Blurring the Separation Between Concept and Production

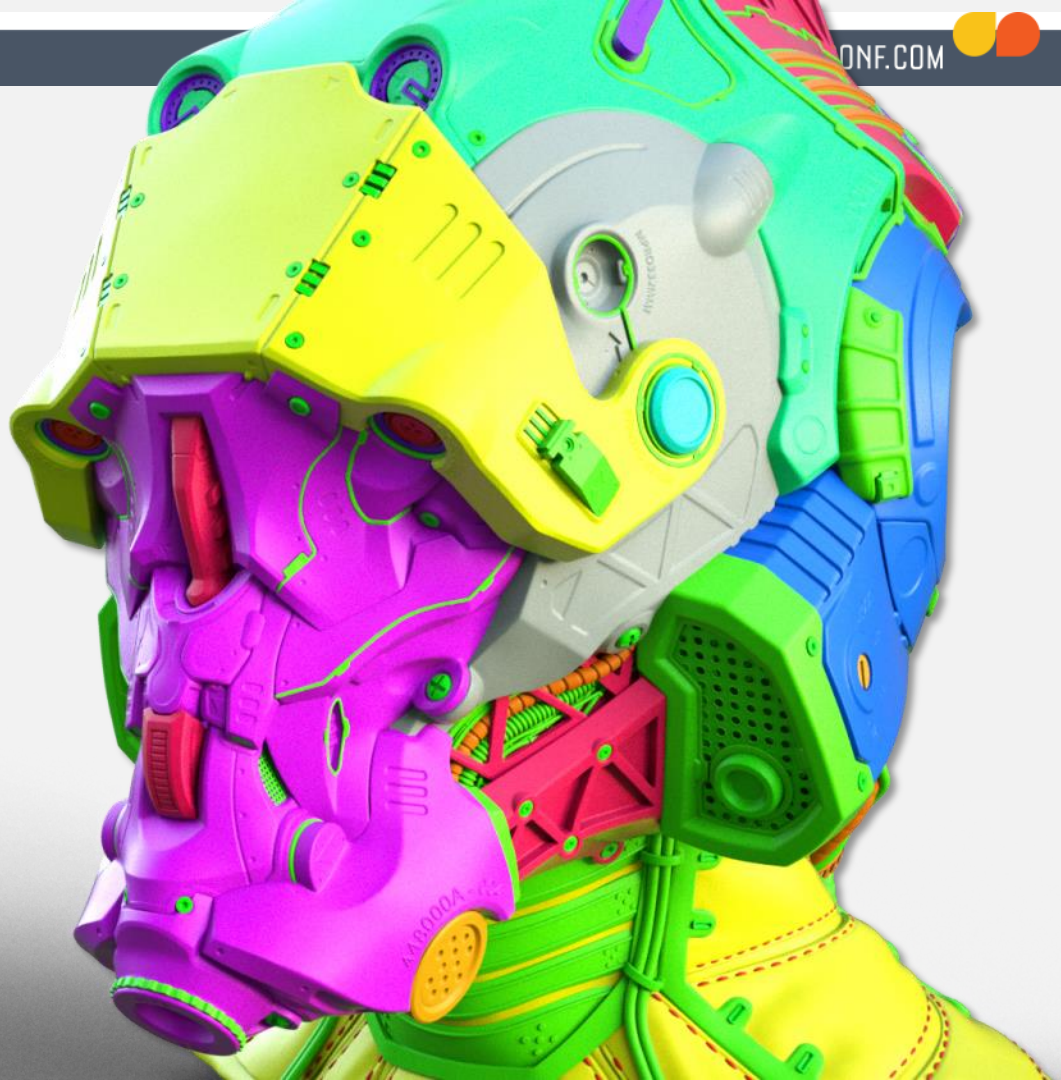
Michael Pavlovich
Sr Character Artist, Certain Affinity

Michael Pavlovich

Certain Affinity

Proving the Manual Process

- **Quick** High res source with Material IDs

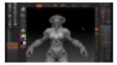


ZBrush Mech Helmet Concept Sculpt

by Michael Pavlovich • 5 videos • 1,545 views • 1 hour, 32 minutes

See and hear the process behind creating the ZBrush mech helmet from start to finish.

▶ Play all Share + Save

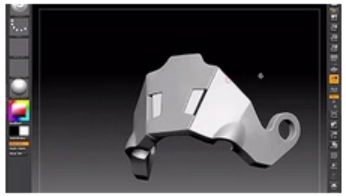
1  ZBrush Mech Helmet 01 Concept Sculpt

2 ZBrush Mech Helmet 02 RefineSculpt

3 ZBrush Mech Helmet 03 Rebuild And Refine

4 ZBrush Mech Helmet 04 DetailingPart01

5 ZBrush Mech Helmet 04 DetailingPart02



ZBrush Mech Helmet Techniques

by Michael Pavlovich • 5 videos • 1,591 views • 1 hour, 3 minutes

A depository for requested techniques shown in the "ZBrush Mech Helmet Concept Sculpt" playlist.

ZBrush Mech Helmet Concept Sculpt videos: more

▶ Play all Share + Save

1 Hard Edge Panel Slice Techniques

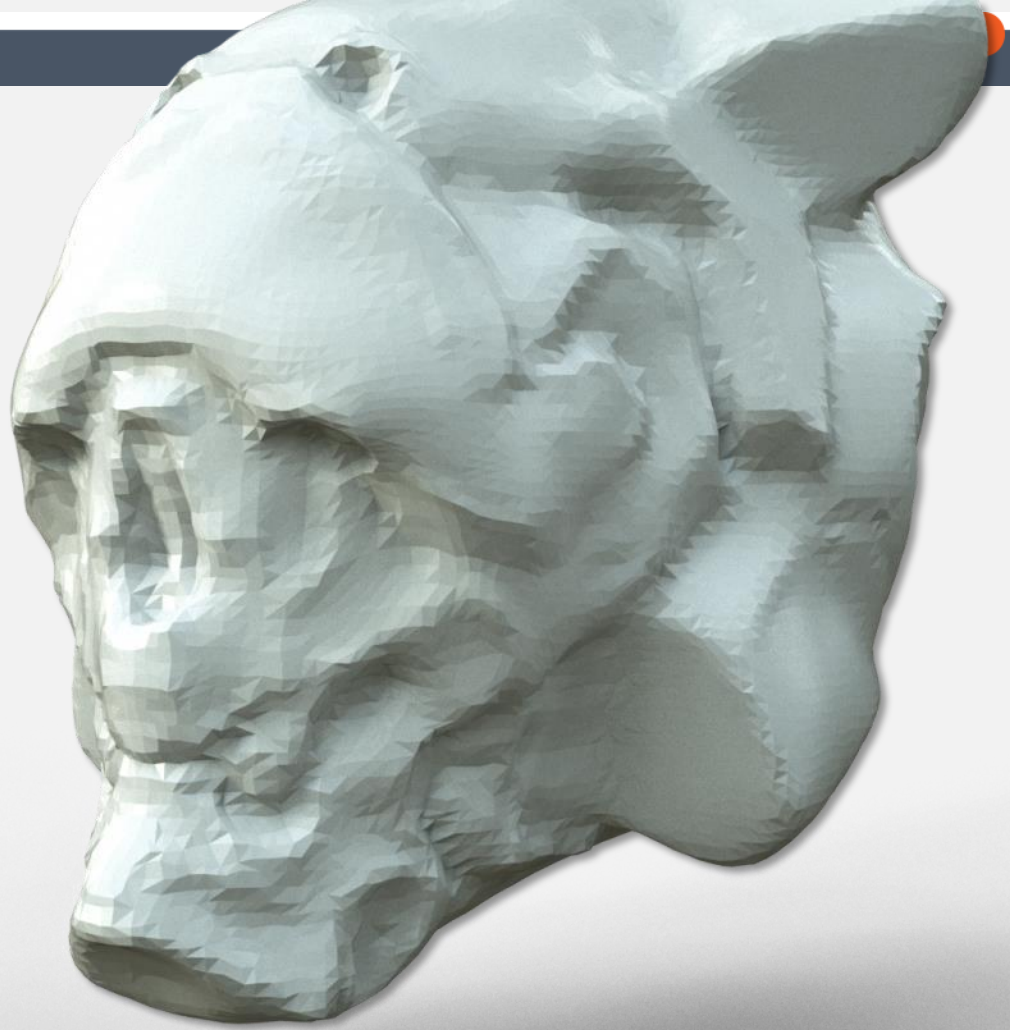
2 Hard Edge Shapes Using Retopology and Skin Thickness

