Virtual Reality: You’re Halfway There

Thomas Closs

Senior Solution Architect

Introduction

- Tom Closs
  - Jack of all trades, master of none.
  - Though oftentimes better than master of one.
  - Programmer, Designer, Maker, Gamer, Software Ninja
- Senior Solution Architect Autodesk
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3
MAX


360

Learning Objectives

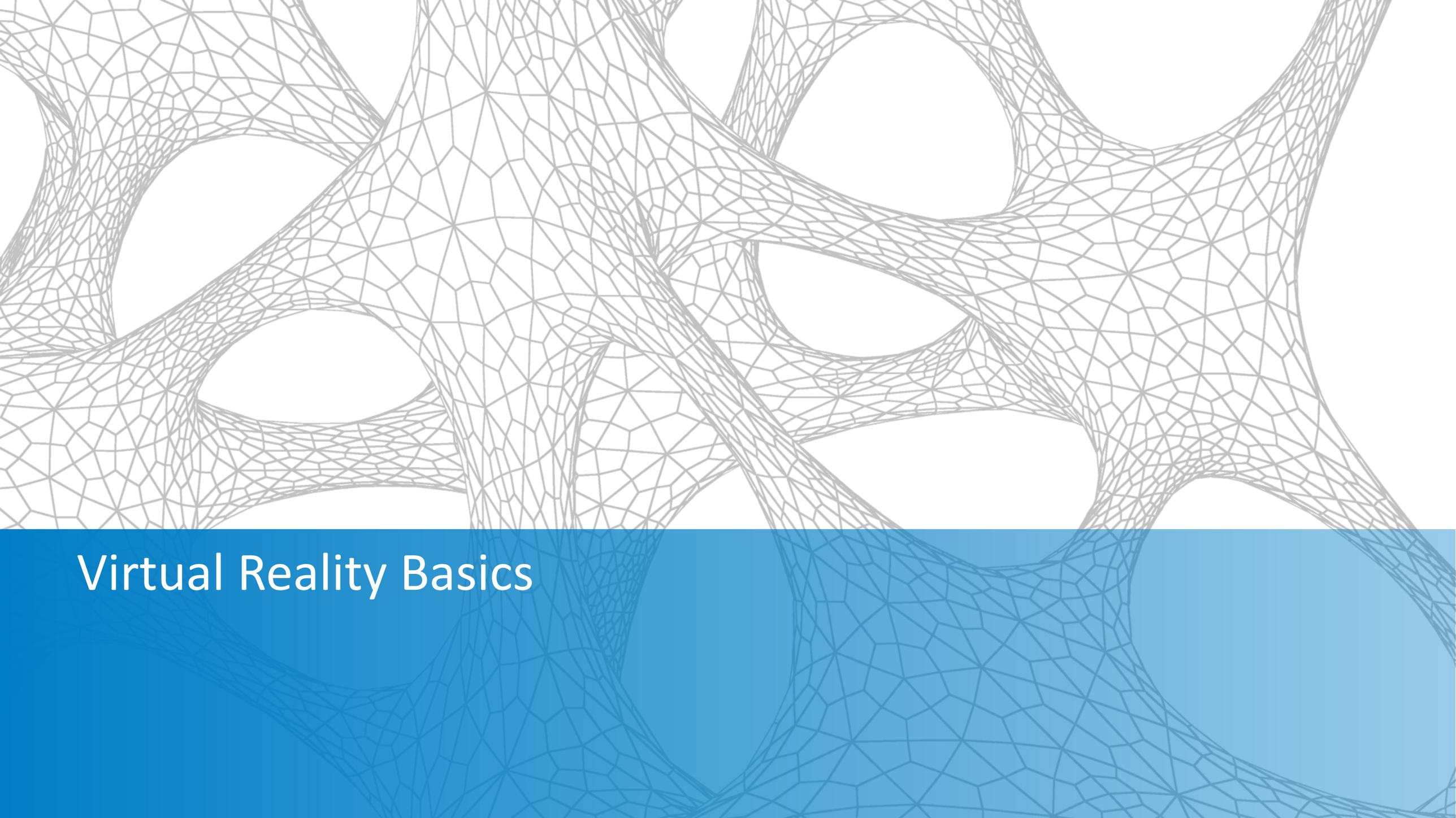
- Understand how to get any CAD model into virtual reality
- Understand the basics of 3D mesh
- Understand when to clean up a model for virtual reality
- Learn how to clean up a model for virtual reality

What is IN

- Good and bad examples of VR models.
- Examples of importing models from a few different CAD systems.
- Examples of making models better for Virtual Reality (VR).
- High level discussions about using existing 3D data.

