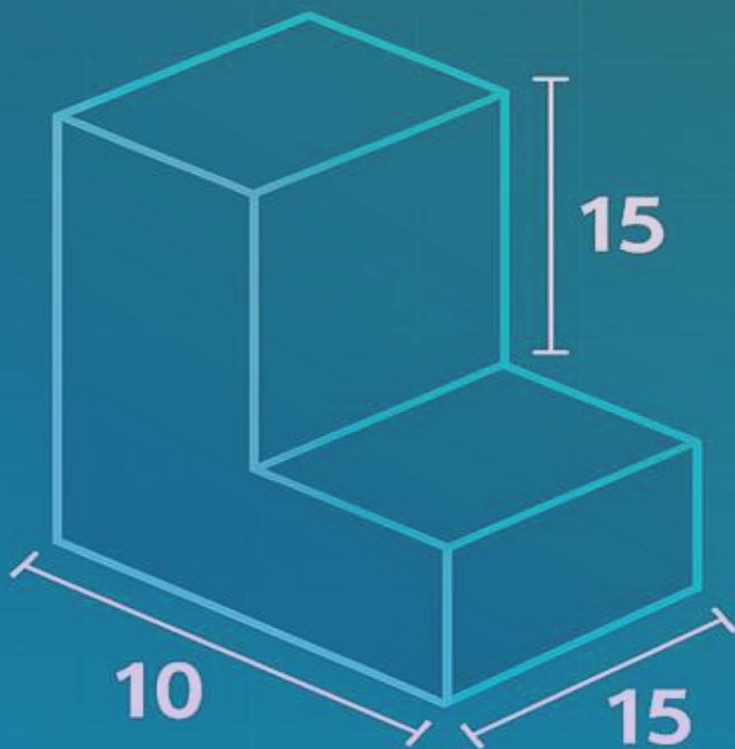
PARAMETRIC MODELING



ALGORITHMIC MODELING



PARAMETRIC MODELING



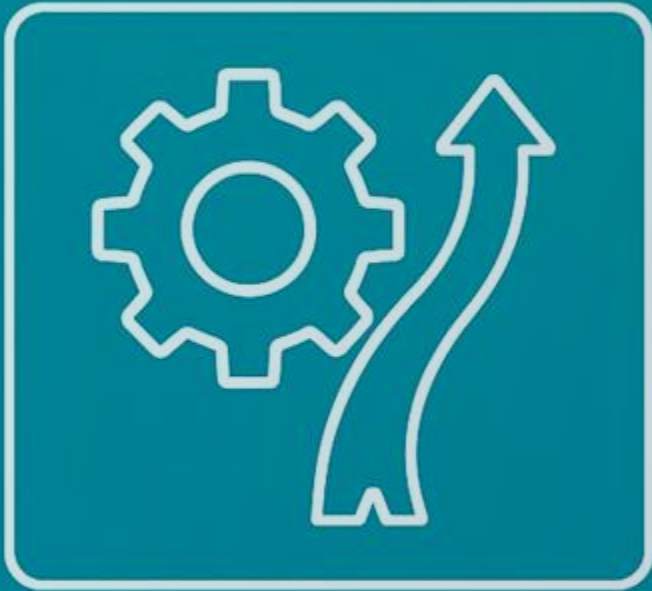
ALGORITHMIC MODELING



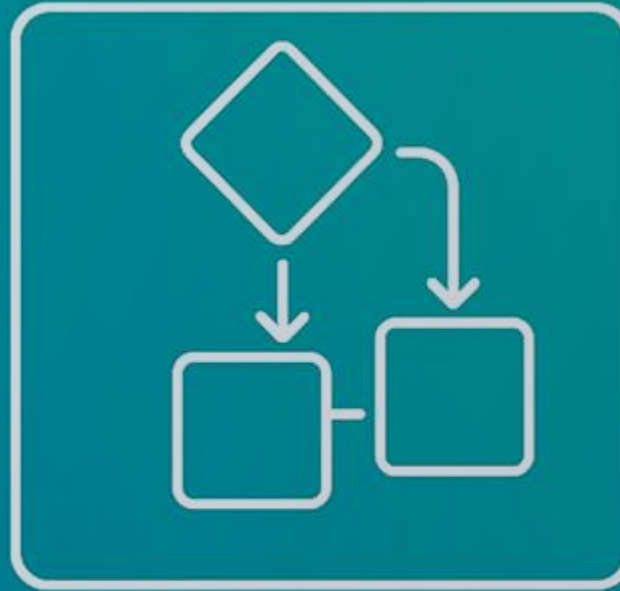
WHY USE ALGORITHMIC MODELING

The benefits of a logic-driven design approach