3 Unique Hard Edge Shapes Using Retopology

4 Dynamesh Boolean Techniques

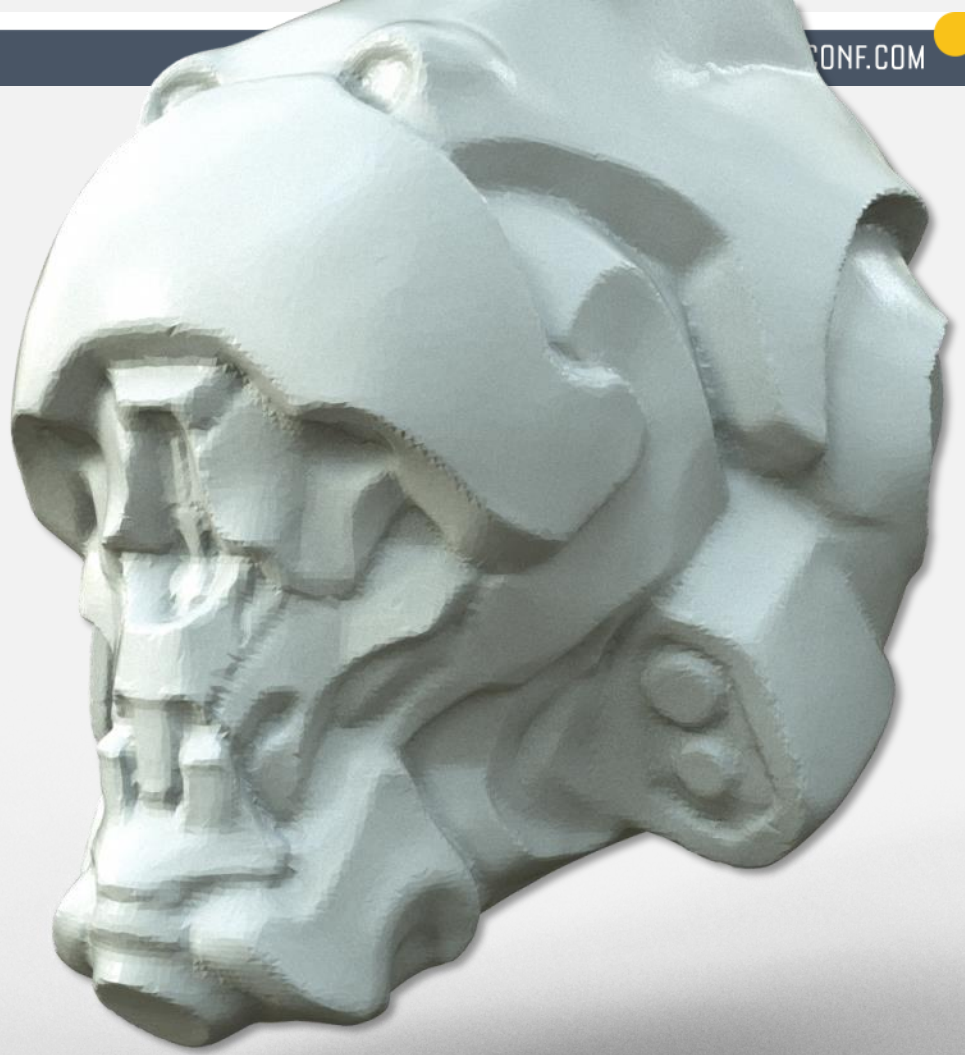
5 BevelDyanameshEdges

Rough Sketch



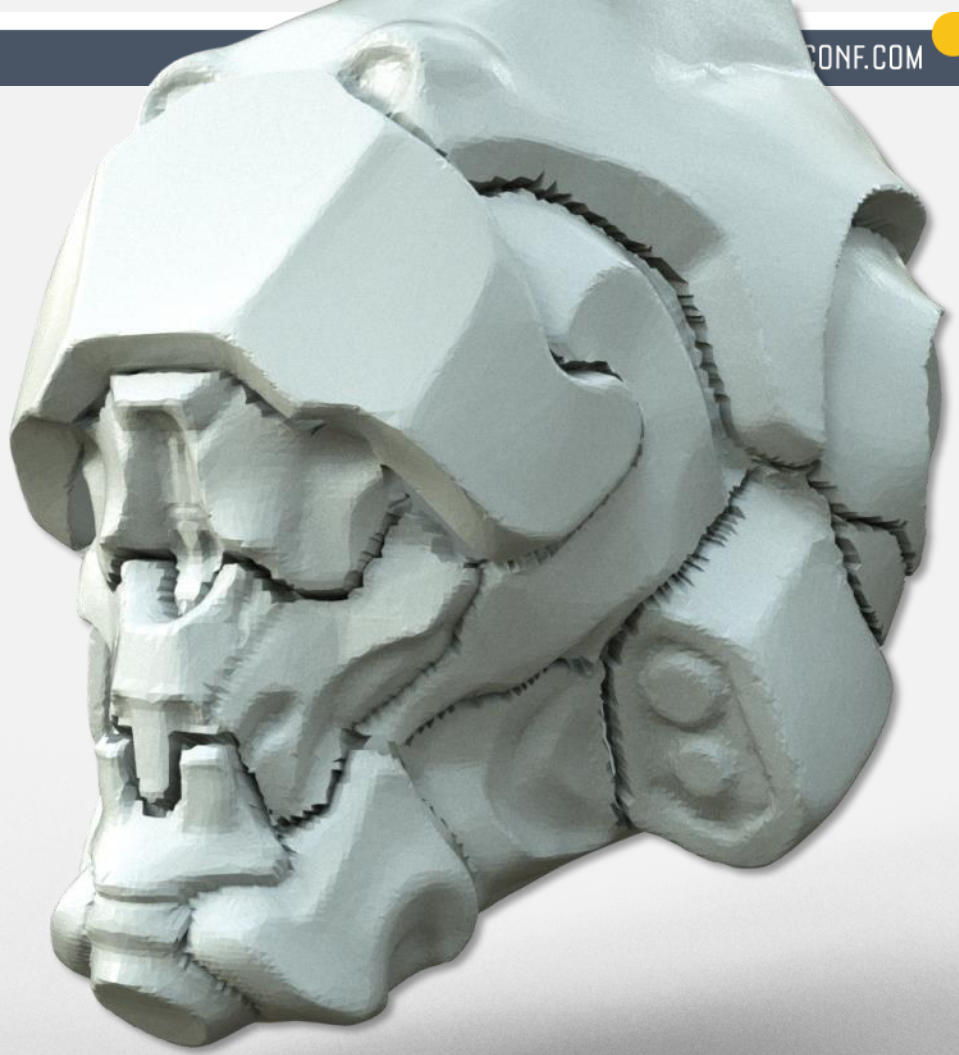
Refined Sketch

- Answers enough questions?