What is OUT

- Detailed Instructions on modeling.
- Developing interactions in VR.
- Rendering and lighting in VR.

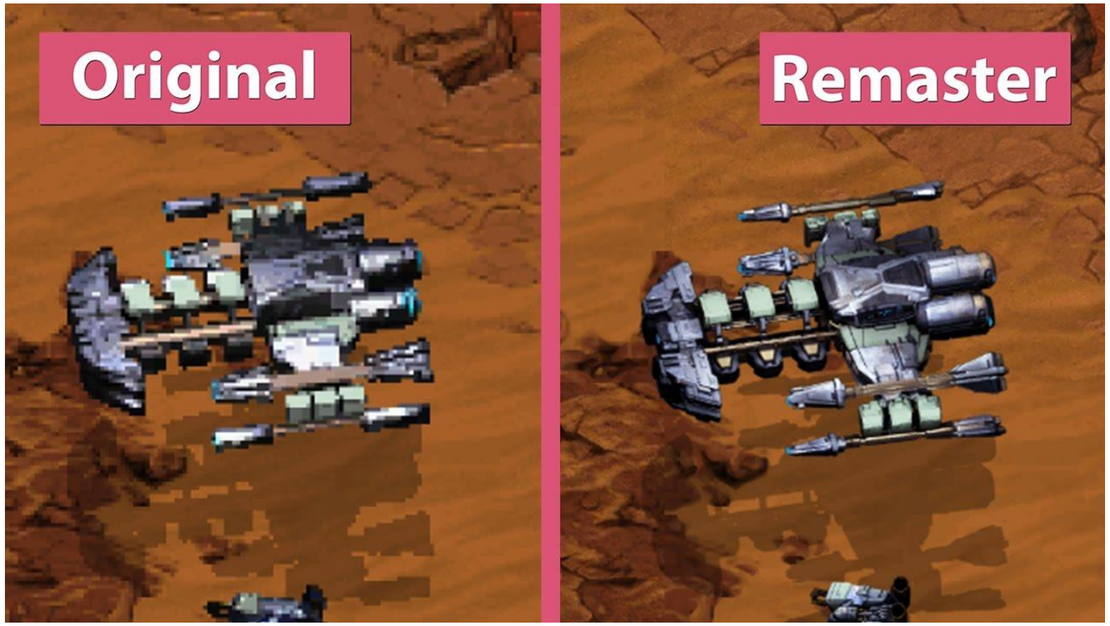


Virtual Reality Basics

Why Now?

- Accessibility to hardware
- Expectations
- Public Opinion
- Large Investments
- $182,000,000,000 Market by 2025

