

The background features a complex, organic wireframe mesh in a light gray color. A solid blue horizontal band spans the middle of the image, serving as a backdrop for the title and speaker information.

Virtual Reality: You're Halfway There

Thomas Closs

Senior Solution Architect

Join the conversation [#AU2017](#)

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
thomas.closs@autodesk.com





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.



The background of the slide features a complex, abstract wireframe pattern. This pattern consists of numerous interconnected lines forming a mesh of irregular polygons, which creates a sense of depth and movement, resembling a digital or organic structure. A solid blue horizontal bar is positioned across the lower portion of the image, providing a contrasting background for the title text.

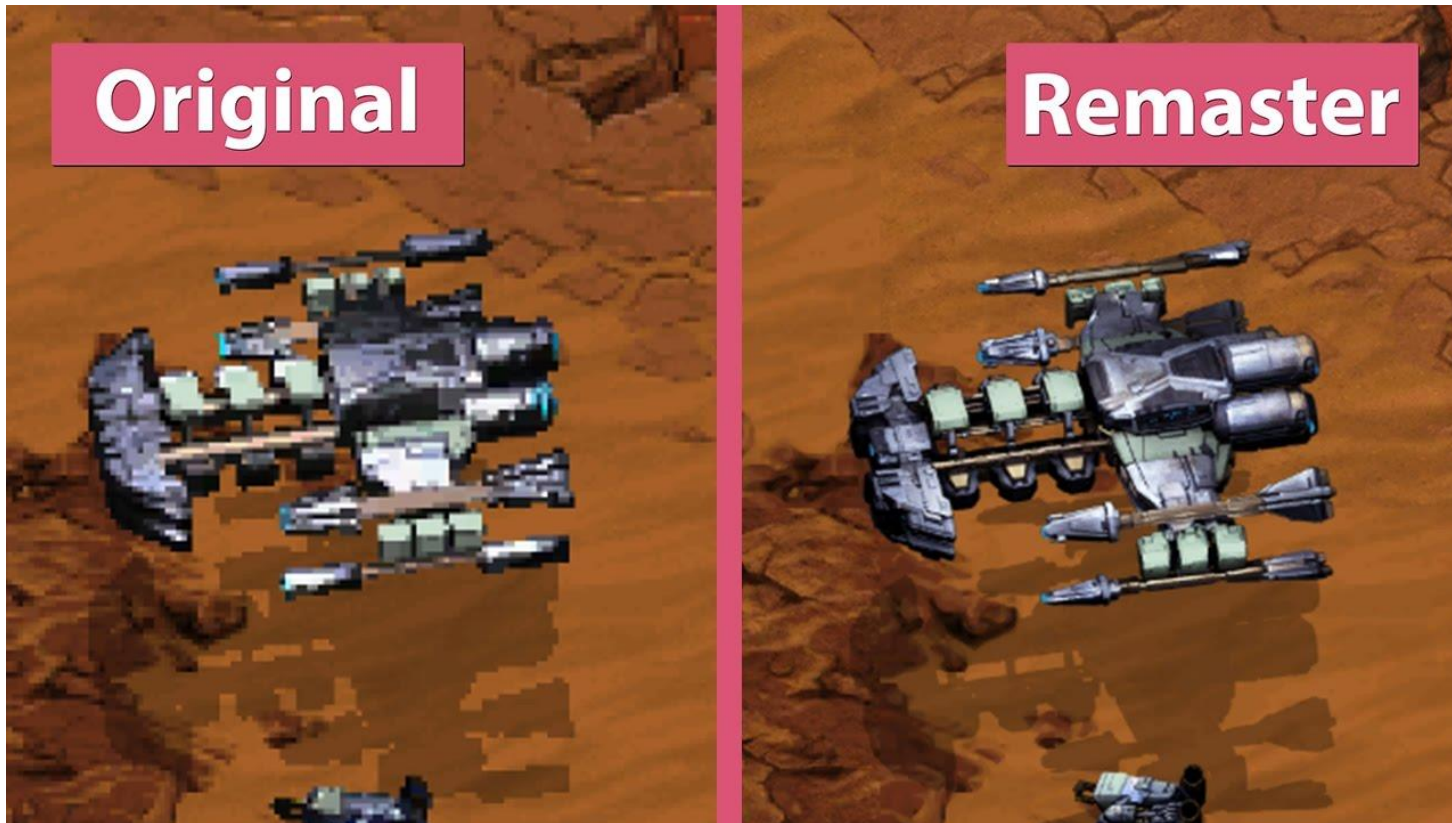
Virtual Reality Basics

Why Now?