Component Modeling

- Faster Material ID assignment and iteration
- More Precise Refining



Sketch Refine

- Answers all (or enough) form and functionality questions for most objects

Forms Refined

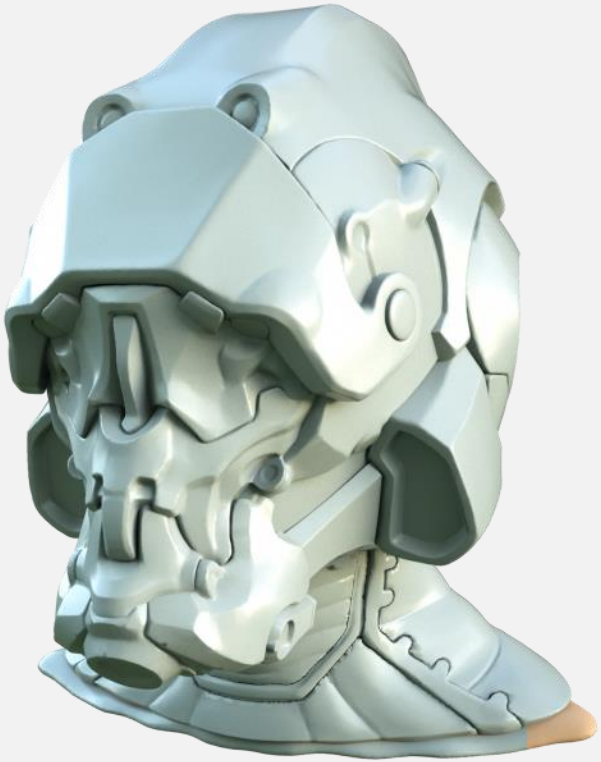
Secondary Detail

More Detail

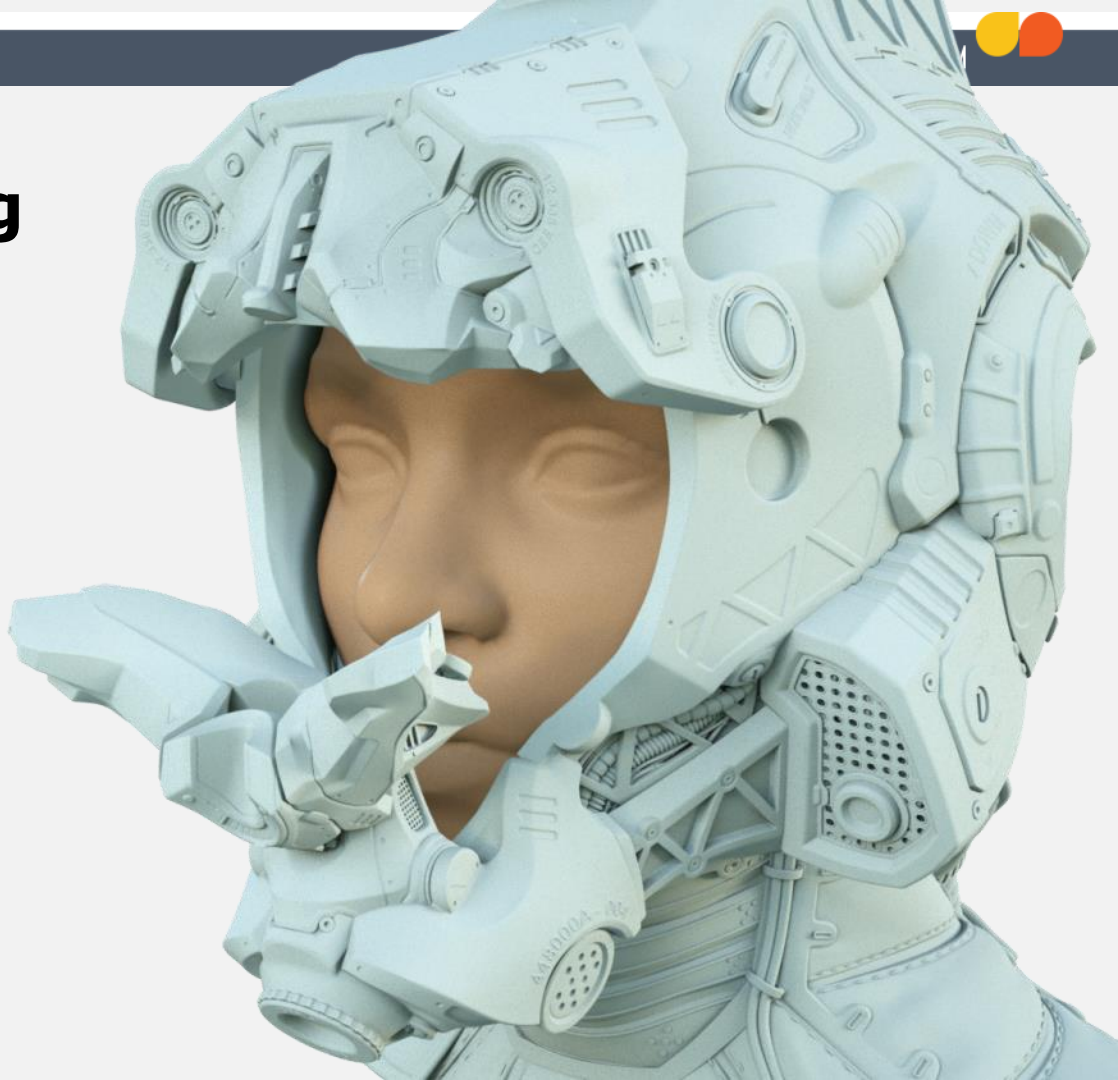