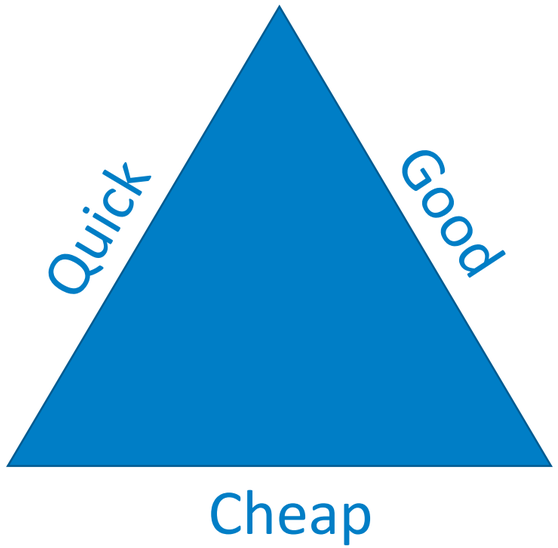
Same Challenges - New Industries

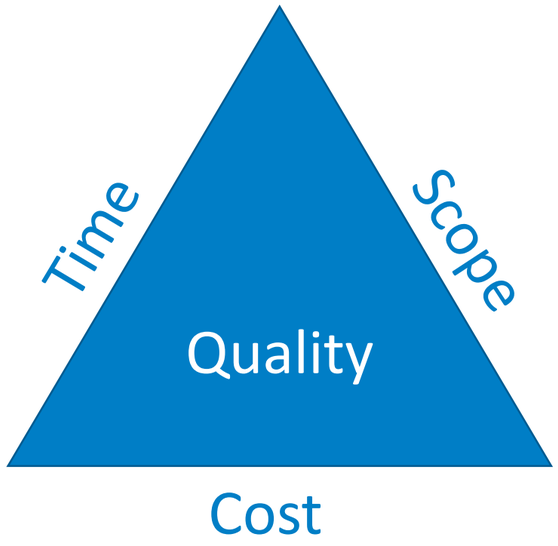


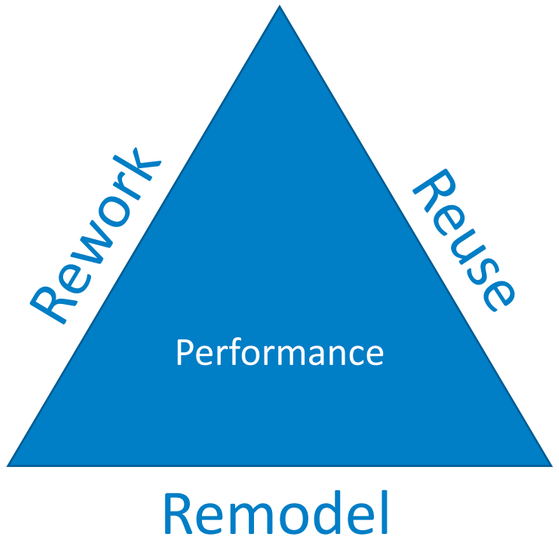
Blizzard Entertainment, StarCraft

Pixar, Monsters Inc.