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



Same Challenges - New Industries

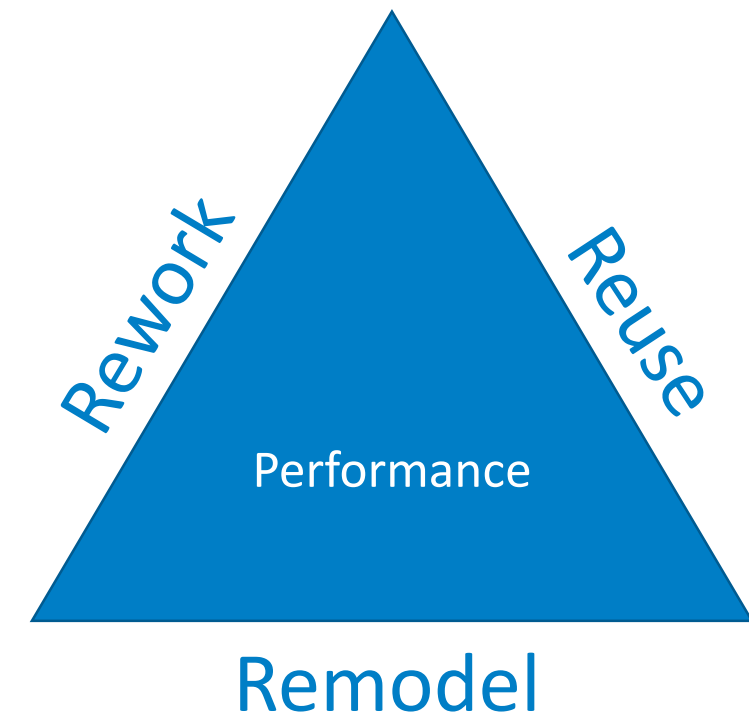
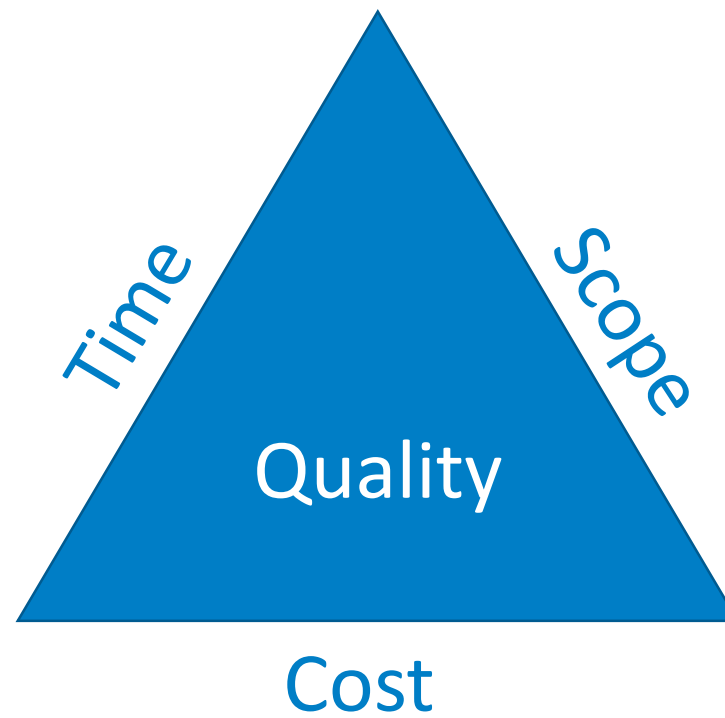
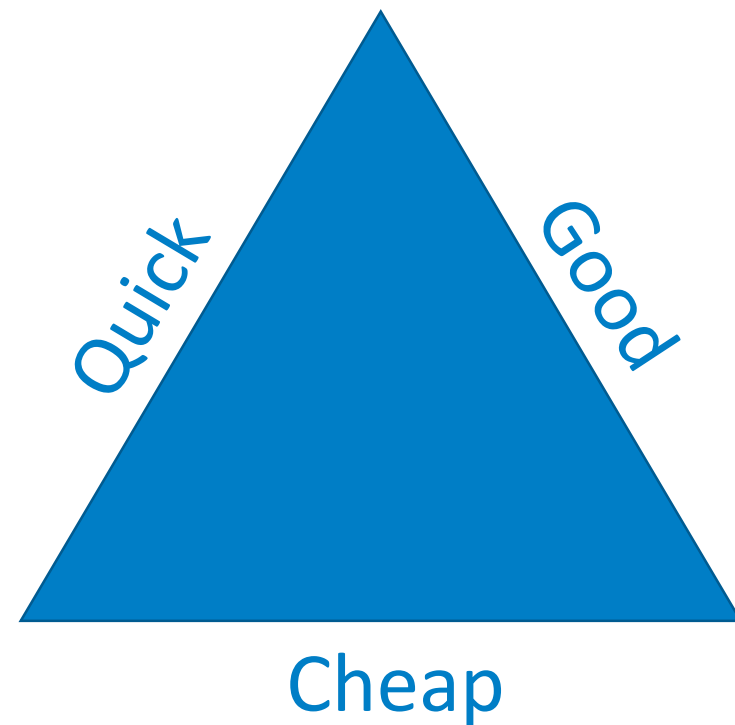


