

Bringing First Responders to Life Through Art, Animation, and AI

Jeff Karhoff – UI/UX Portfolio
Ted Conry – UI/UX Portfolio

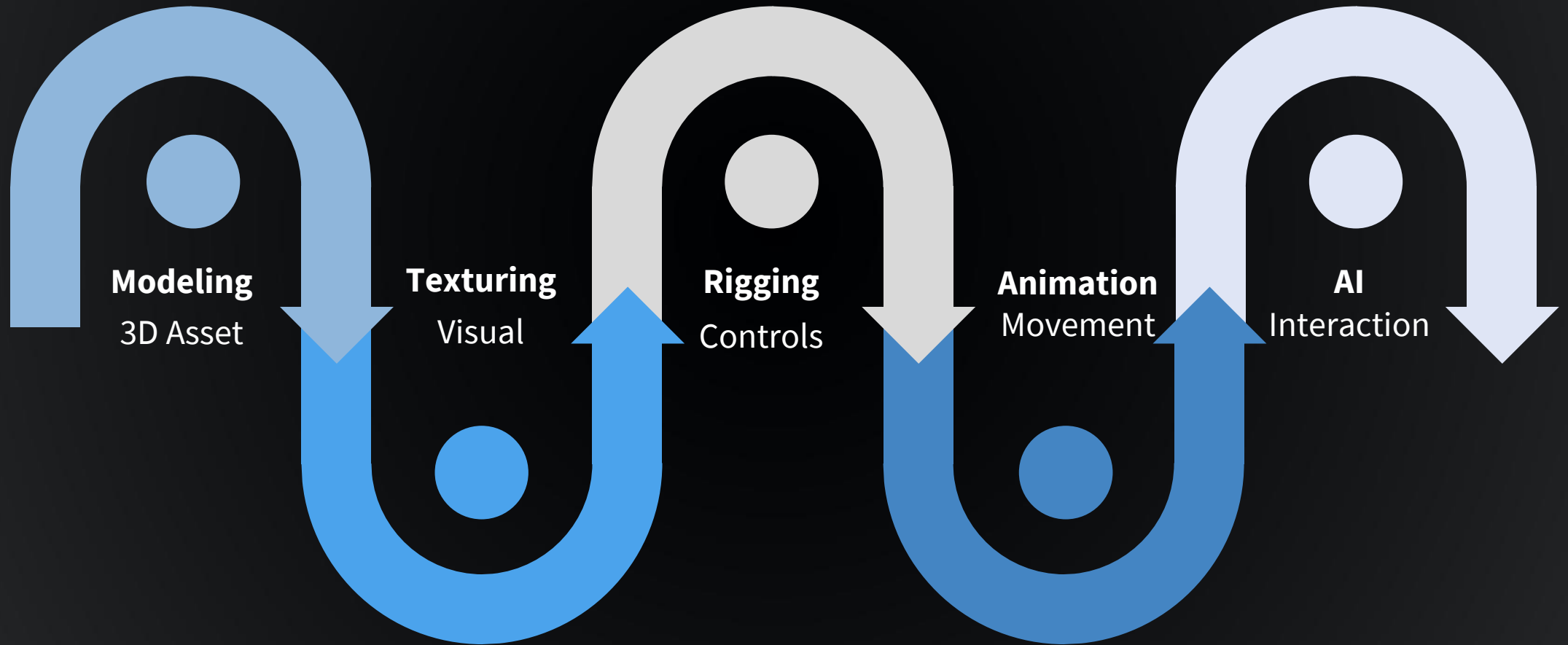
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PRODUCTION PIPELINE