Why Use Algorithmic Modeling



**Design
Automation**

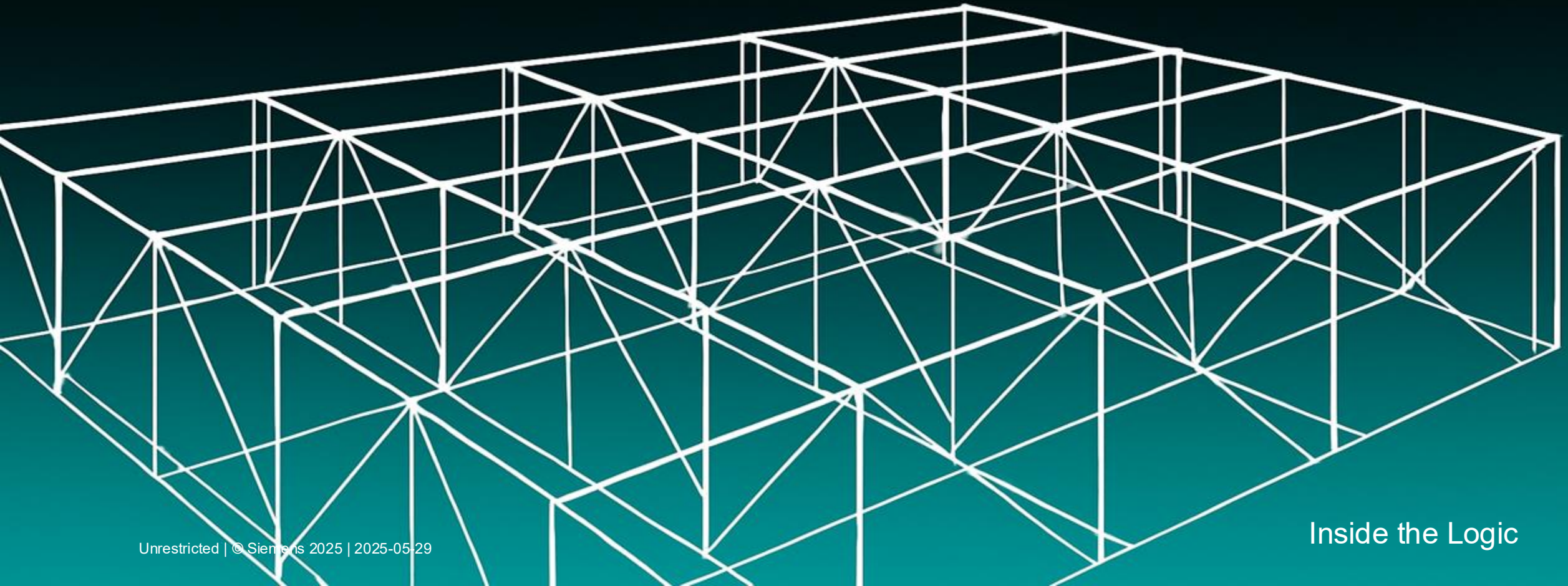


**Parametric
Flexibility**



**Consistency
and Reusability**

UNDER THE HOOD



Inside the Logic

How it Works – Under the Hood



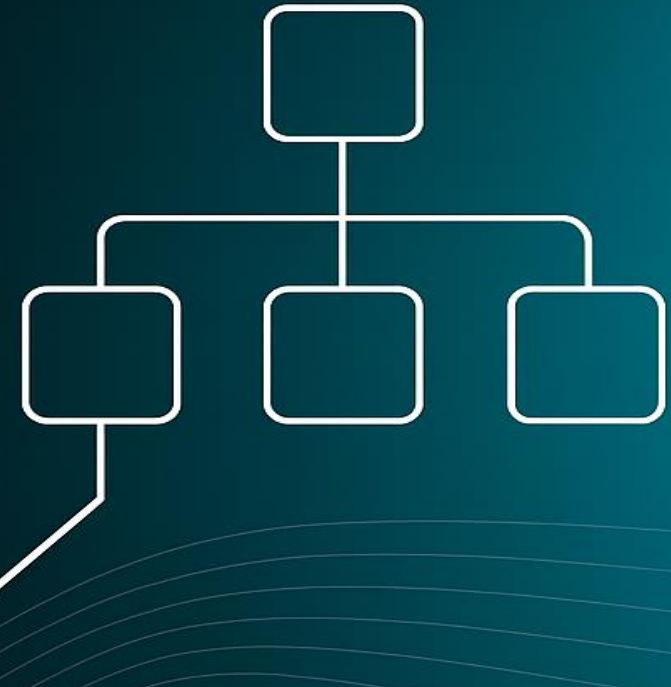
Design Smart
Build Logic
Automate Everything