...More Detail

- Populate your asset libary

Functionality Testing

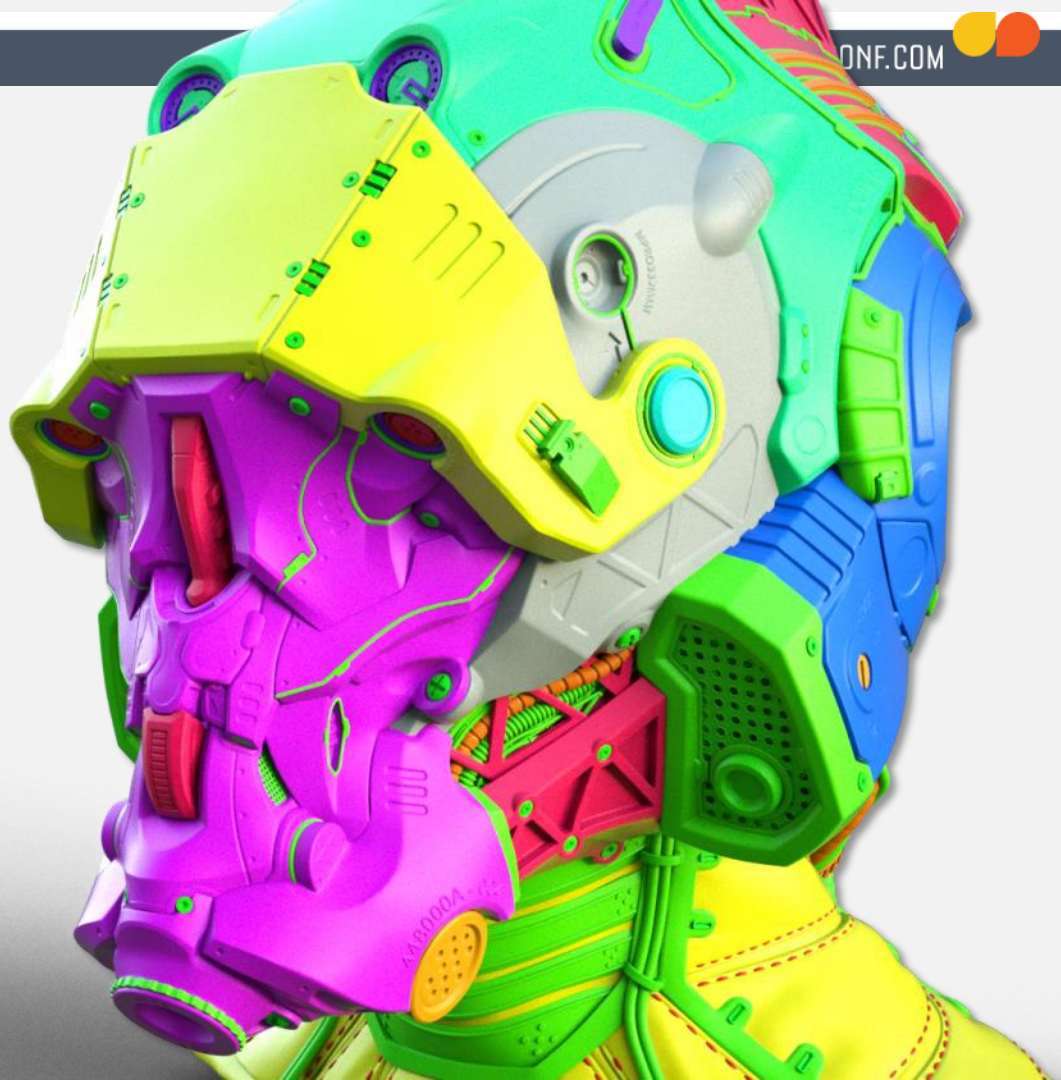


Functionality Testing Extrapolated

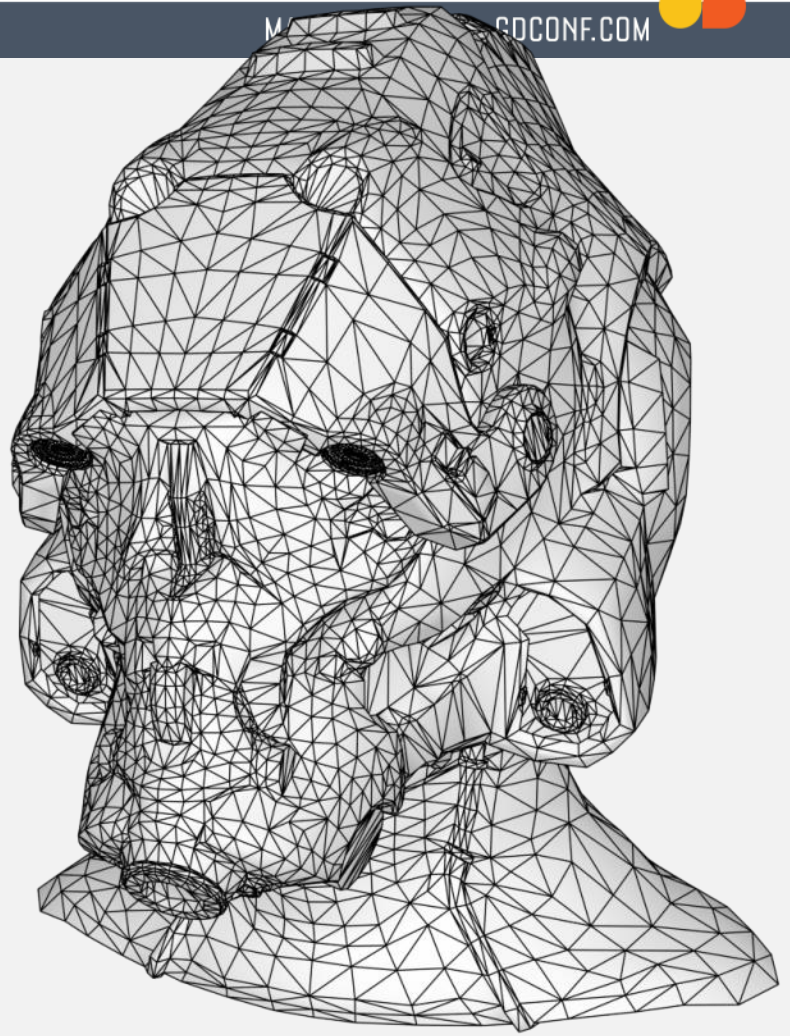


Final High Res

- High res bake model
- Material IDs applied (polypaint or material)