The Project Triangle

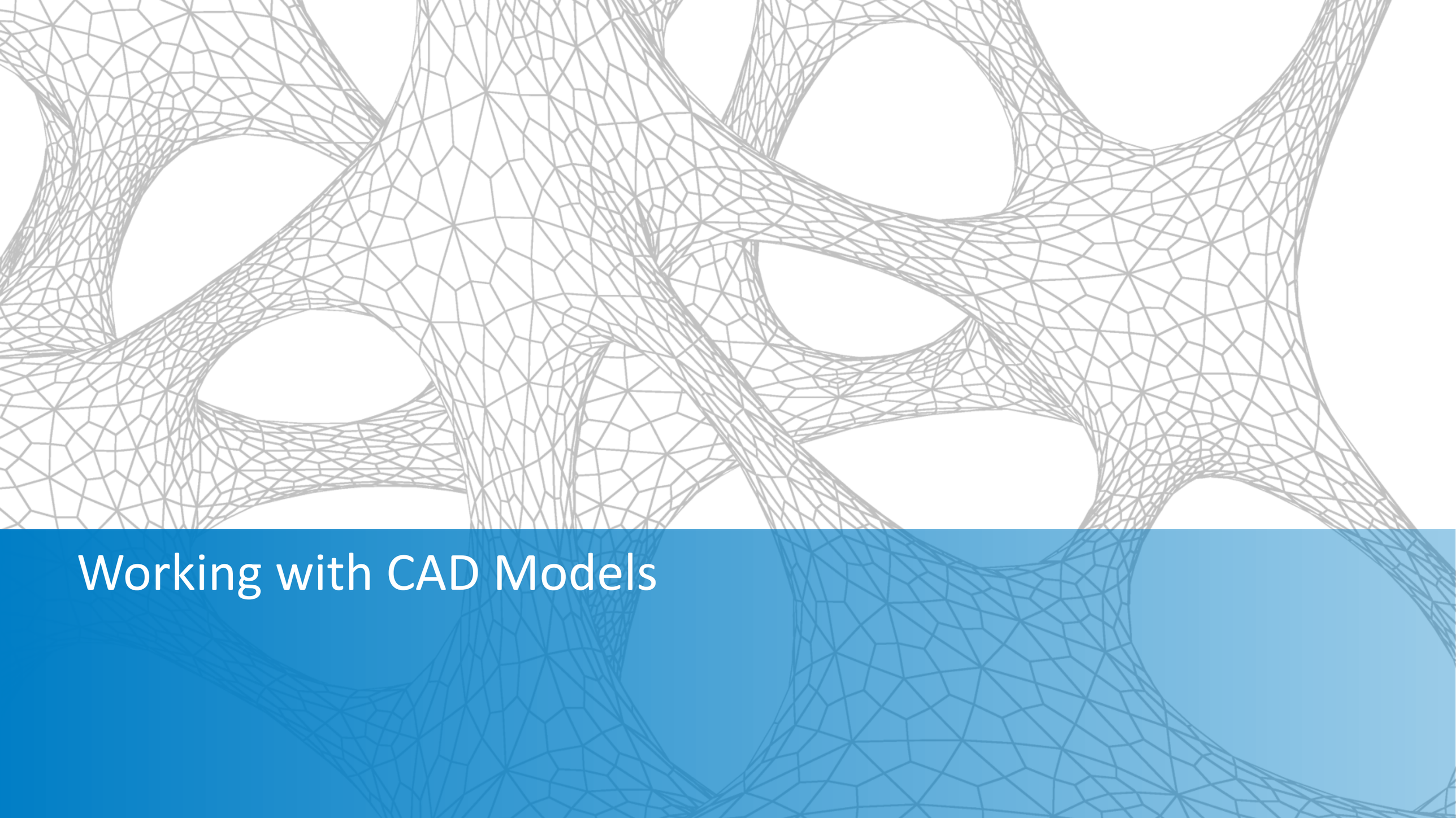






Virtual Reality, What to do with it?

- Training
- Safety
- Marketing and Sales
- Research
- Prototyping
- Controller
- Early Customer Feedback



