

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

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



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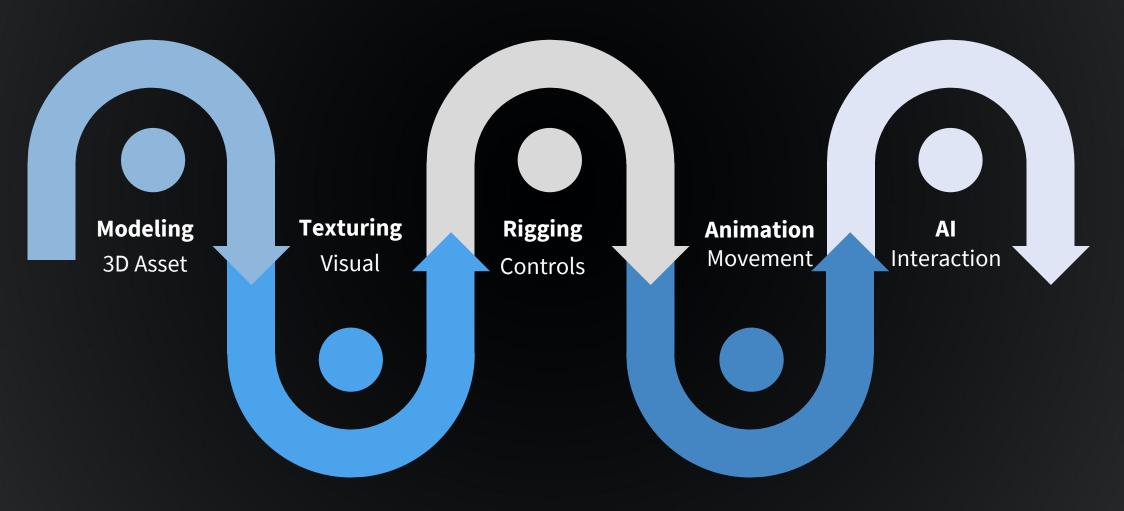
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PRODUCTION PIPELINE





Modeling and Texturing

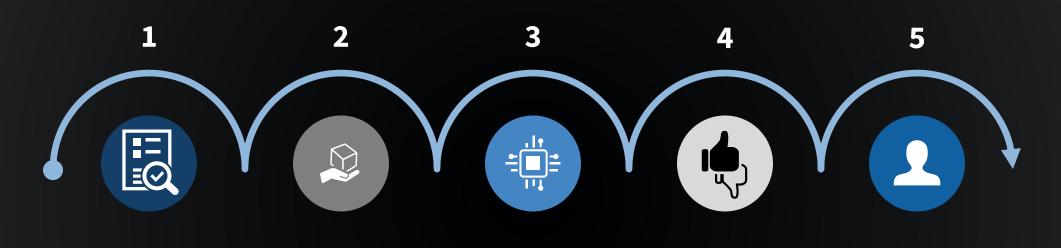
Jeff Karhoff – 3D Modeler, UI/UX Designer







HIGH TO LOW MODELING PROCESS



ReferenceBlock OutHigh PolyLow PolyTexturingCollectionPhase (Maya)ModelModel (Maya)(Substance(ZBrush)VPainter)