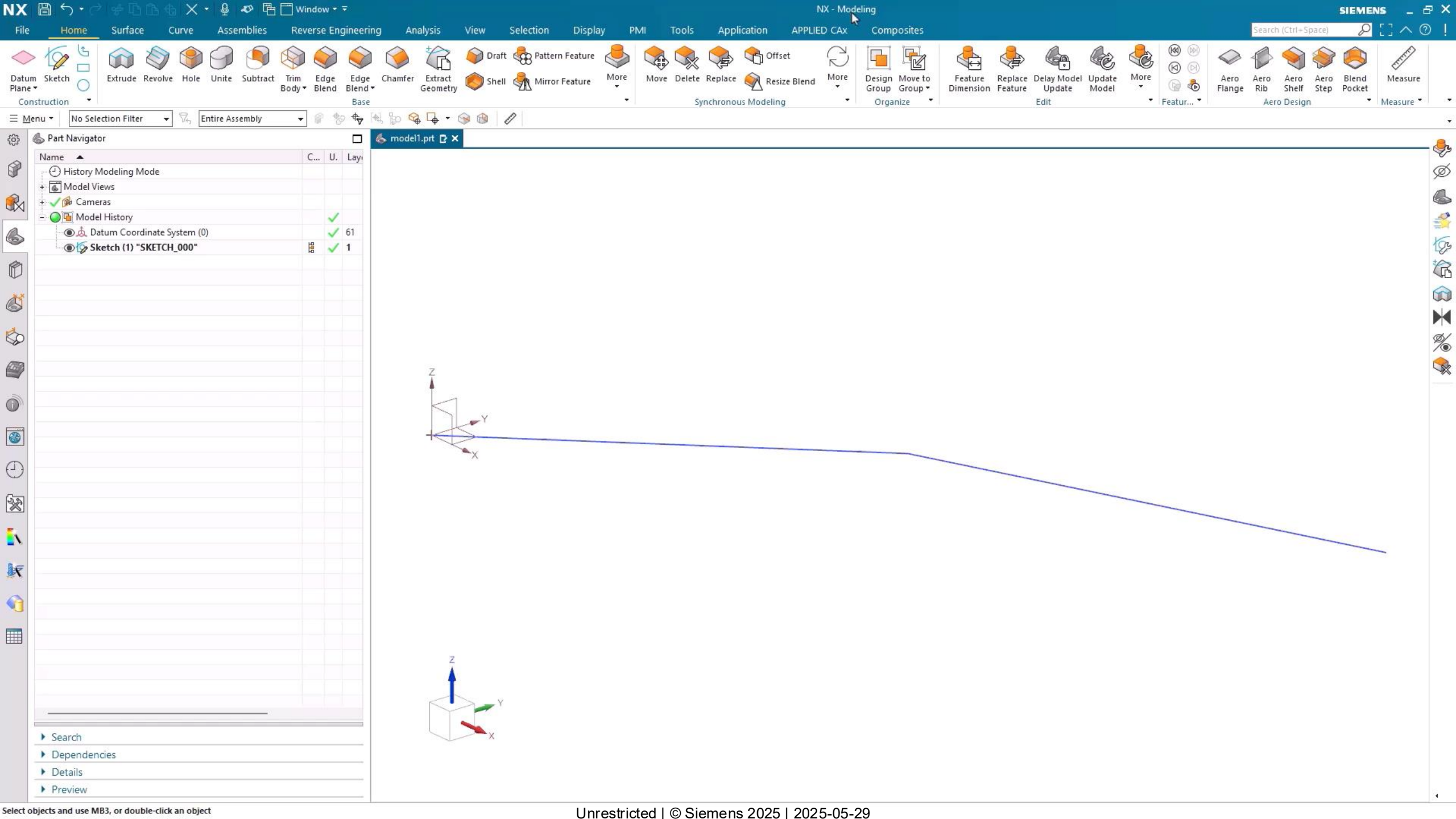
Visual Programming

Flow of Data and Rules

Integrated with NX
Features

INTRO TO ALGORITHMIC MODELING

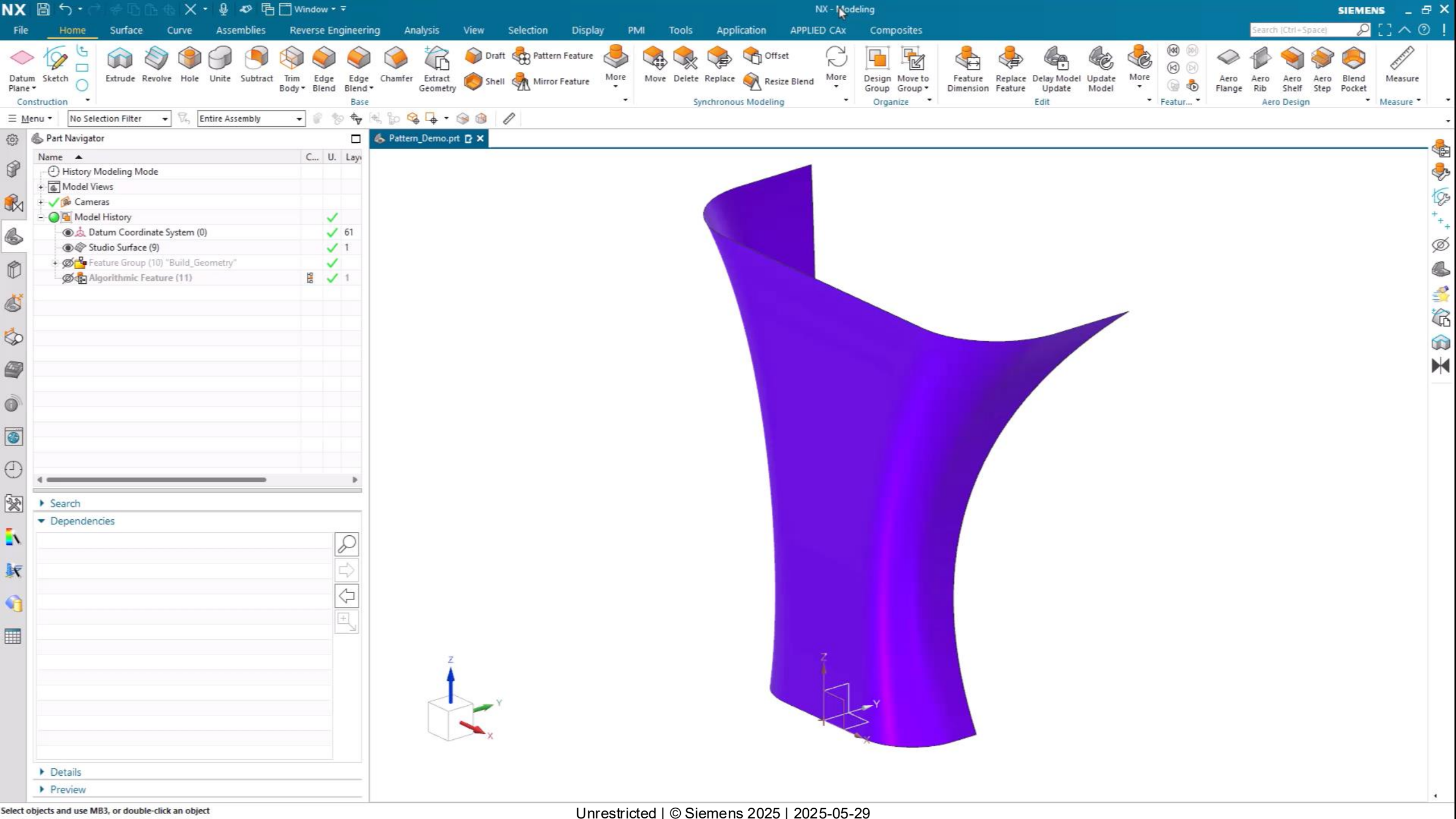


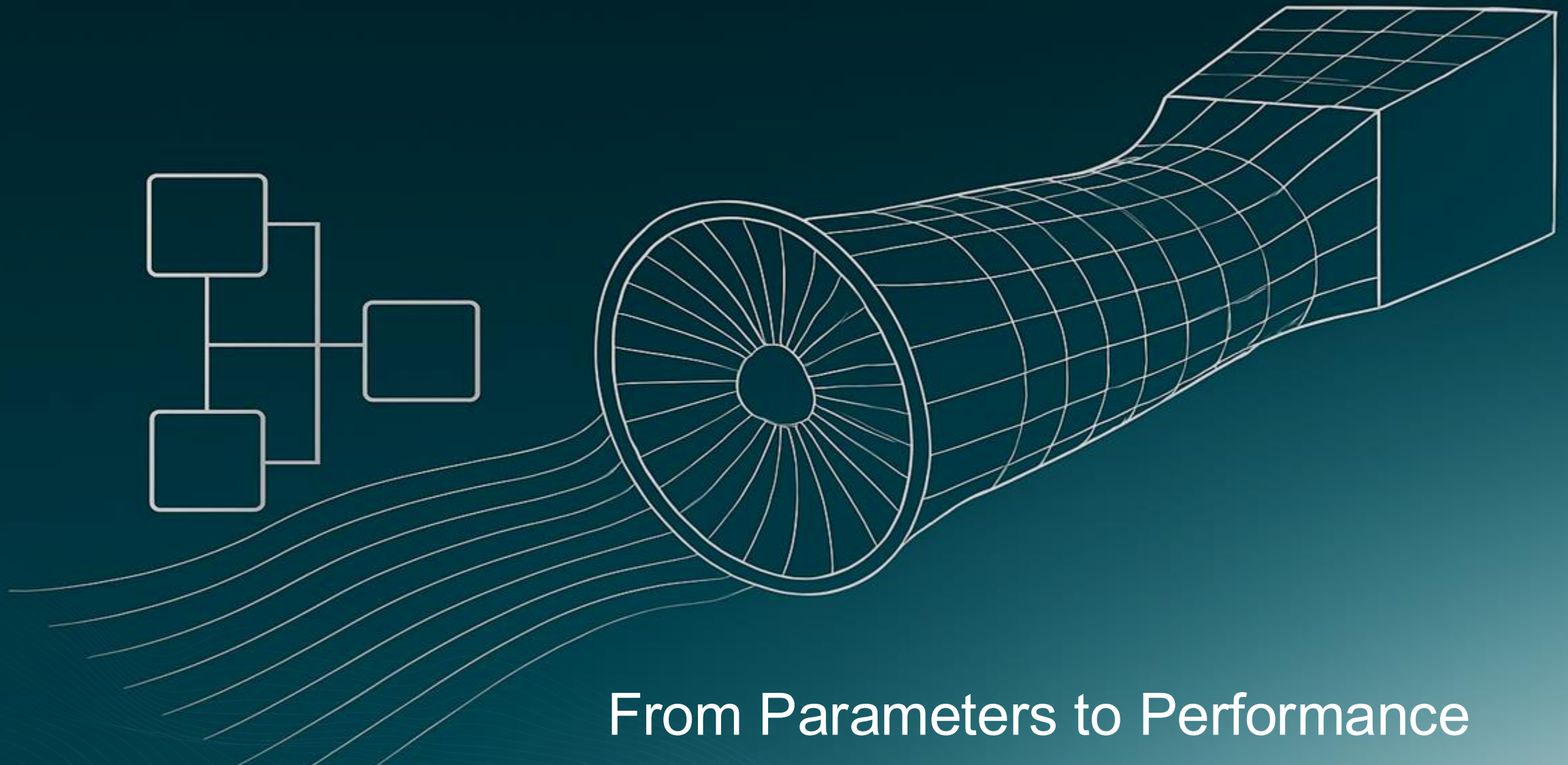




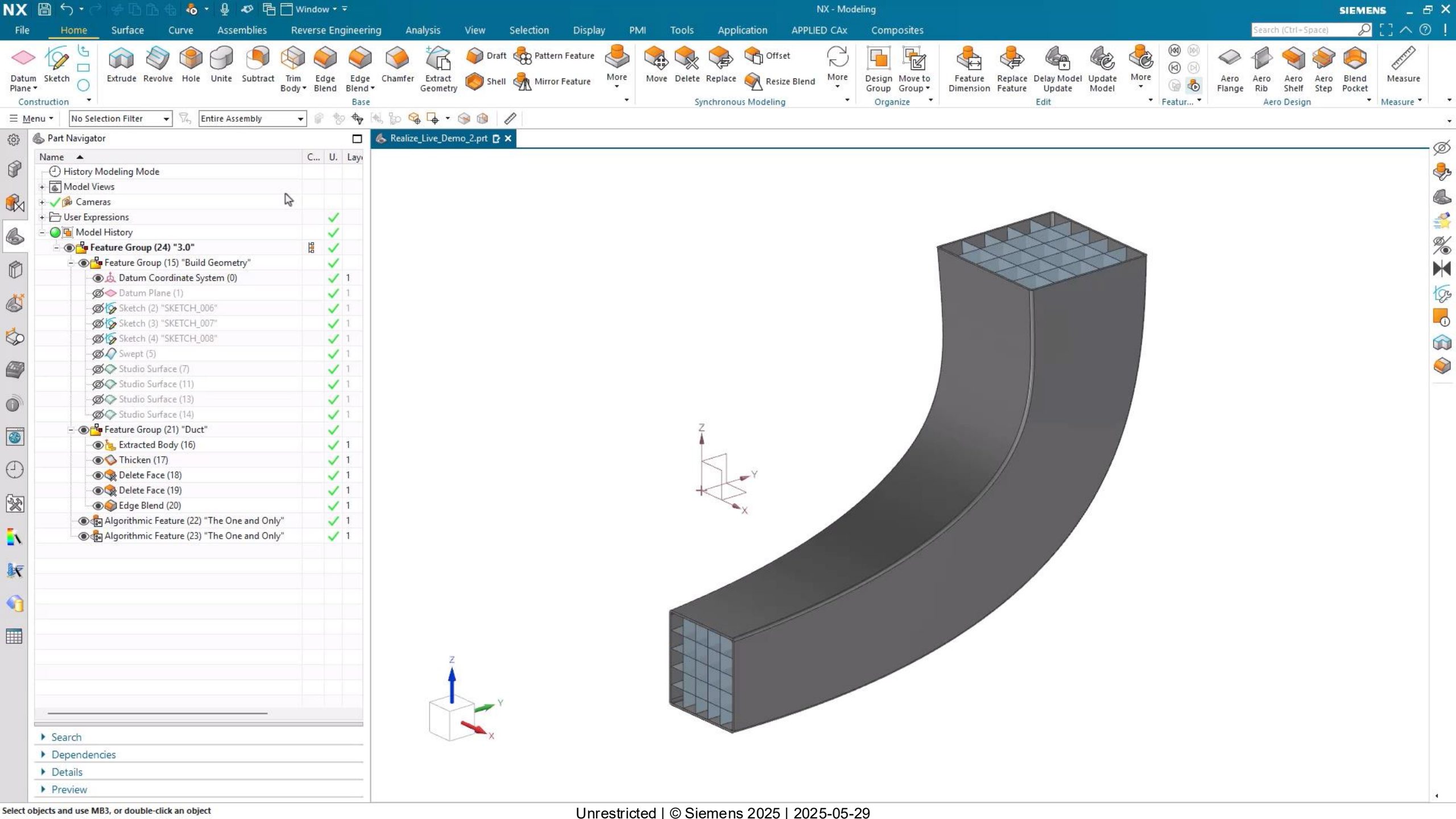