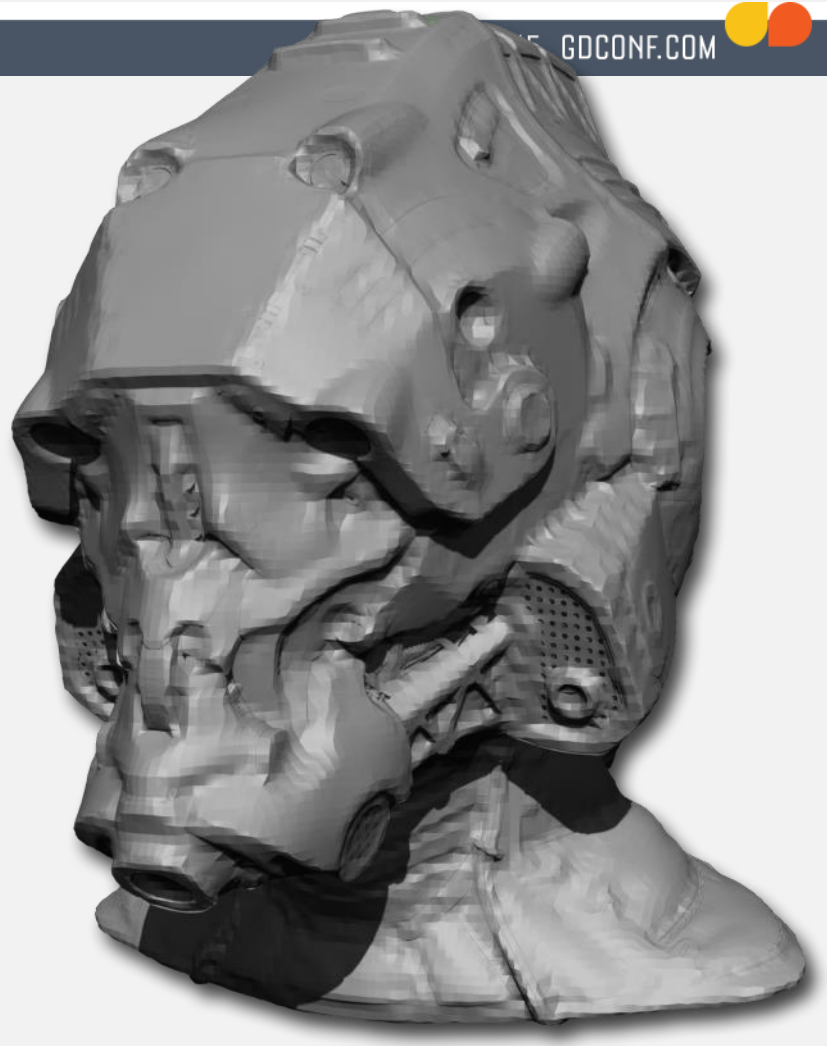


- **Quick** Game Res with Uvs



- High Res

- High Res
- Dynamesh/Remesh



- High Res
- Dynamesh/Remesh
- Decimate

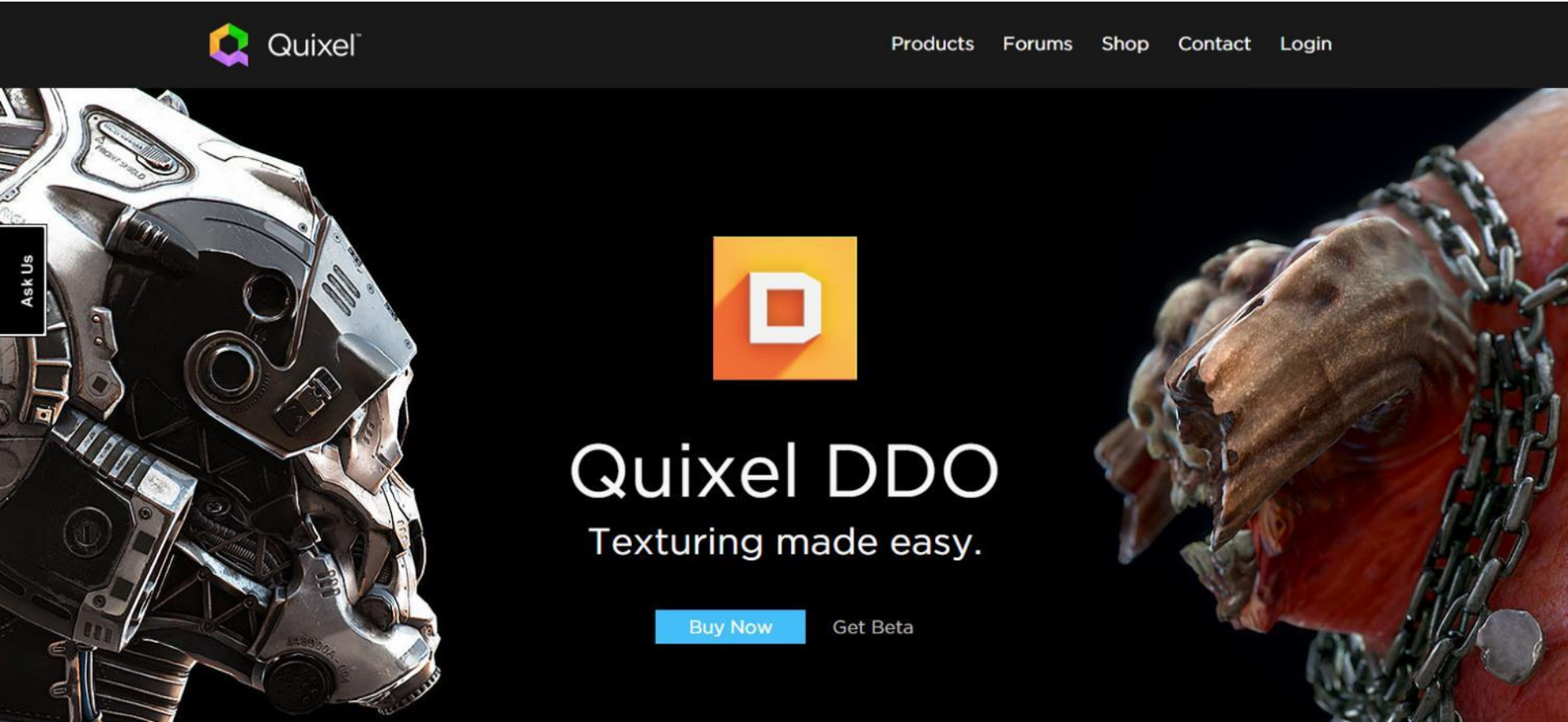
- High Res
- Dynamesh/Remesh
- Decimate
- Attract Seams by AO

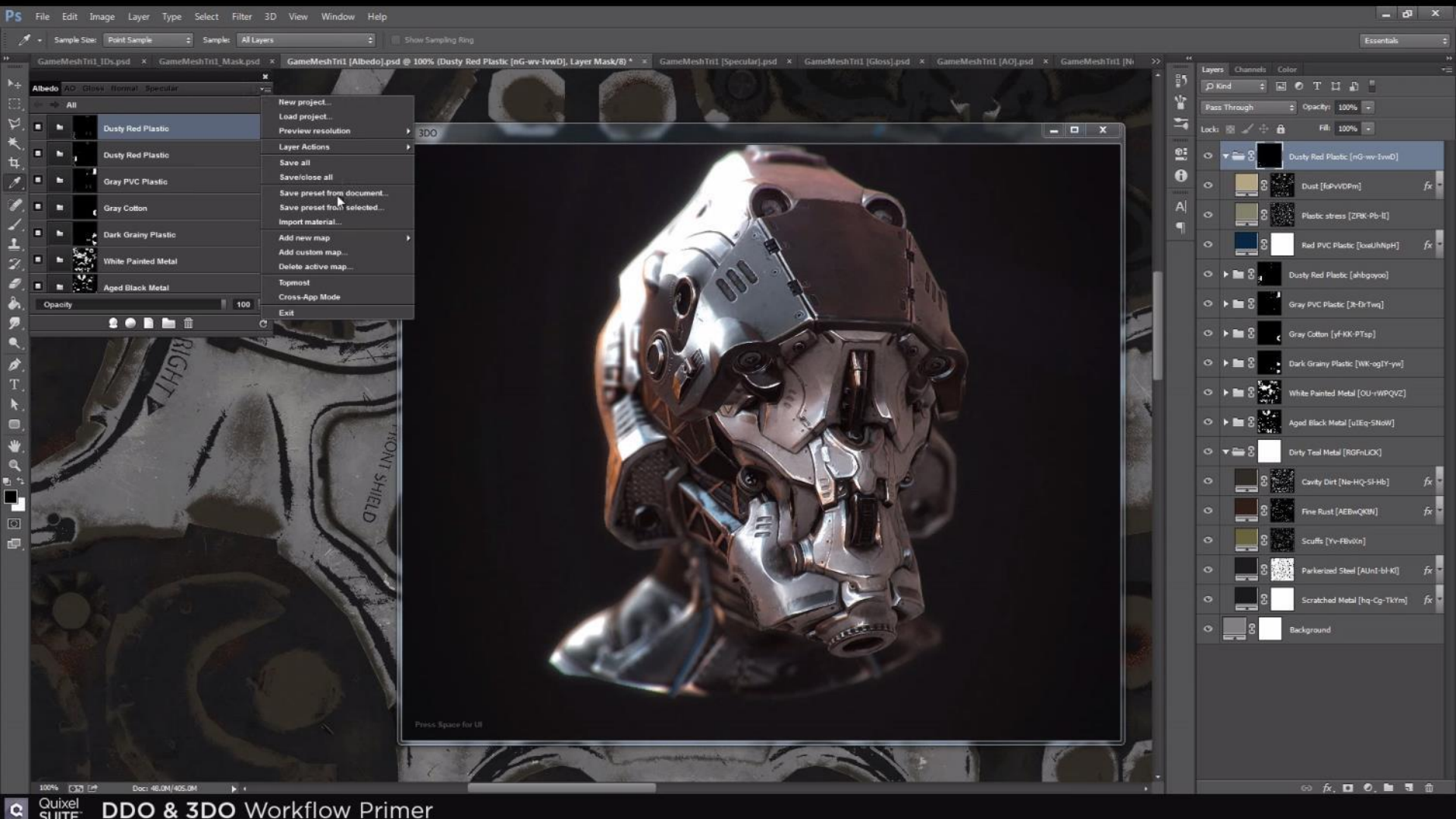
- High Res
- Dynamesh/Remesh
- Decimate
- Attract Seams by AO
- UV