REFERENCE COLLECTION

- Collect Reference
 - Turnout Gear
 - Accessories
 - SCBA

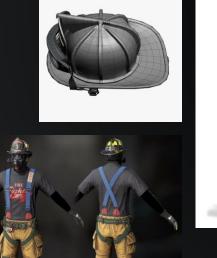














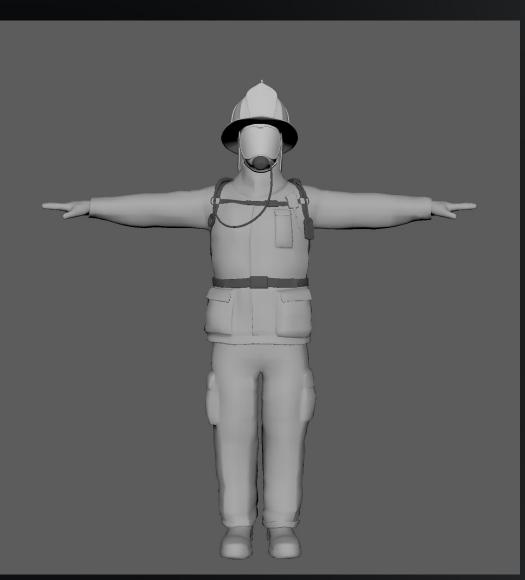






BLOCK OUT PHASE

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

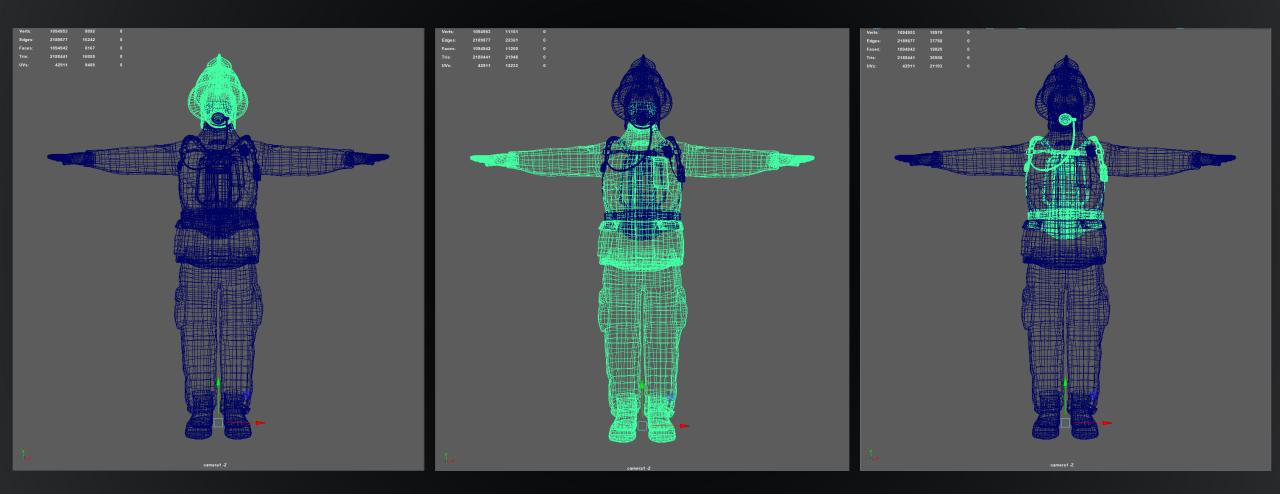


HIGH POLY MODEL

- 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

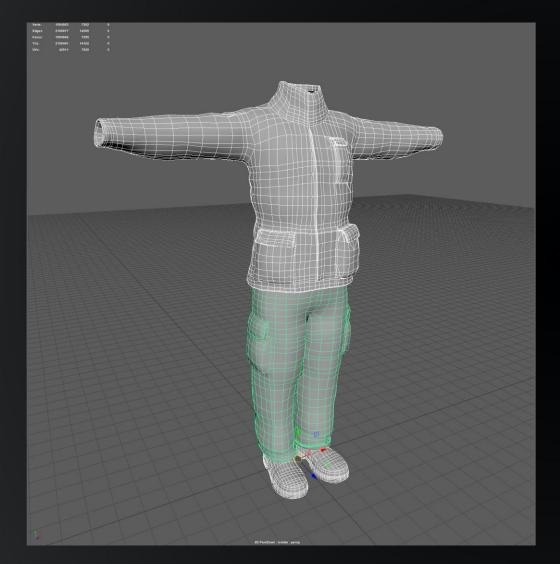






Low Poly Model is created from the High Poly model by retopology

UV UNWRAPPING





SUBSTANCE PAINTER: TEXTURE BAKE

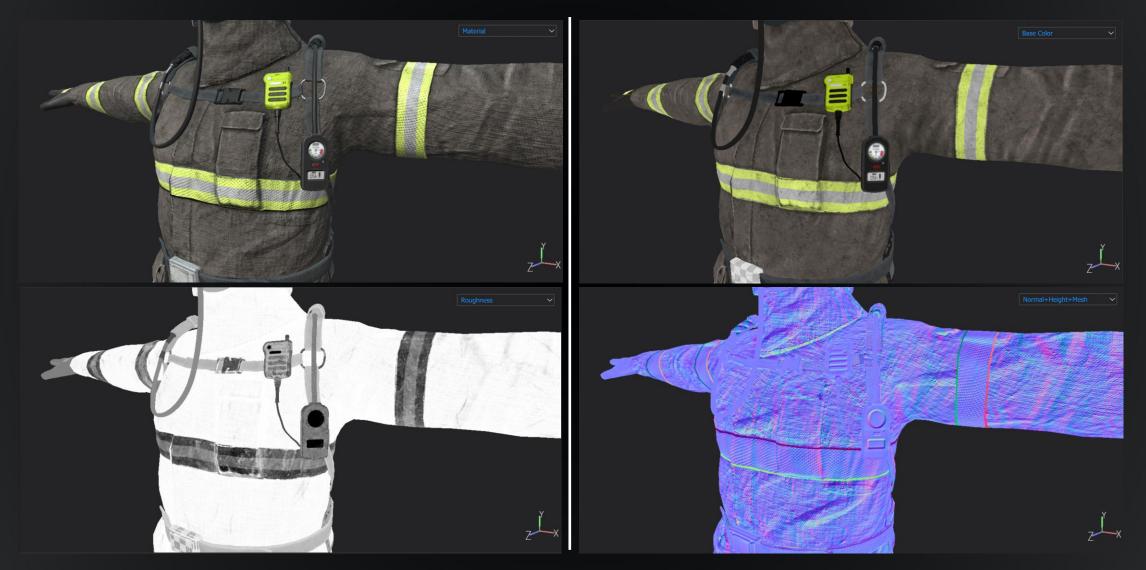
- VR Considerations
 - Texture Size: 1024, 2048, 4096
 - Polygon Count
 - Texel Density
 - Lighting/Dynamic