Blizzard Entertainment, StarCraft



Pixar, Monsters Inc.

The Project Triangle



Virtual Reality, What to do with it?

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



The background of the slide is a complex, abstract wireframe mesh. It consists of a dense network of thin, light gray lines that form a series of interconnected, flowing, and undulating shapes. These shapes resemble organic, cellular structures or perhaps a stylized representation of a complex surface. The mesh is more densely packed in some areas, creating a sense of depth and volume, while other areas are more sparse. The overall effect is one of dynamic, organic complexity.

Working with CAD Models

The Target File Format

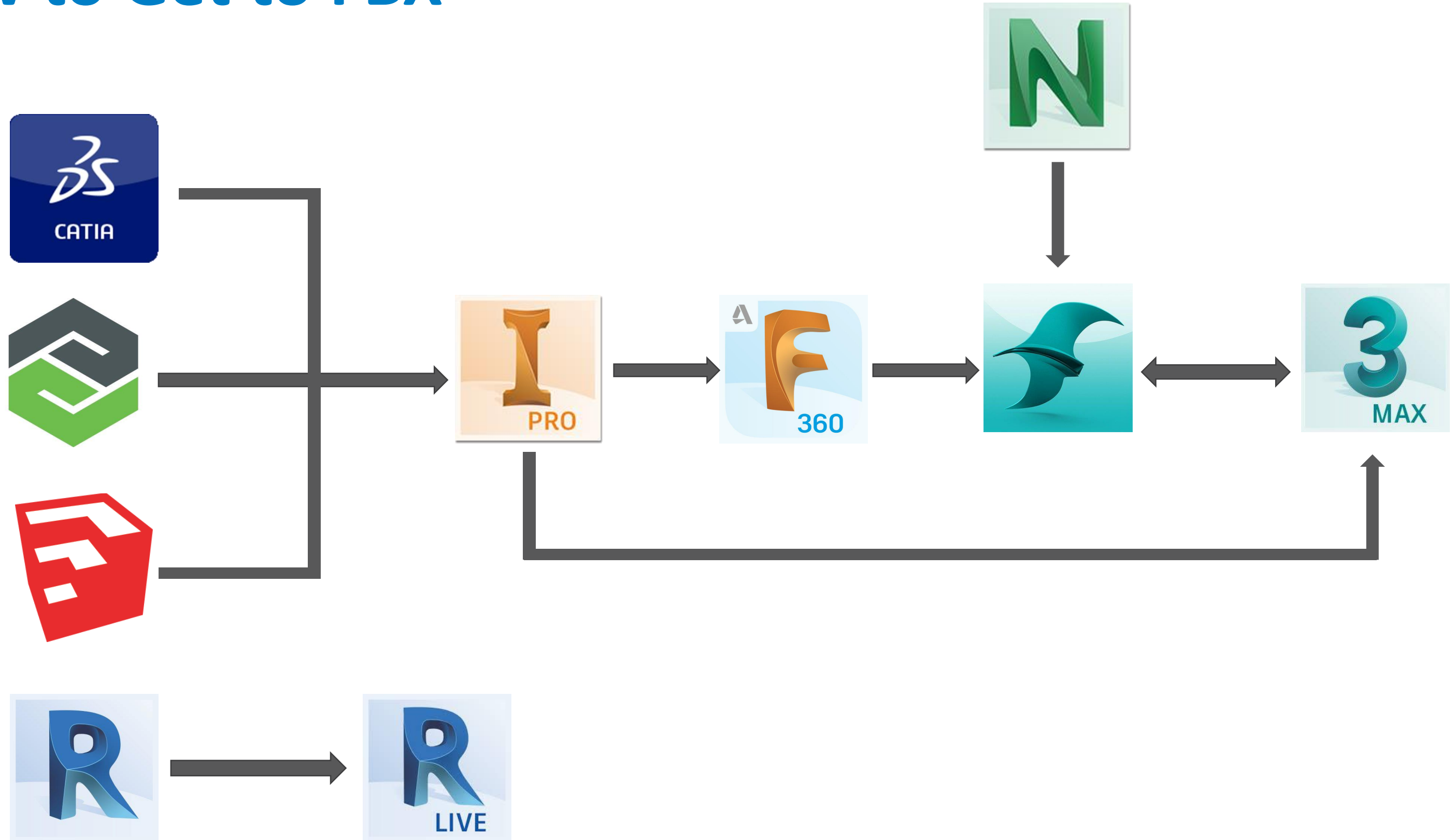
- Supported by Game / VR Engines
 - Unity
 - Unreal
 - Stingray
- Supported by 3D modelers
 - 3DS Max
 - Maya
 - Blender