- **Quick** Map Baking

- Source Maps
  - Material ID
  - AO
  - Curvature
  - Norm Tangent
  - Norm World
  - Position
  - Thickness

- **Quick** Material Assignment
- **Automatic** Textures

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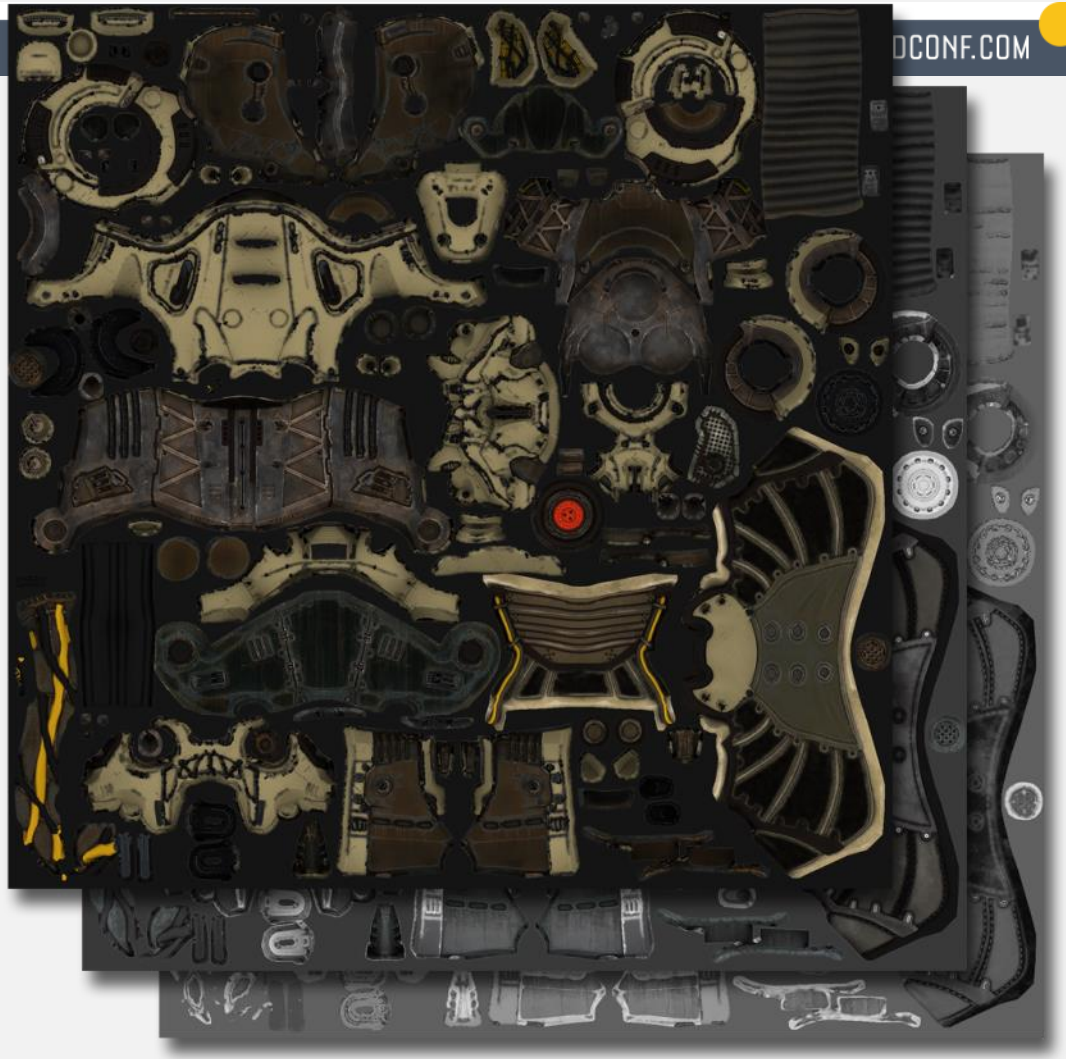
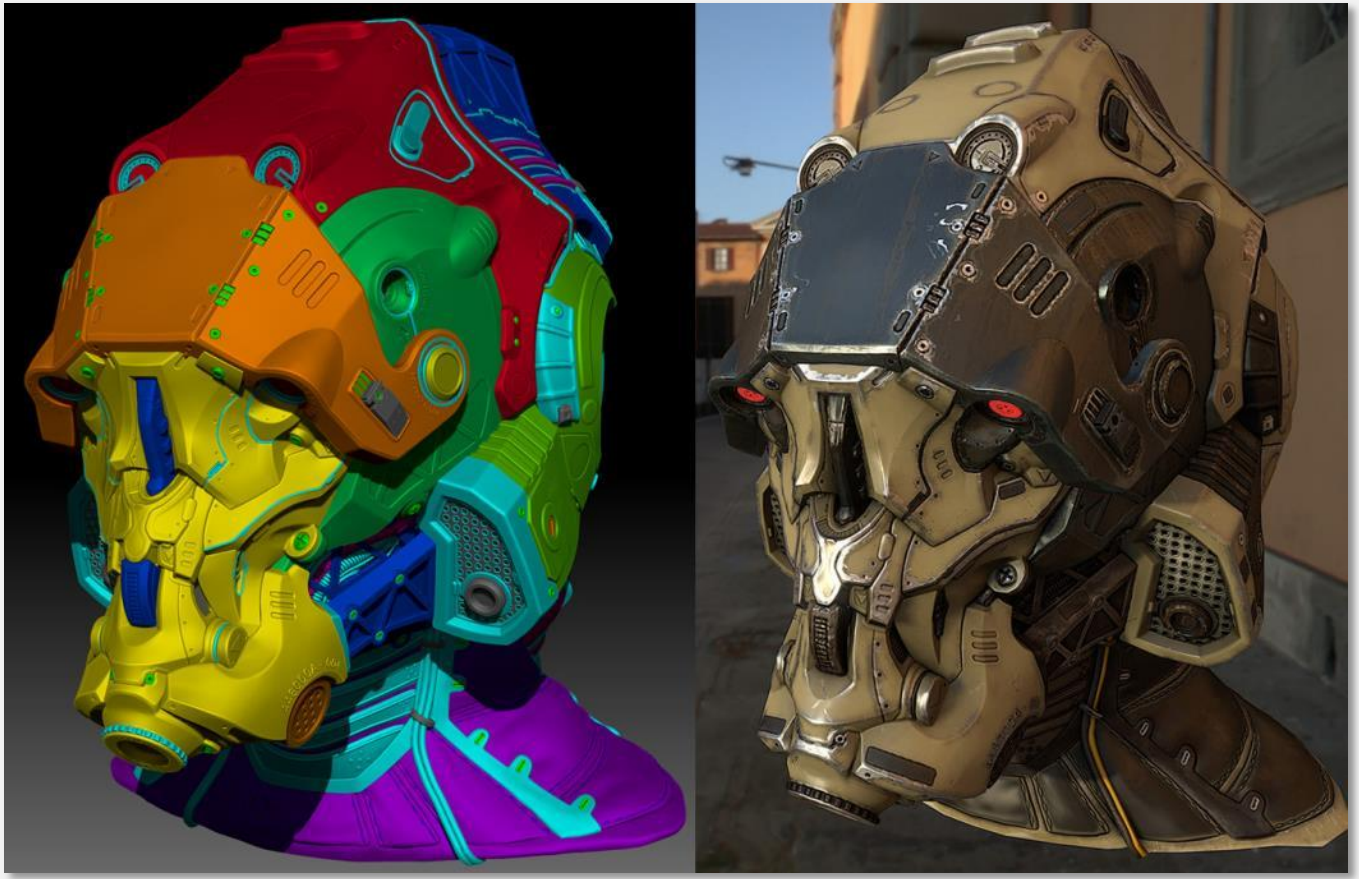
GameMeshTri1_IDs.psd
GameMeshTri1_Mask.psd
GameMeshTri1 [Albedo].psd @ 100% (Dusty Red Plastic [nG-wv-IvwD], Layer Mask/8) *
GameMeshTri1 [Specular].psd
GameMeshTri1 [Gloss].psd
GameMeshTri1 [AO].psd
Albedo
AO
Gloss
Normal
Specular
All
Dusty Red Plastic
Dusty Red Plastic
Gray PVC Plastic
Gray Cotton
Dark Grainy Plastic
White Painted Metal
Aged Black Metal
Opacity
100
New project...
Load project...
Preview resolution
Layer Actions
Save all
Save/close all
Save preset from document...
Save preset from selected...
Import material...
Add new map
Add custom map...
Delete active map...
Topmost
Cross-App Mode
Exit
3DO
Press Space for UI
Layers
Channels
Color
Pass Through
Opacity: 100%
Lock:
Fill: 100%
Dusty Red Plastic [nG-wv-IvwD]
Dust [fbPvVDPm]
Plastic stress [ZfBK-Pb-lI]
Red PVC Plastic [kxaUhNpH]
Dusty Red Plastic [ahbgoyoo]
Gray PVC Plastic [lt-fIrTwq]
Gray Cotton [yf-KK-PTsp]
Dark Grainy Plastic [WK-ogIY-yw]
White Painted Metal [OU-rWPQVZ]
Aged Black Metal [uIEq-SMoW]
Dirty Teal Metal [RGFnLiCK]
Cavity Dirt [Ne-HQ-SI-Hb]
Fine Rust [AEBwQKtN]
Scuffs [Yv-FBvXn]
Parkerized Steel [AUnI-bI-kI]
Scratched Metal [hq-Cg-TkYm]
Background
Quixel SUITE
DDO & 3DO Workflow Primer