SUBSTANCE PAINTER: TEXTURE MAP









Rigging & Animation

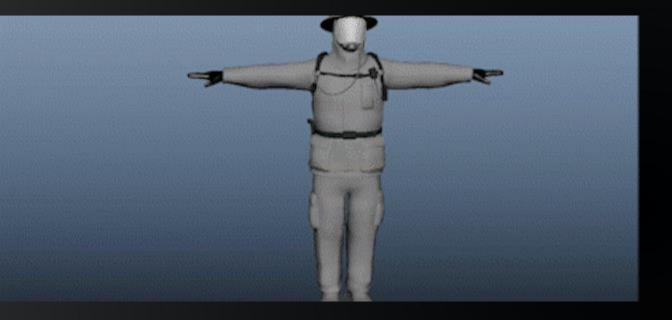
Ted Conry– Animator







RIGGING AND ANIMATION



Rigging

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

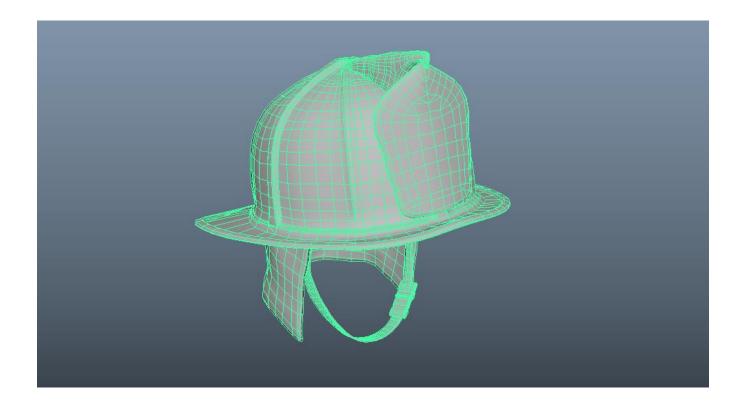


Applying motion to the bone structure to give the appearance of movement



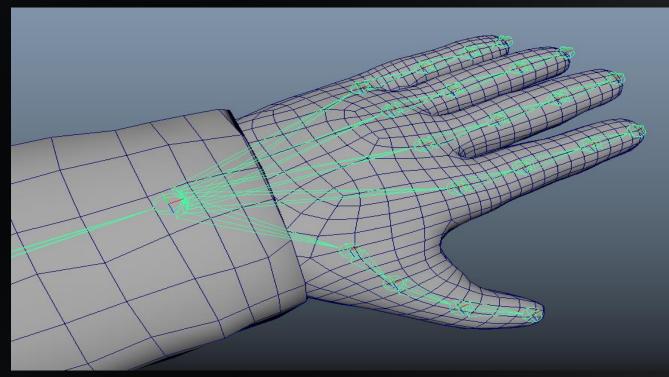
RIGGING: CONSTRUCTION

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



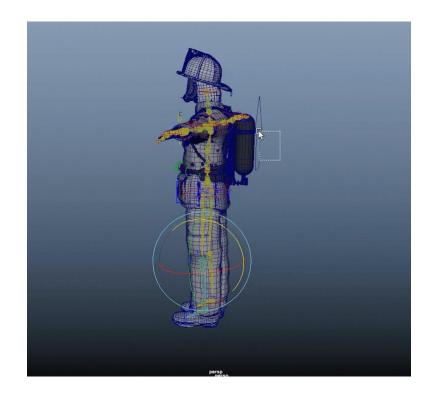
RIGGING: CONSTRUCTION

- 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

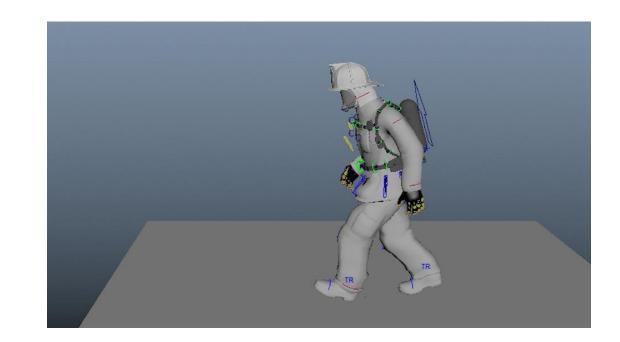


ANIMATION: BASICS TERMS