Working with CAD Models

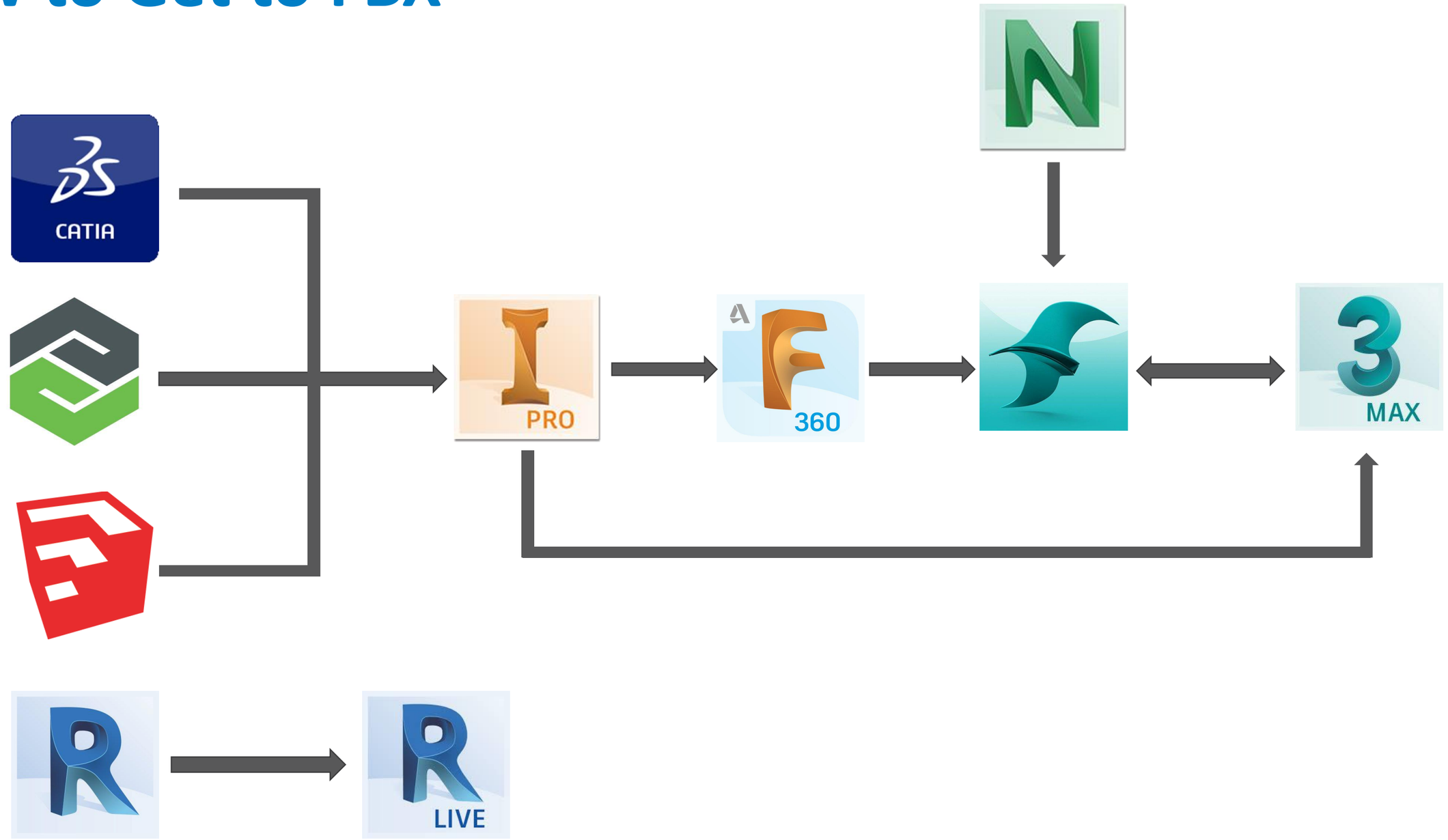
The Target File Format

- Supported by Game / VR Engines
  - Unity
  - Unreal
  - Stingray
- Supported by 3D modelers
  - 3DS Max
  - Maya
  - Blender