How to Get to FBX



How to Get to FBX



Demo



Anatomy of a Mesh

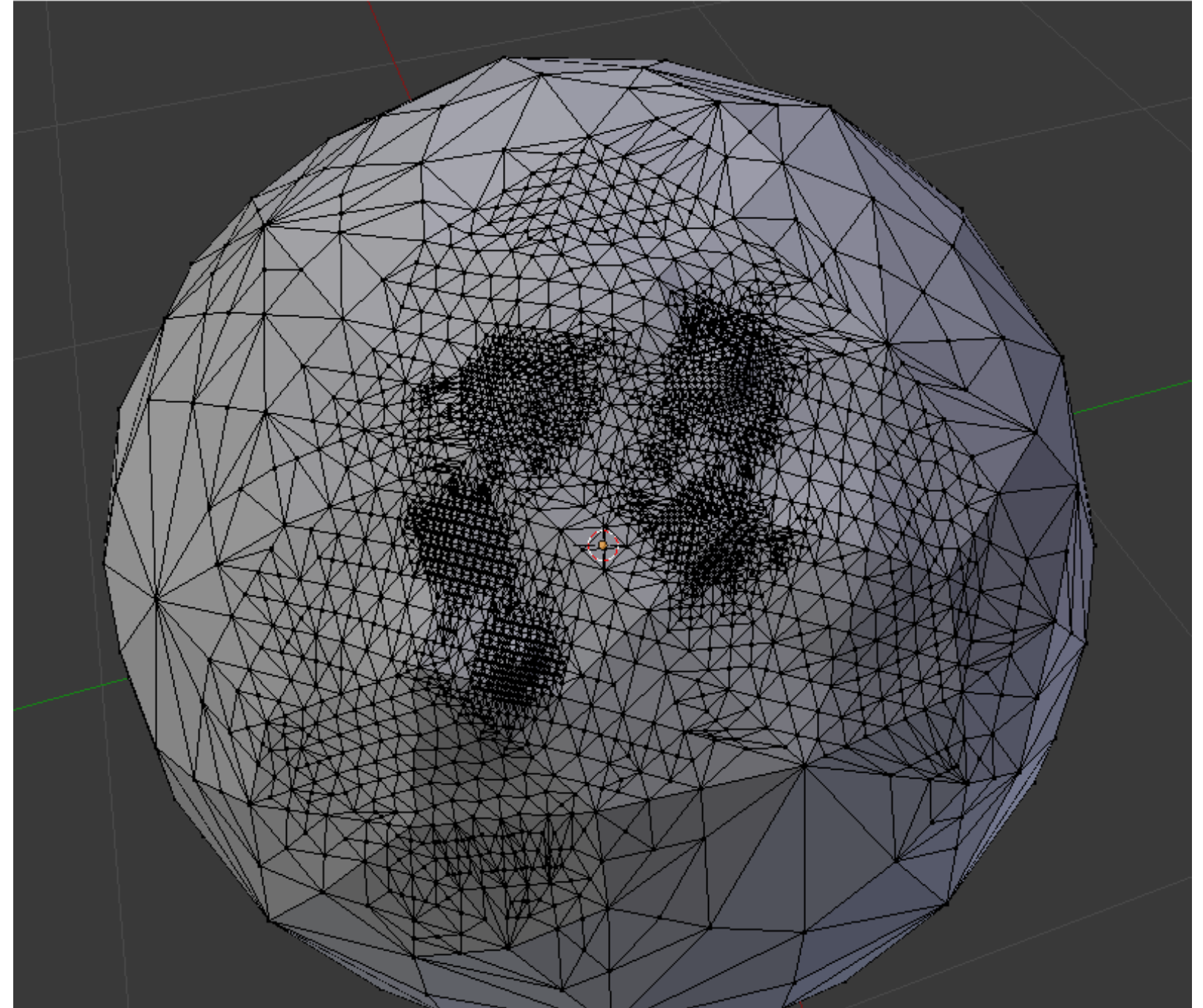
Defining a Mesh

- Vertices
- Edges
- Faces
- Normals
- Textures



Using a Mesh