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

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

ANIMATION: LAYERS

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

ANIMATION: TIME EDITOR

- Clips
 - Relocated Animation
 - Warp Time

ANIMATION: REFERENCE & EXPORTING

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





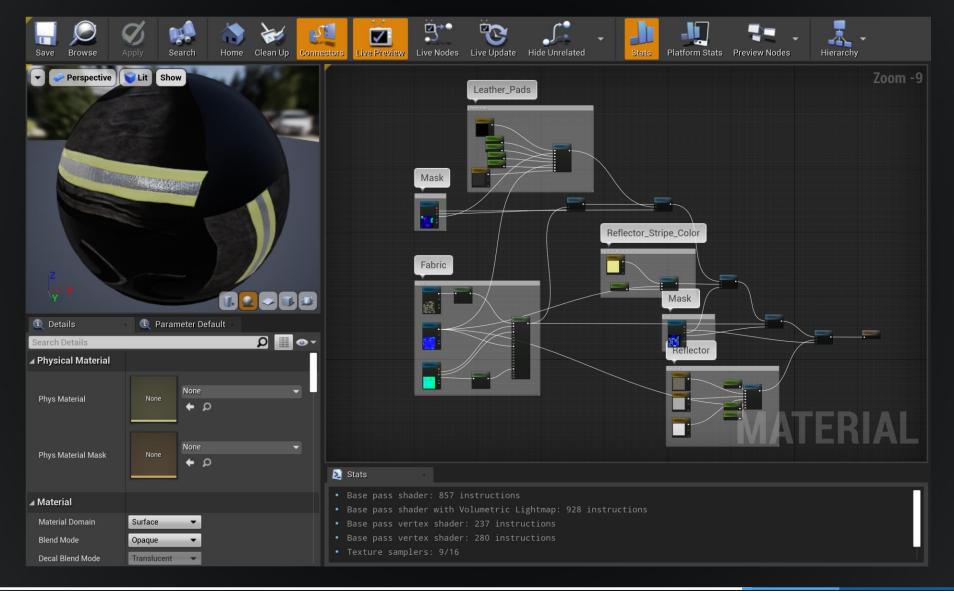
Engine & Al







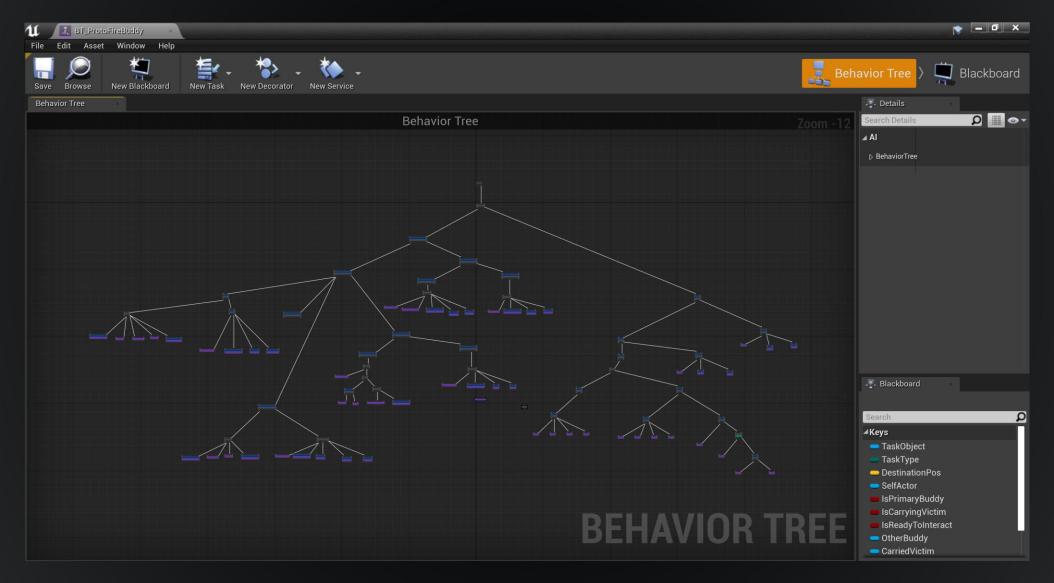
UNREAL ENGINE & AI



UNREAL ENGINE & AI

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UNREAL ENGINE & AI





THANK YOU!

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