https://www.autodesk.com/products/fbx/overview

How to Get to FBX

How to Get to FBX



Demo

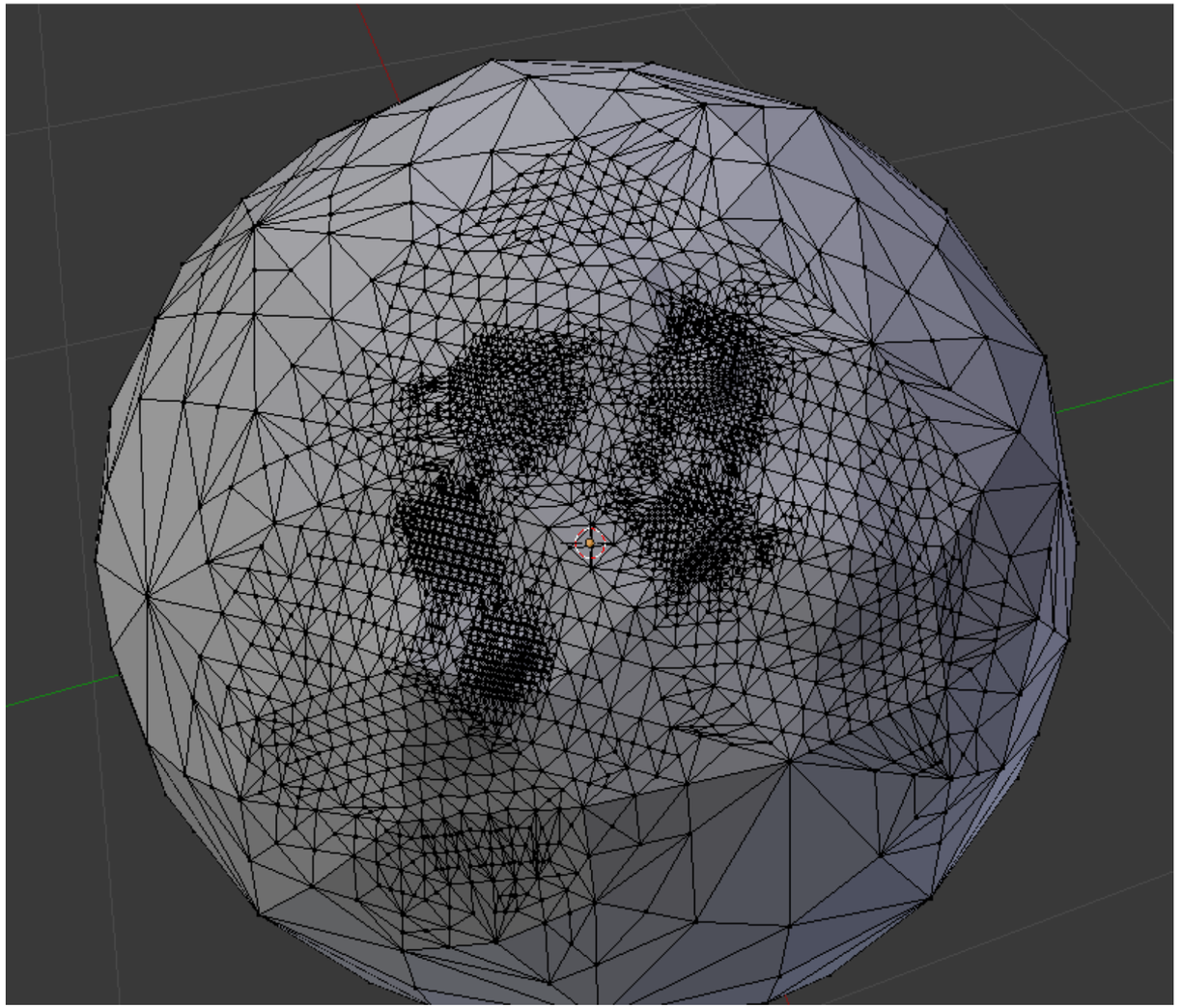
Anatomy of a Mesh

Defining a Mesh

- Vertices
- Edges
- Faces
- Normals
- Textures

Using a Mesh

- Complexity
- Resolution
- Quads vs Triangles
- Textures
- Asset Swapping

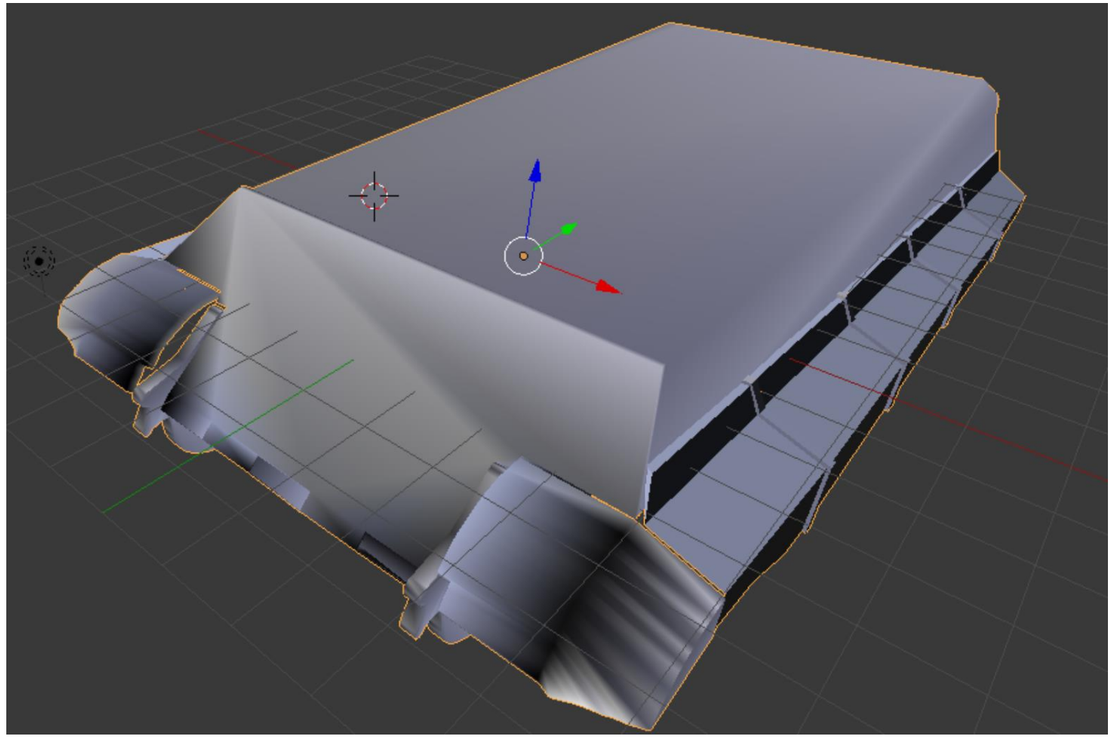


Demo

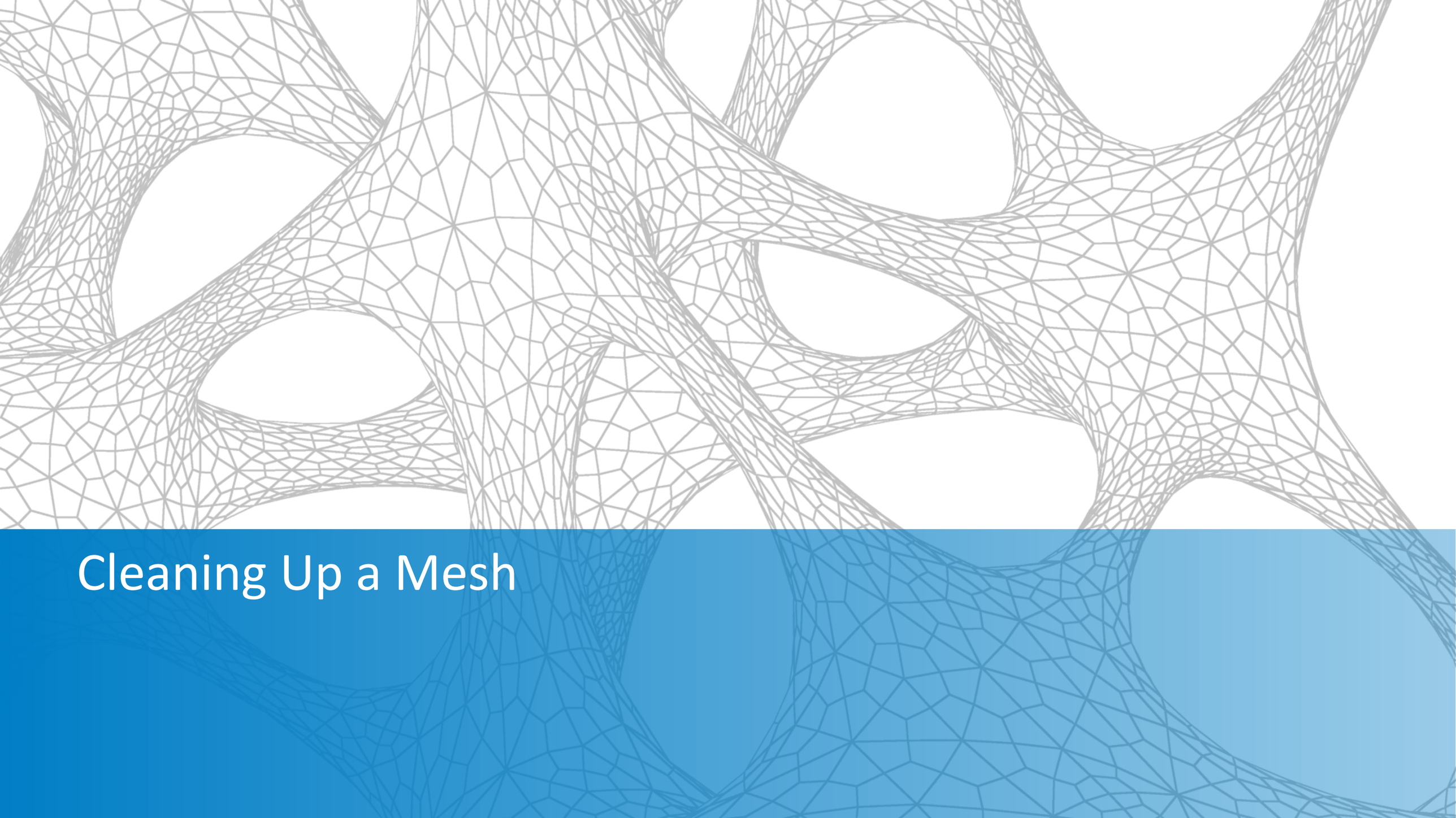
Mesh Problems

Common Mesh Problems

- Surface Holes / Missing Surfaces
- Floating Surfaces
- Twisted Surfaces
- Complexity
- Incorrect Normals
- Know your Hardware



Demo



Cleaning Up a Mesh

What to Use

Demo

Questions

Please keep all questions to topics not covered in Anorak's Almanac.

Ready Player One, Ernest Cline

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Make anything.