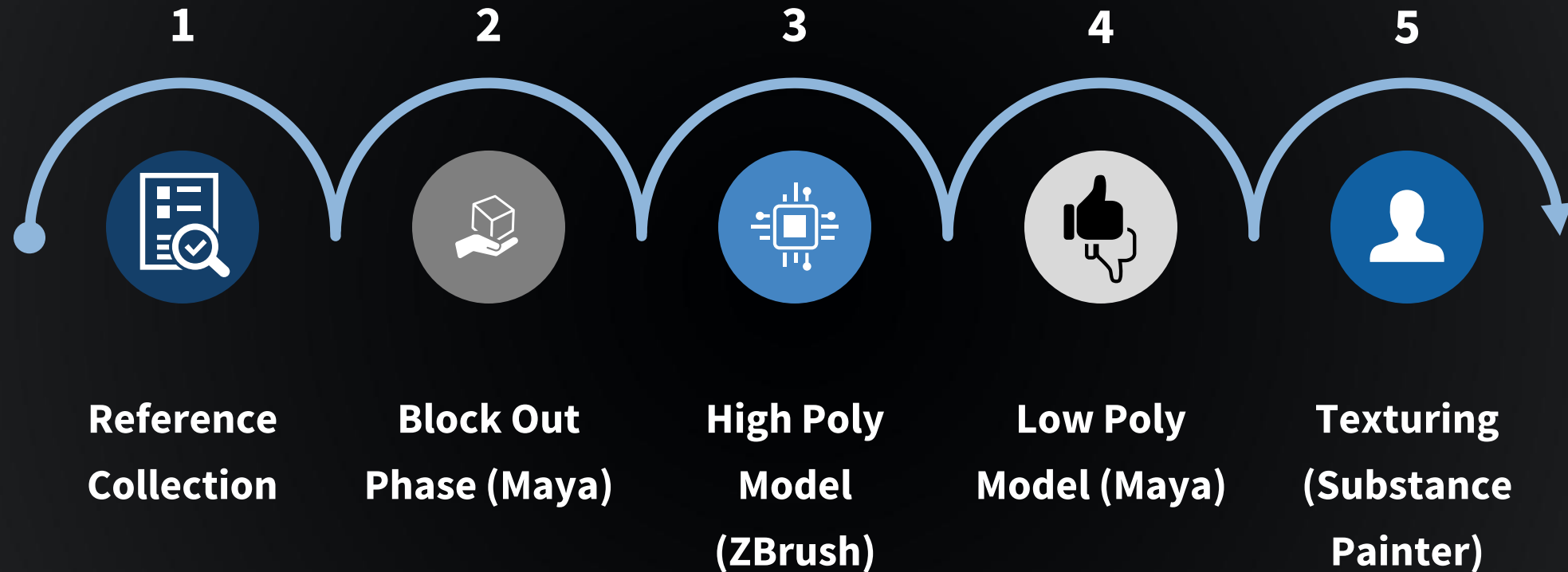
**UP
NEXT**

Modeling and Texturing

Jeff Karhoff – 3D Modeler,
UI/UX Designer

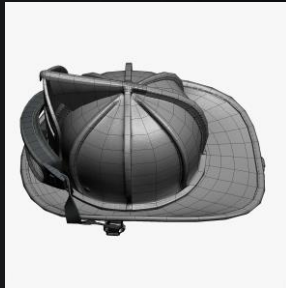


HIGH TO LOW MODELING PROCESS



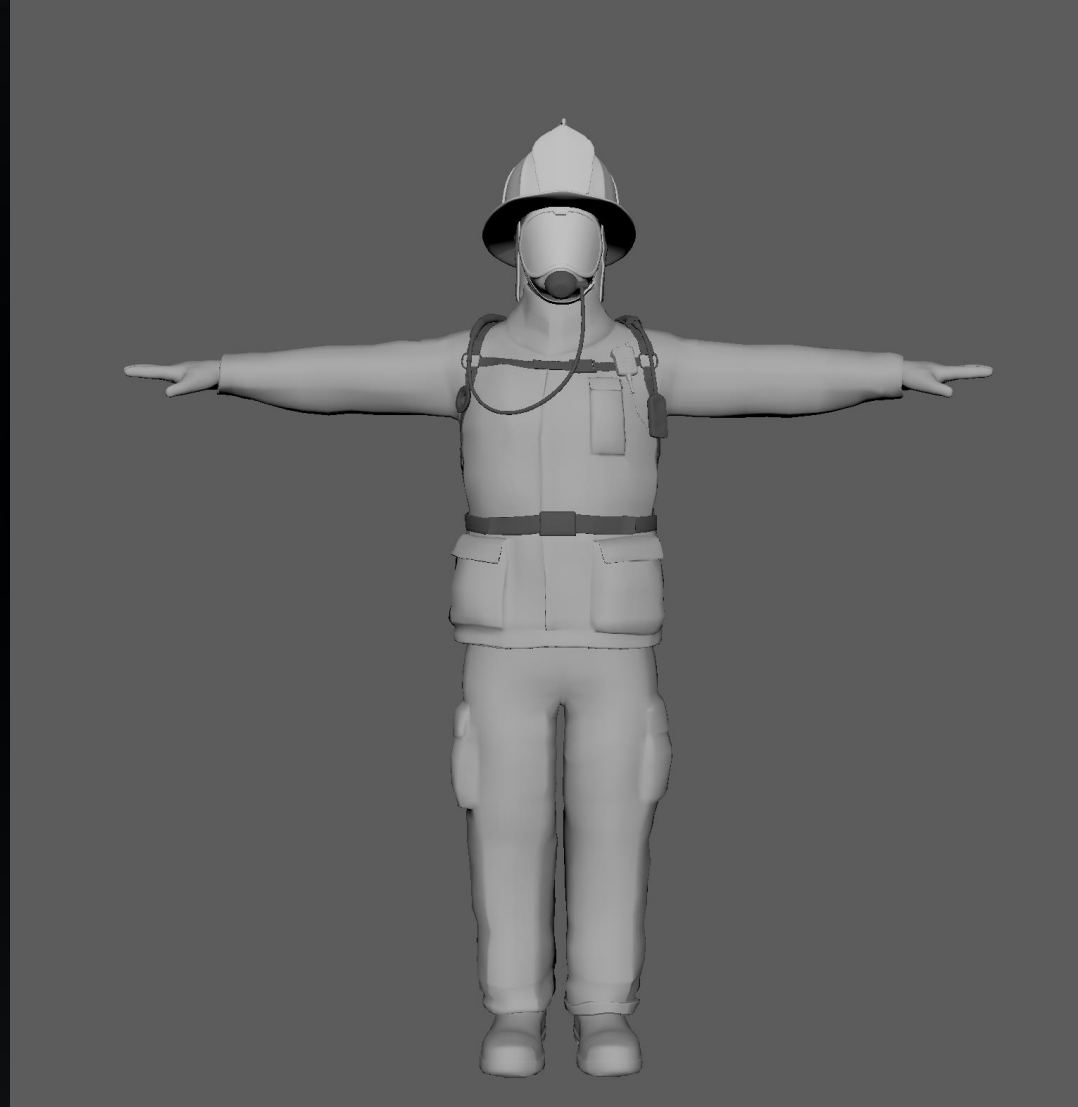
REFERENCE COLLECTION

- Collect Reference
 - Turnout Gear
 - Accessories
 - SCBA



BLOCK OUT PHASE

- Creating Basic Structure
 - Quick iterations
 - Start collaborating with animator
 - Main structure of the character