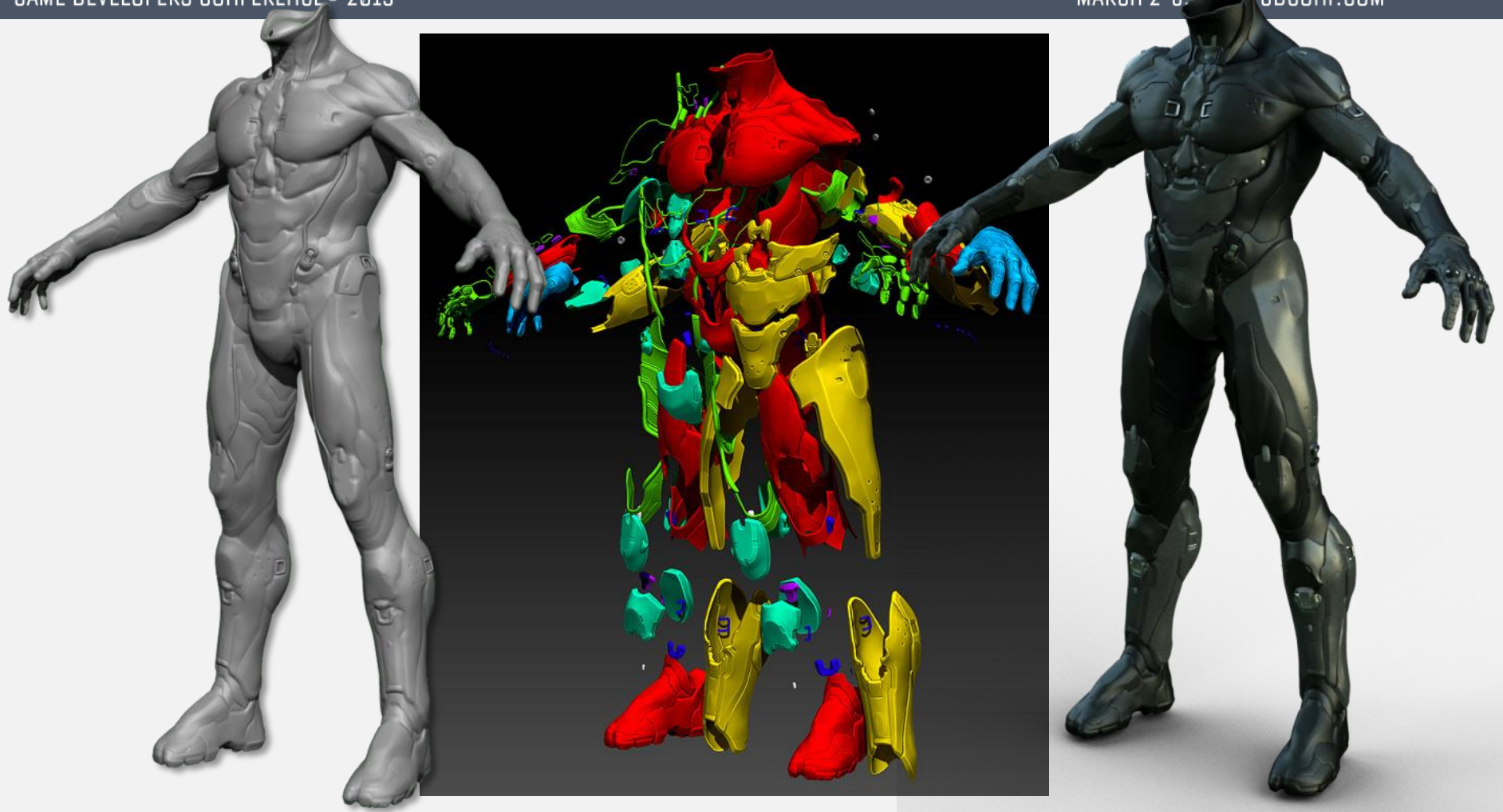
- Output Maps
  - Albedo
  - Roughness
  - Metallic
  - Cavity
  - Specular
  - Glossiness