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



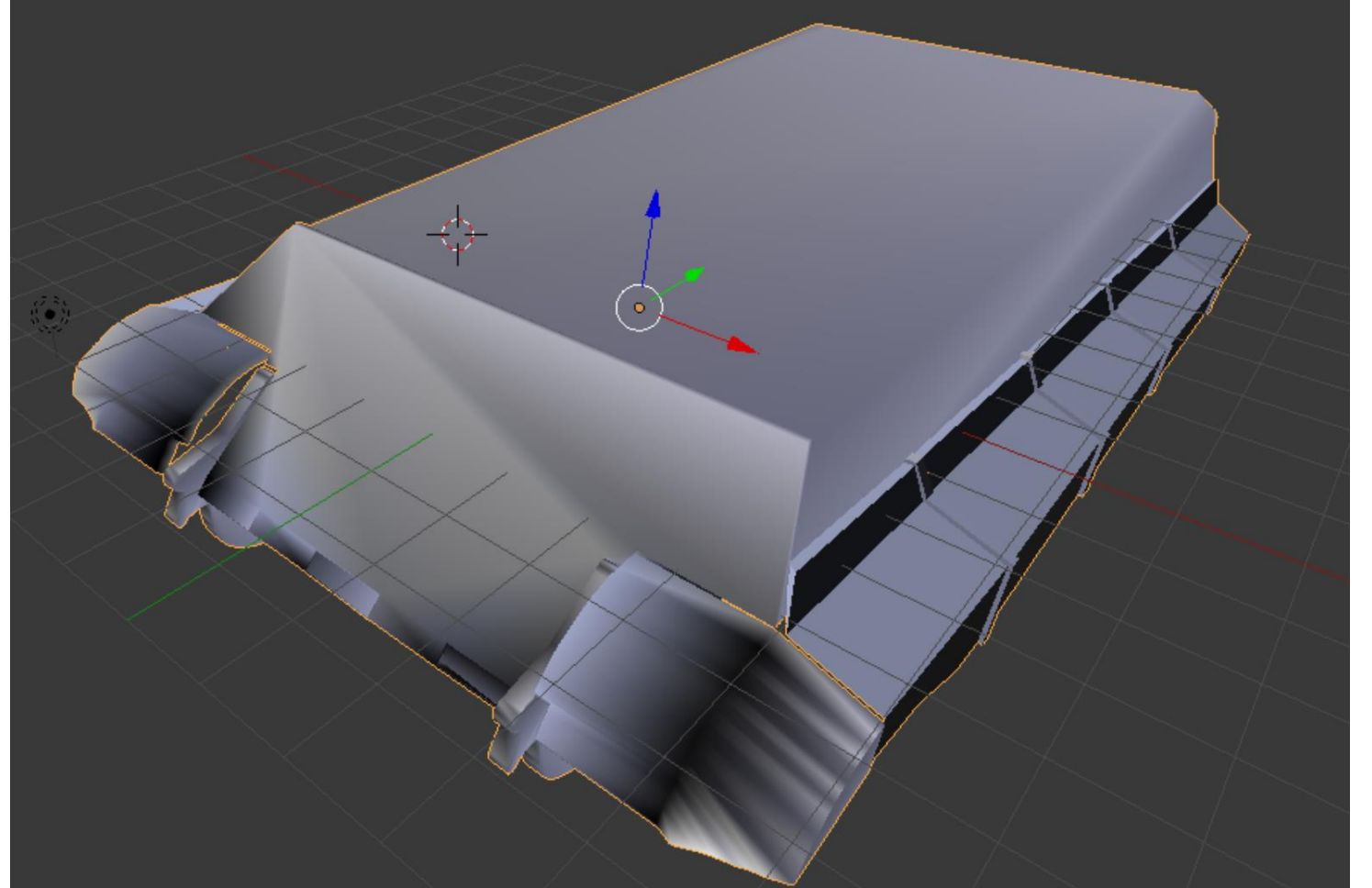
Demo



Mesh Problems

Common Mesh Problems

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