Empowering Design Through Logic



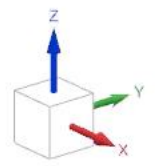


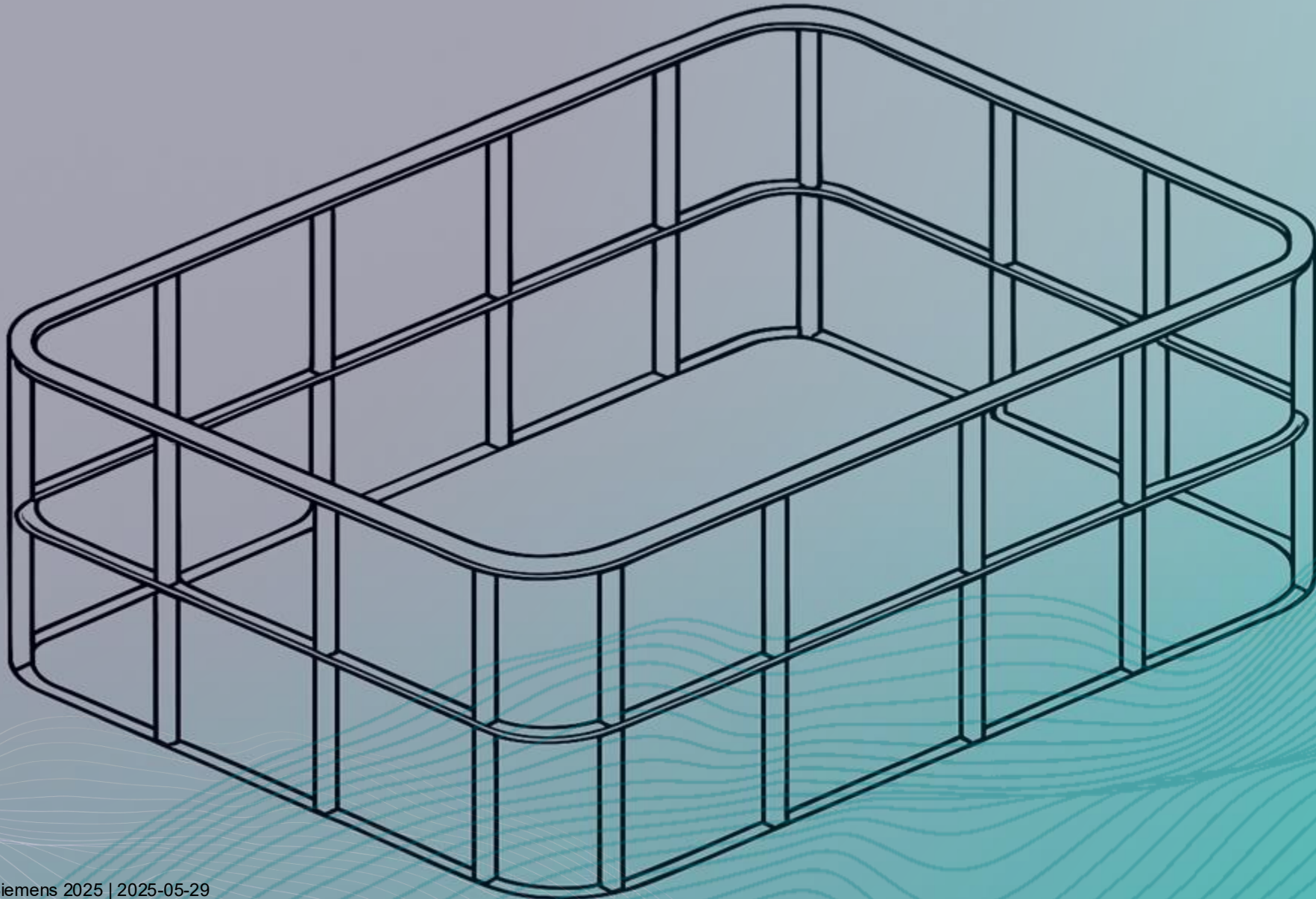


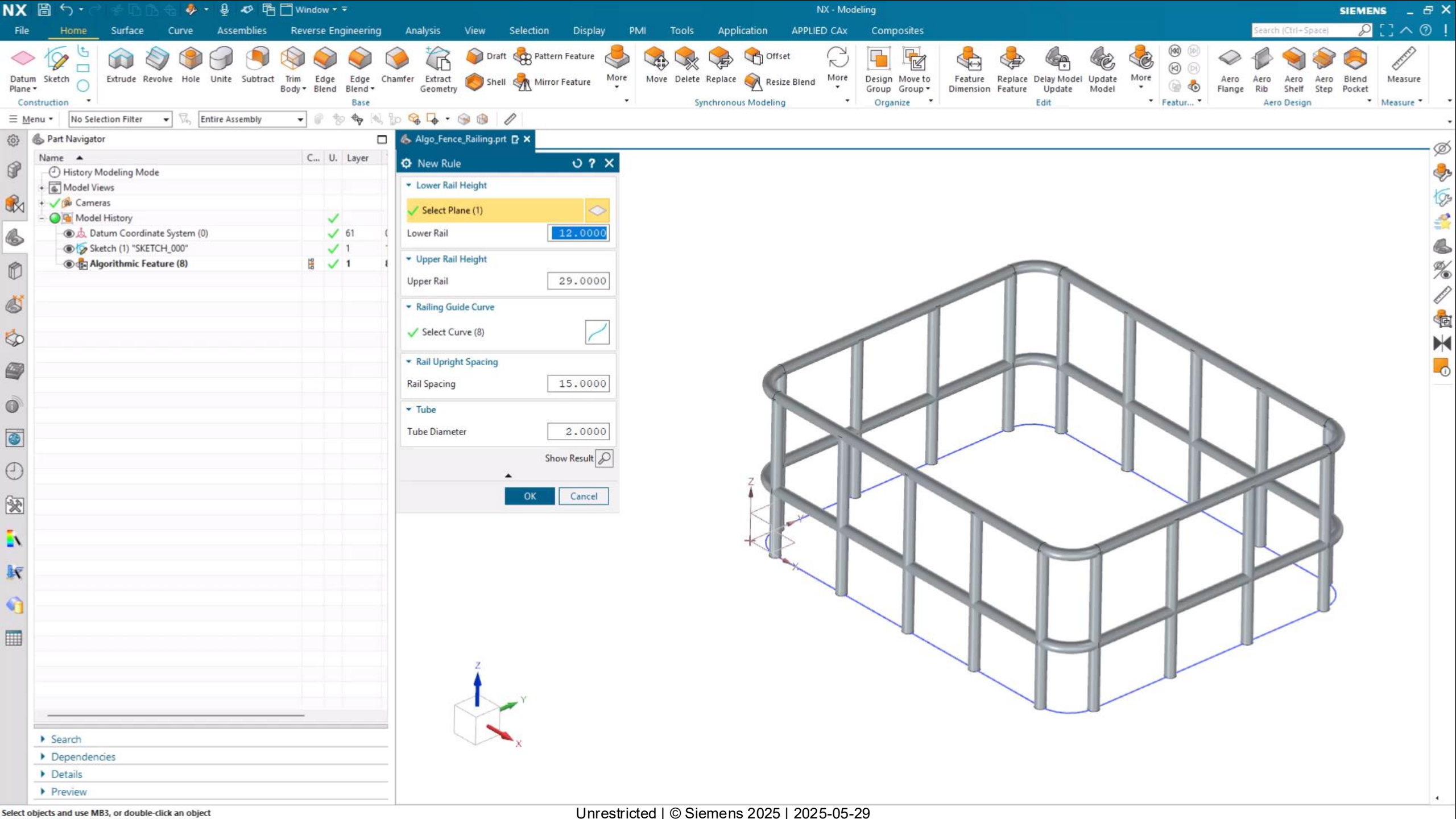
From Parameters to Performance



Name	C...	U.	Lay
History Modeling Mode			
Model Views			
Cameras			
User Expressions			
Model History			
Feature Group (24) "3.0"			
Feature Group (15) "Build Geometry"			
Datum Coordinate System (0)			1
Datum Plane (1)			1
Sketch (2) "SKETCH_006"			1
Sketch (3) "SKETCH_007"			1
Sketch (4) "SKETCH_008"			1
Swept (5)			1
Studio Surface (7)			1
Studio Surface (11)			1
Studio Surface (13)			1
Studio Surface (14)			1
Feature Group (21) "Duct"			
Extracted Body (16)			1
Thicken (17)			1
Delete Face (18)			1
Delete Face (19)			1
Edge Blend (20)			1
Algorithmic Feature (22) "The One and Only"			1
Algorithmic Feature (23) "The One and Only"			1