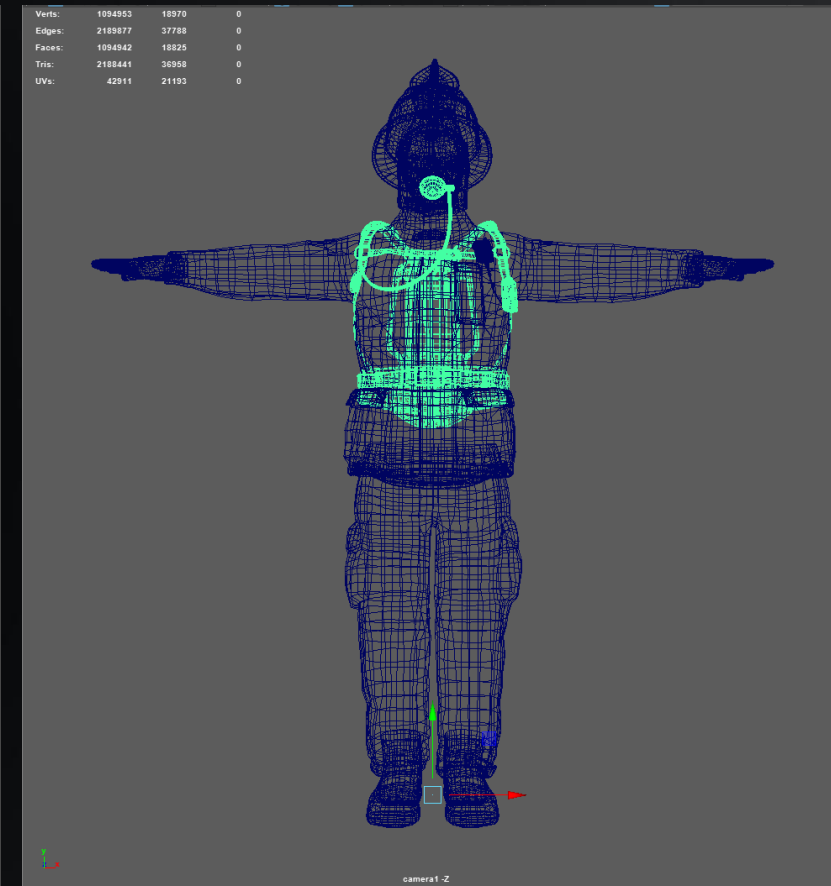
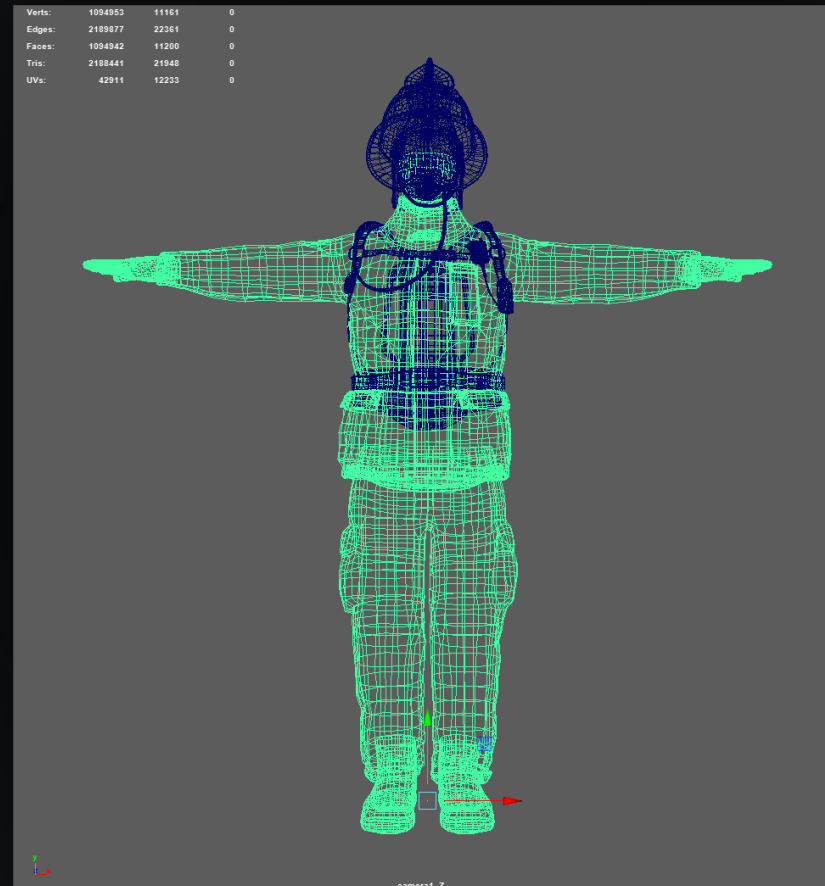
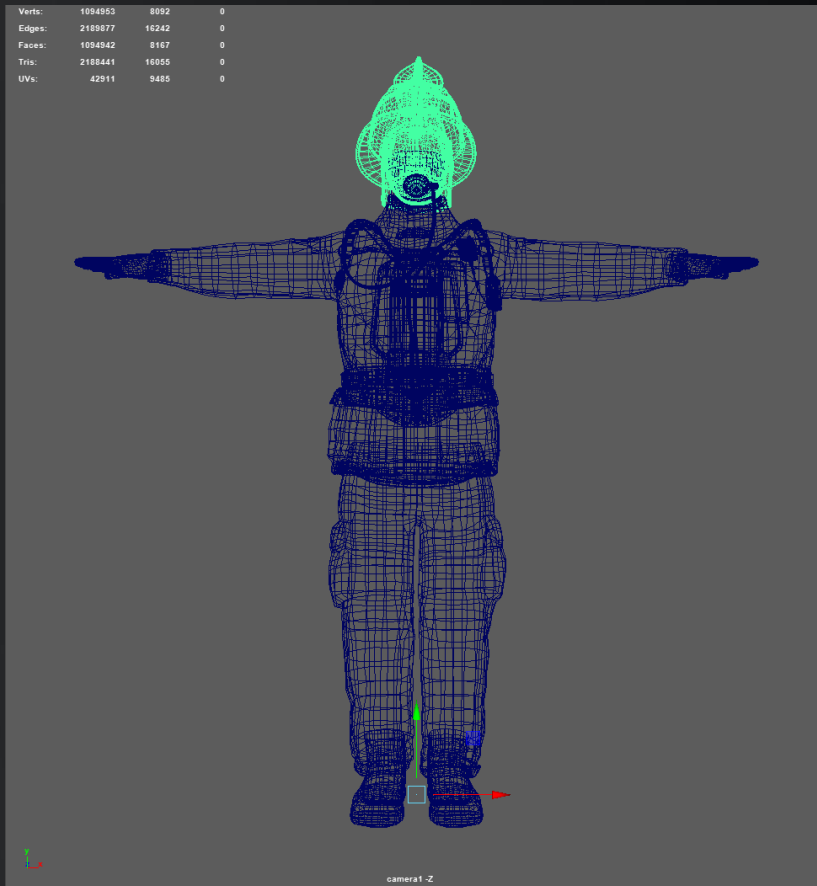