Demo



Cleaning Up a Mesh

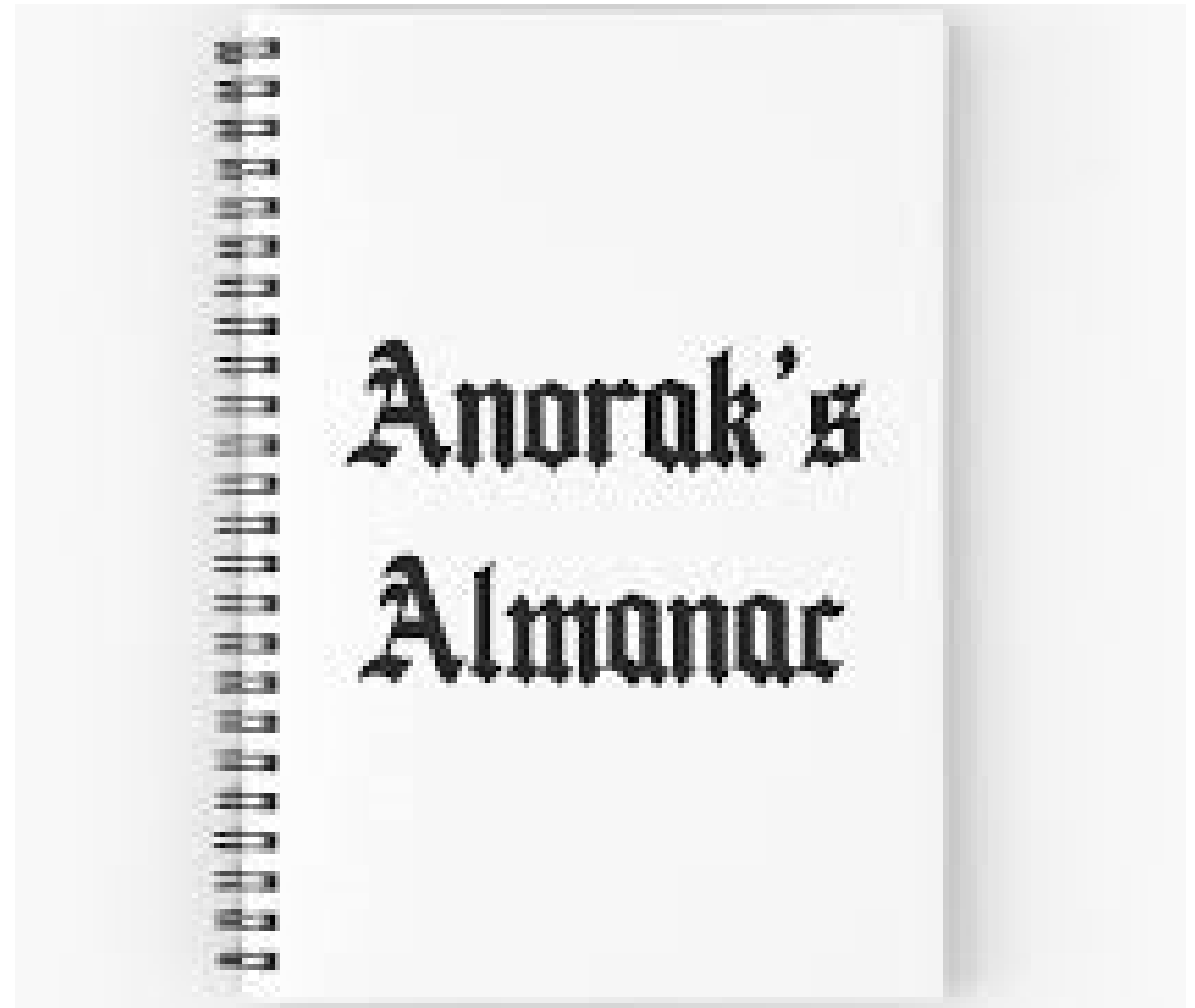
What to Use



Demo

Questions

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



Ready Player One, Ernest Cline