Algo_Fence_Railing.prt

New Rule

Lower Rail Height

Select Plane (1)

Lower Rail 12.0000

Upper Rail Height

Upper Rail 29.0000

Railing Guide Curve

Select Curve (8)

Rail Upright Spacing

Rail Spacing 15.0000

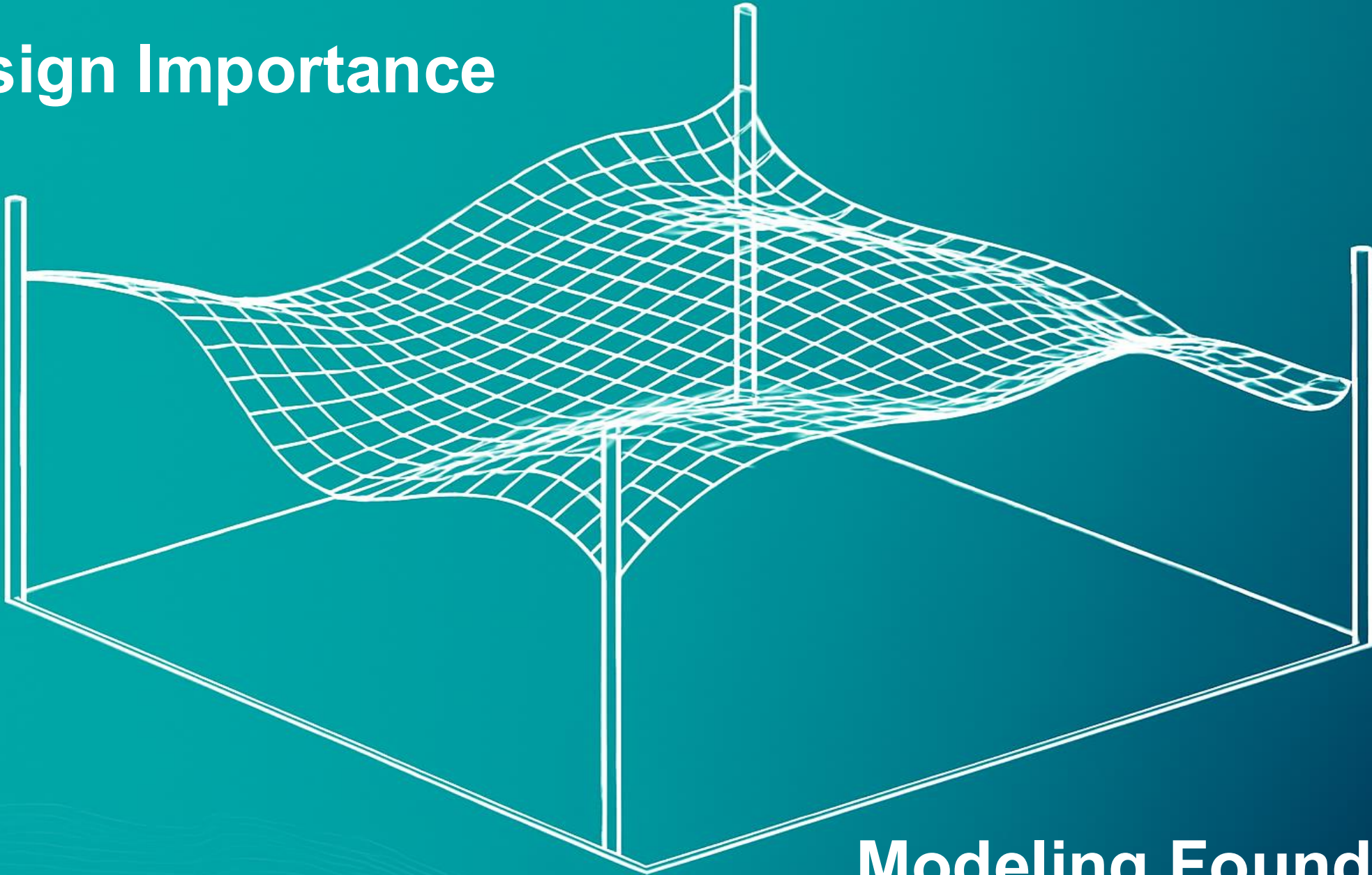
Tube

Tube Diameter 2.0000

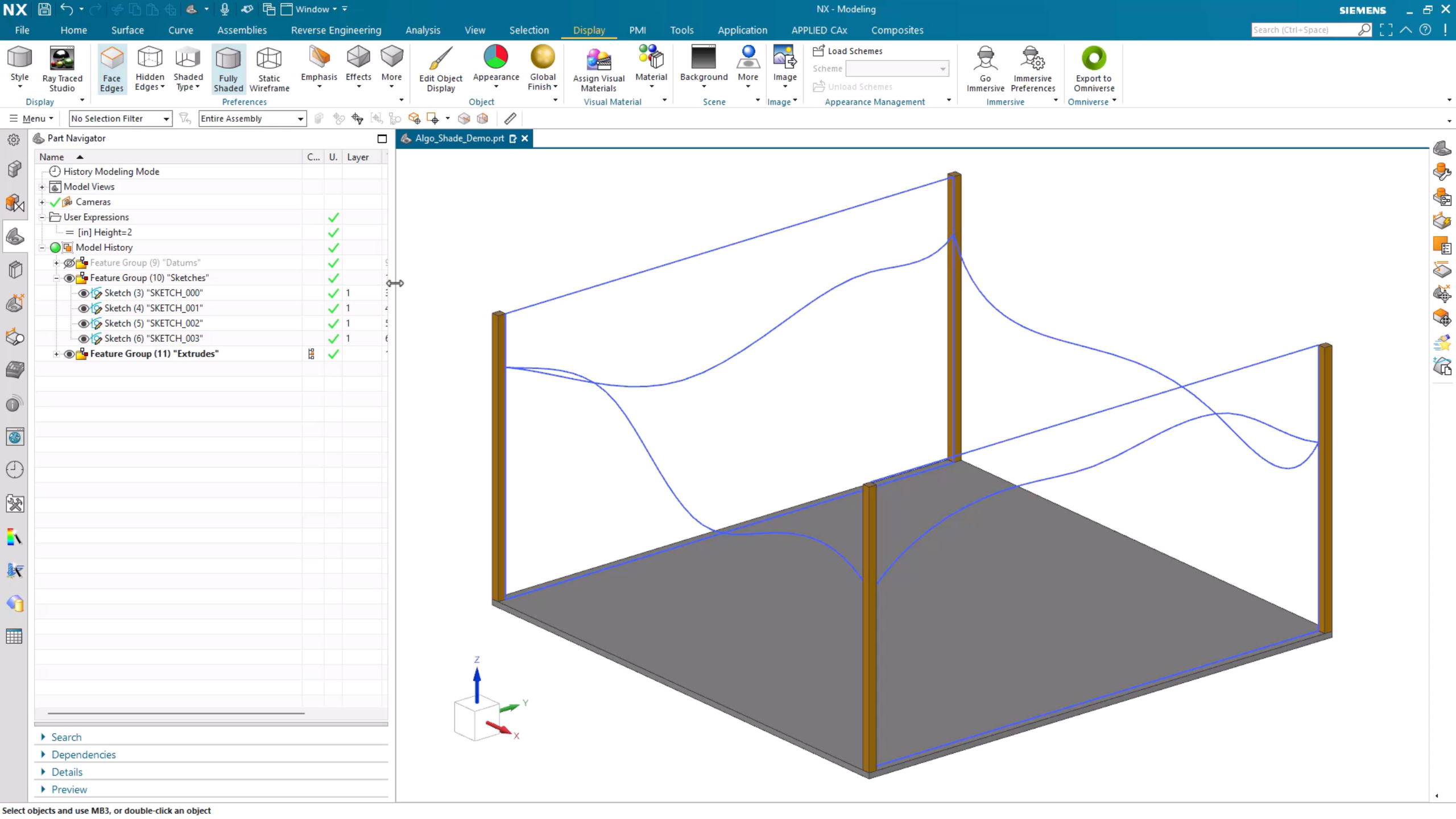
Show Result

OK Cancel

Design Importance



Modeling Foundations



Tips and Tricks for Using Algorithmic Modeling