HIGH POLY MODEL

- VR Consideration
 - Block out is what is used to sculpt on detail
 - This model won't be used in the engine
 - Color ID's are used to create material separation

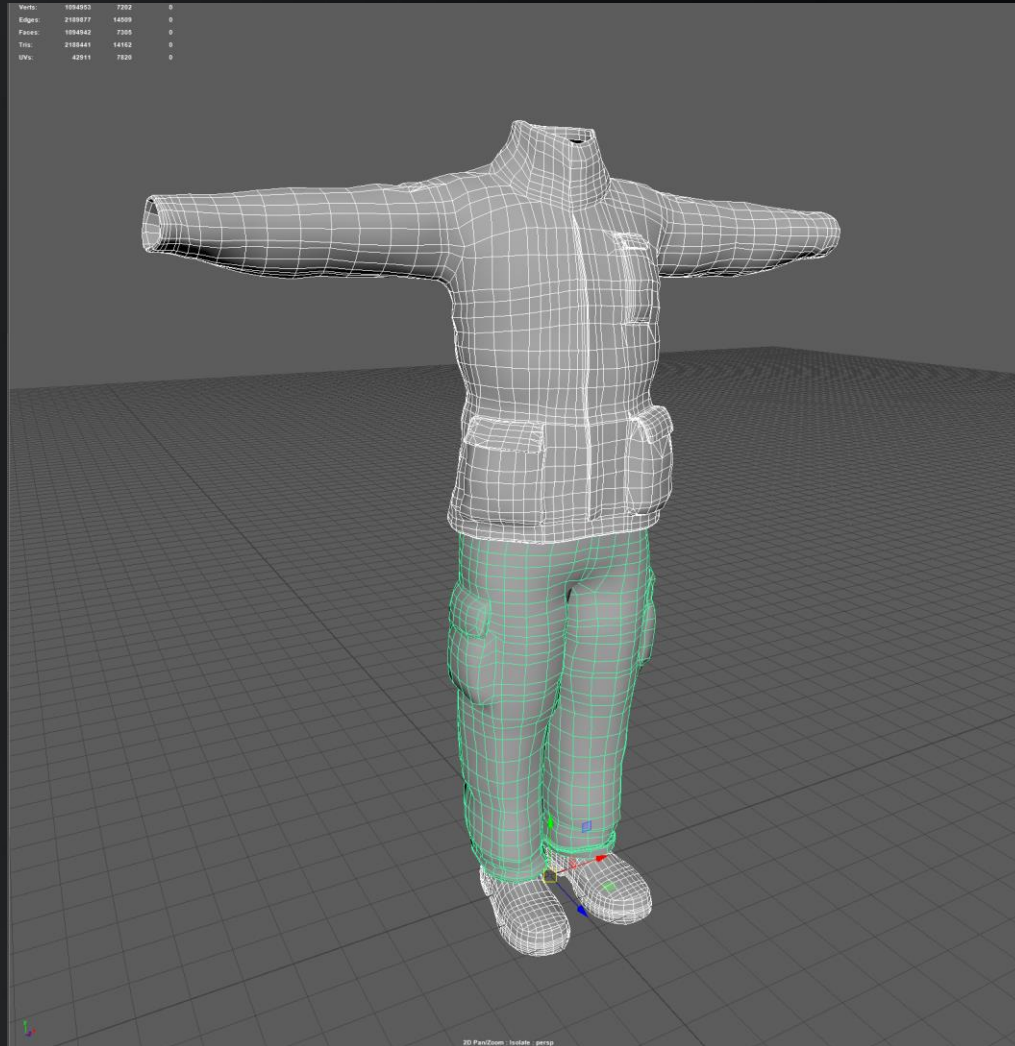


LOW POLY MODEL



Low Poly Model is created from the High Poly model by retopology

UV UNWRAPPING



SUBSTANCE PAINTER: TEXTURE BAKE

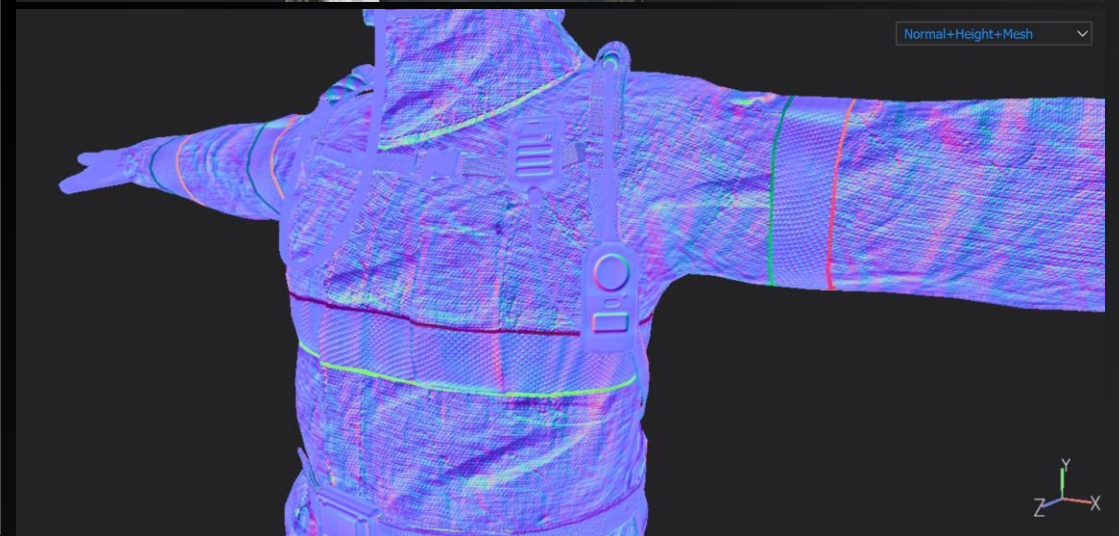
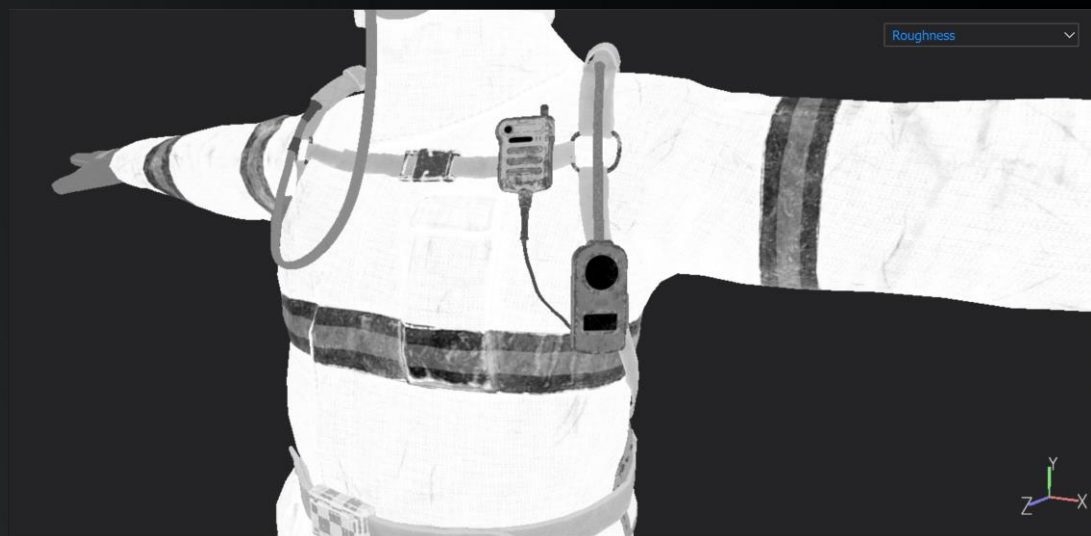
- VR Considerations
 - Texture Size: 1024, 2048, 4096
 - Polygon Count
 - Texel Density
 - Lighting/Dynamic



SUBSTANCE PAINTER: TEXTURE MAP



TEXTURE MAPS



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Rigging & Animation

Ted Conry – Animator



RIGGING AND ANIMATION



Rigging

Applying bone structure that is used to manipulate the 3D model

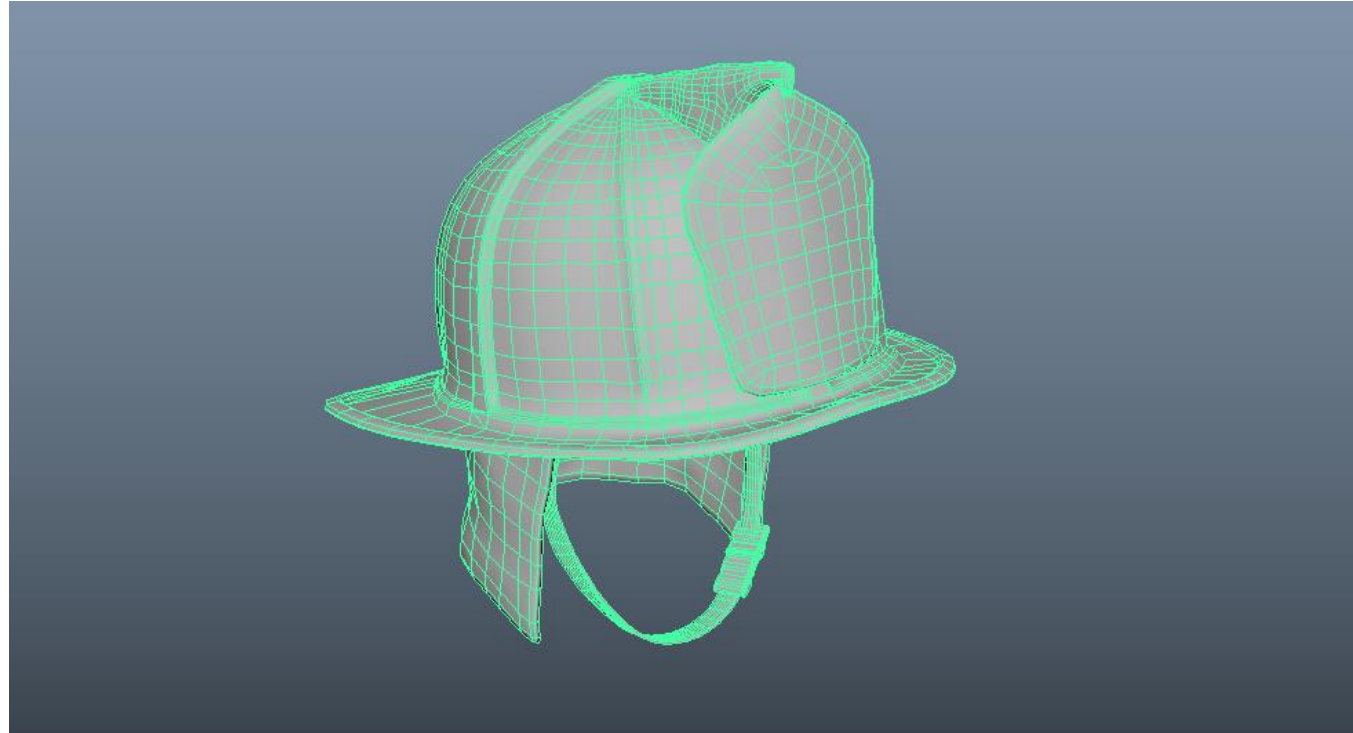
Animation

Applying motion to the bone structure to give the appearance of movement



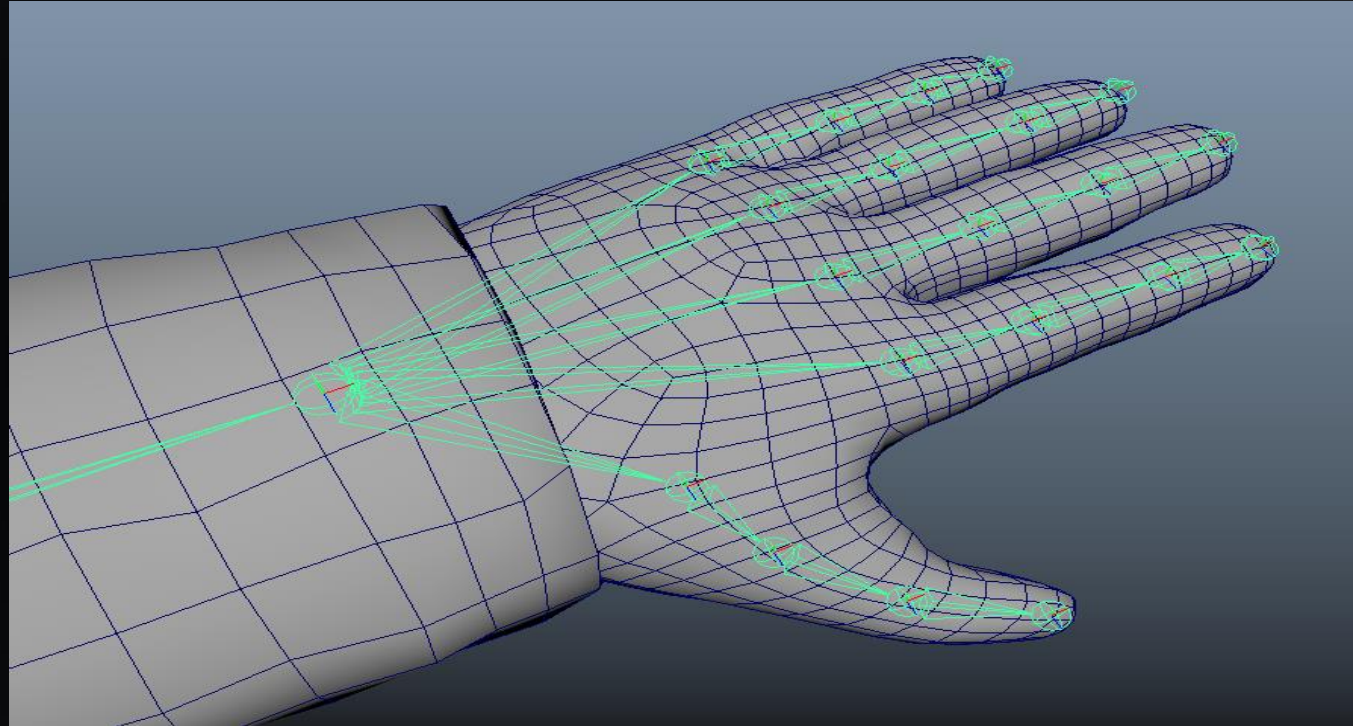
RIGGING: CONSTRUCTION

- Geometry