Start Simple, Build Modular

- Focus on modular logic chunks
- Easy to troubleshoot and reuse



Name Everything Clearly

- Use descriptive node names



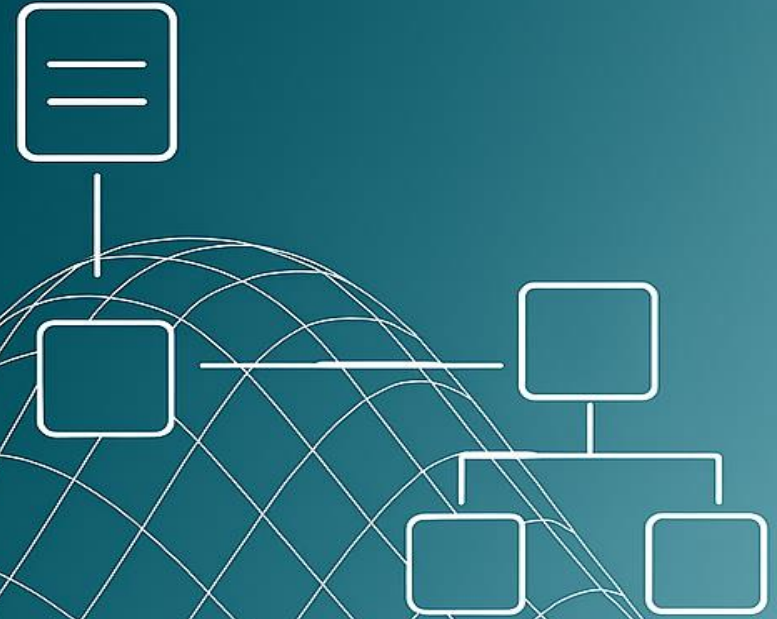
Use Previews & Outputs Strategically

- Expose only final outputs
- Leverage previews for debugging

Parameterize Wisely

Test with different inputs

Reuse and template when possible



Contact

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