 - Vertices
 - Point position in space
 - Edges
 - Connection between two vertices
 - Faces
 - Connection between three or more vertices



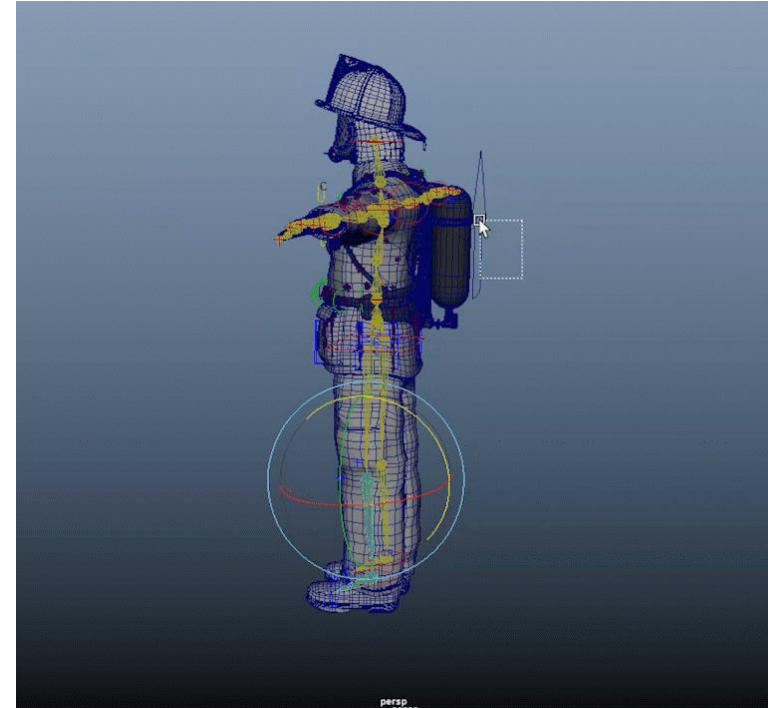
RIGGING: CONSTRUCTION

- Rigging
 - Joints
 - Deforms the geometry
 - Controllers
 - Drives the Joints



RIGGING: CONTROLS

- Forward Kinetics
 - Controls joint rotation
- Inverse Kinetics
 - Controls limbs translation and rotation
- Constraints
 - Controls external equipment



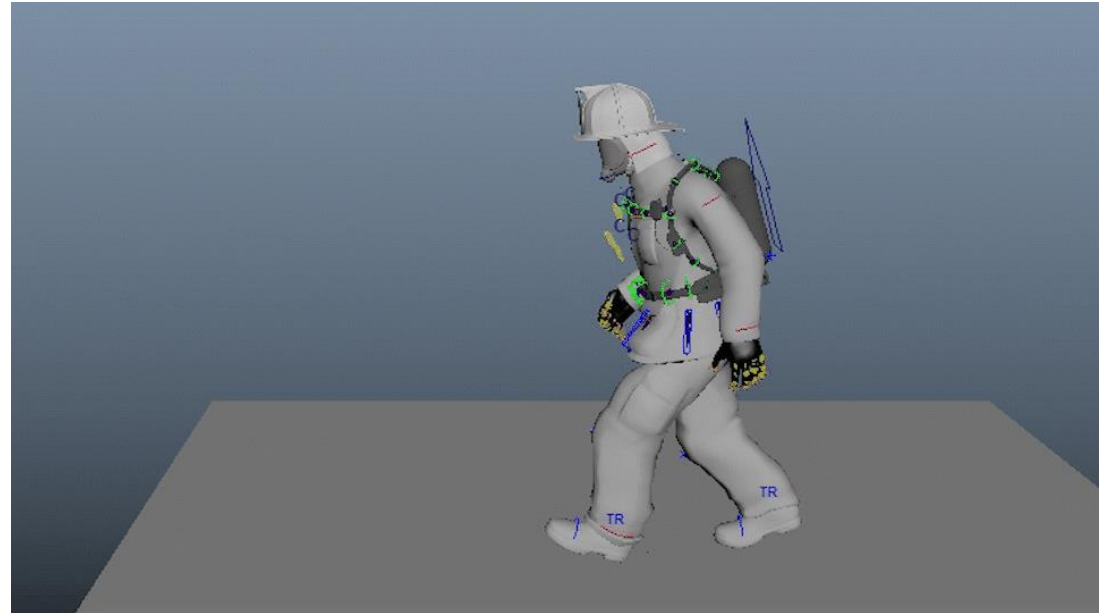
ANIMATION: BASICS TERMS

- Keys
 - Set value on the control rig
 - Timeline
 - Space
- In-betweens
 - Keys are added between two keys
 - Smoother transition
 - A sense of motion

Video not
Shown

ANIMATION: METHODS

- Pose to Pose
 - Keys are set on major poses
 - Blocking major poses
- Straight Ahead
 - Keys are applied sequential order
- Motion Capture
 - Keys are applied based on camera and live actor



ANIMATION: GRAPH EDITOR

- Tangents
 - Spline
 - Linear
 - Stepped

Video not
Shown

ANIMATION: LAYERS

- Adds or subtracts fidelity to the motion
 - Isolating controls
 - Layering details

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ANIMATION: TIME EDITOR

- Clips
 - Relocated Animation
 - Warp Time

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ANIMATION: REFERENCE & EXPORTING

- Using Reference
 - Capture live video
 - Web resources
- Exporting Animation
 - FBX
- Unreal Engine Basics
 - Blend spaces



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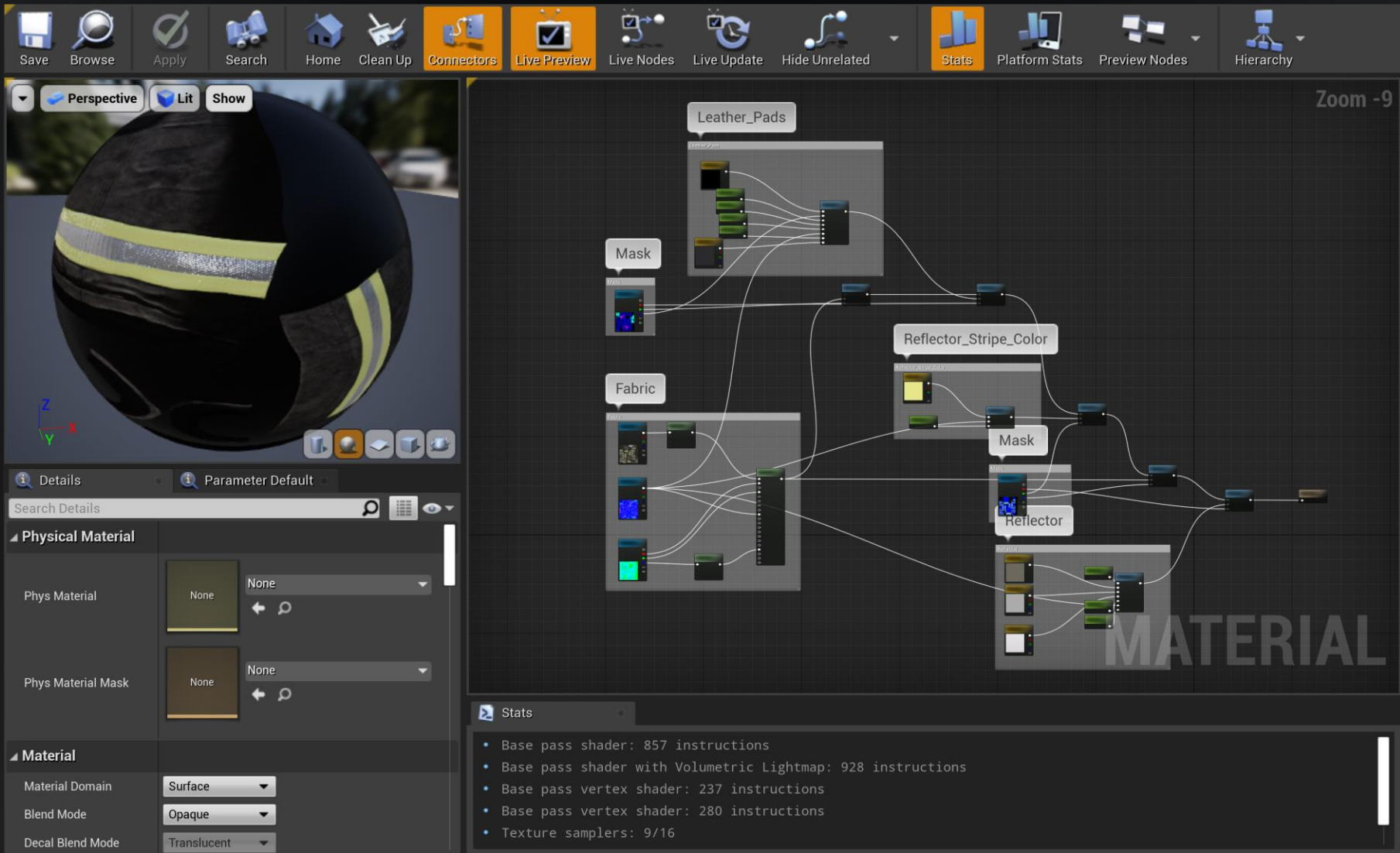
Engine & AI

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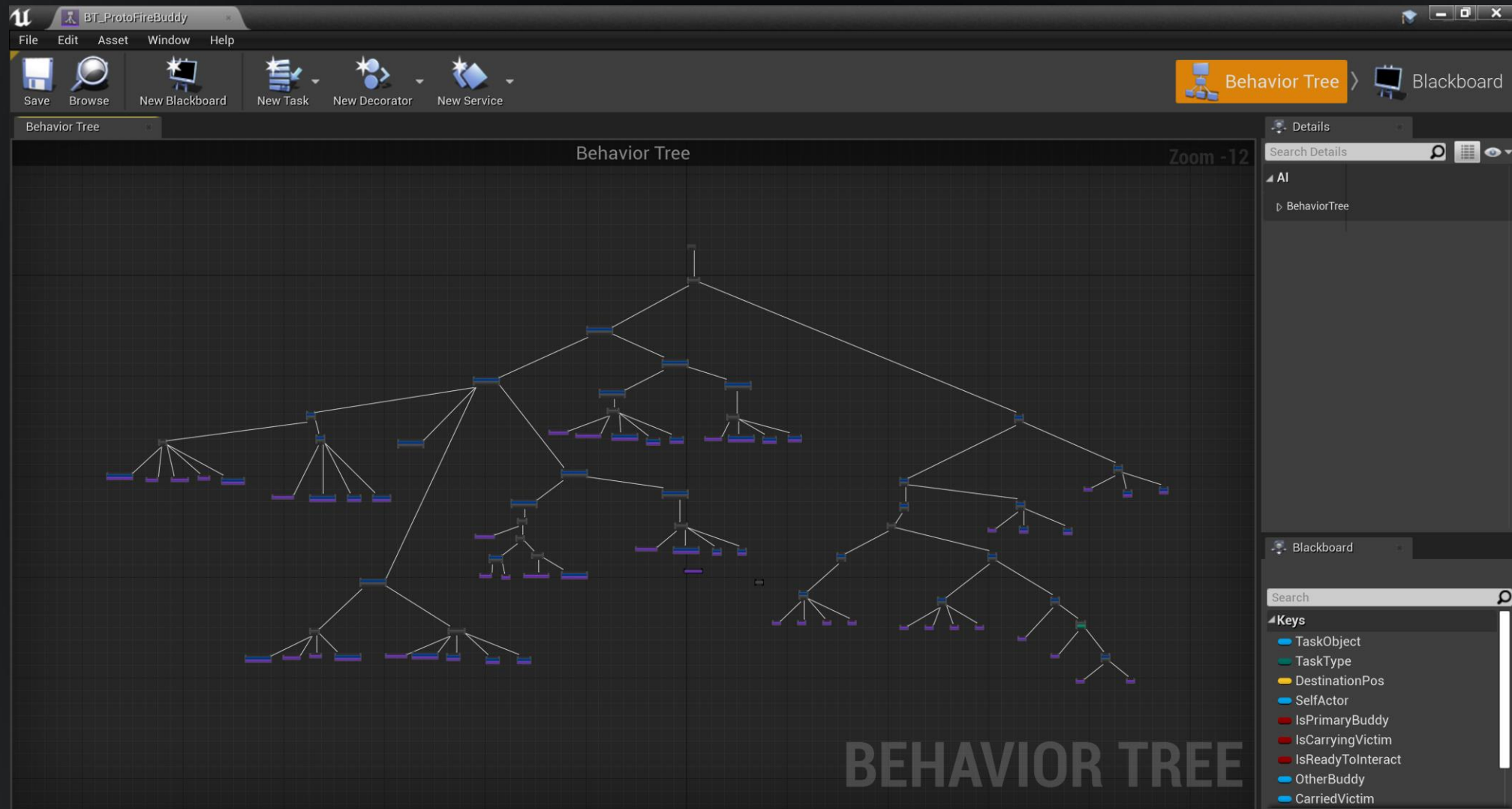
UNREAL ENGINE & AI



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THANK YOU!

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