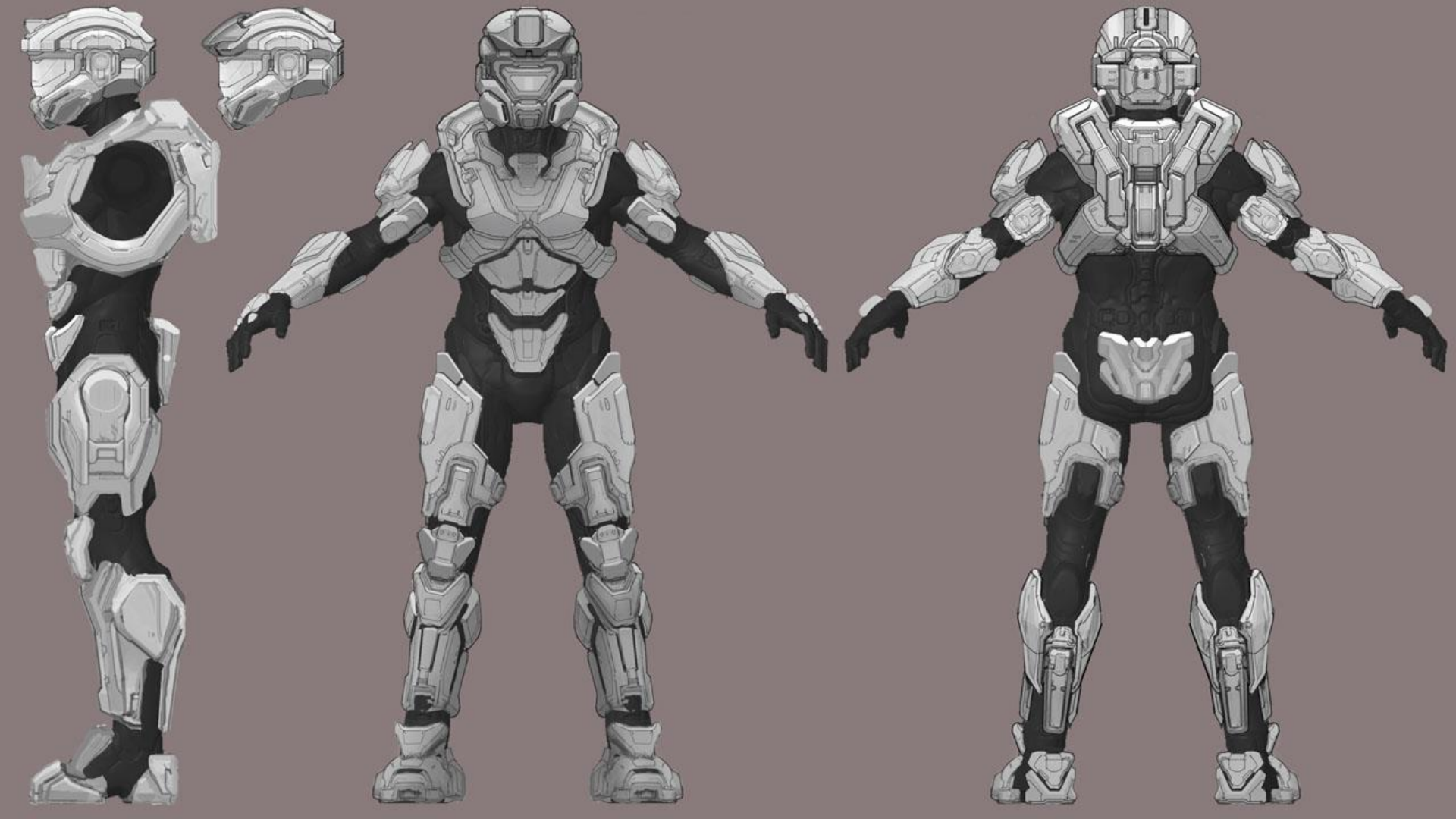


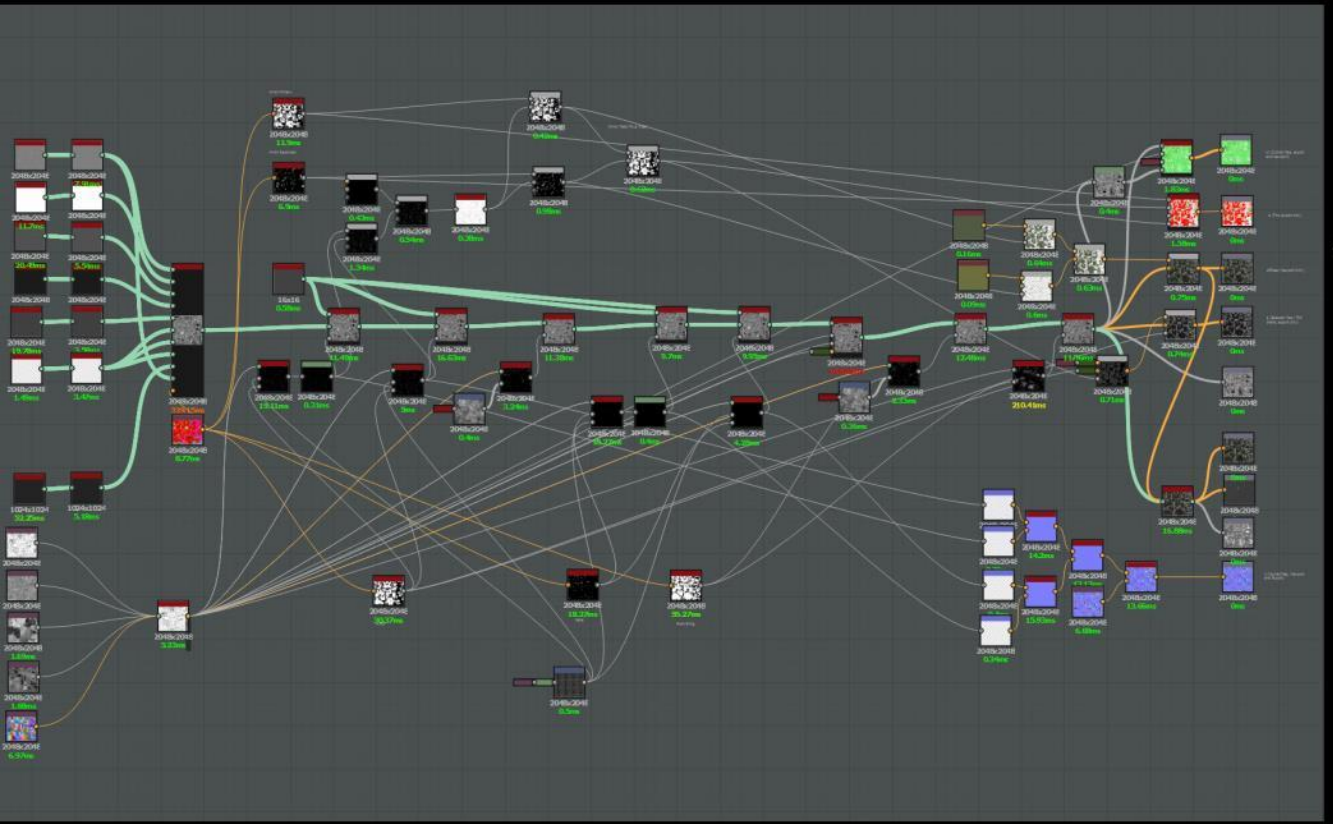
Into “Engine”



Refining “Quick” in H2:A



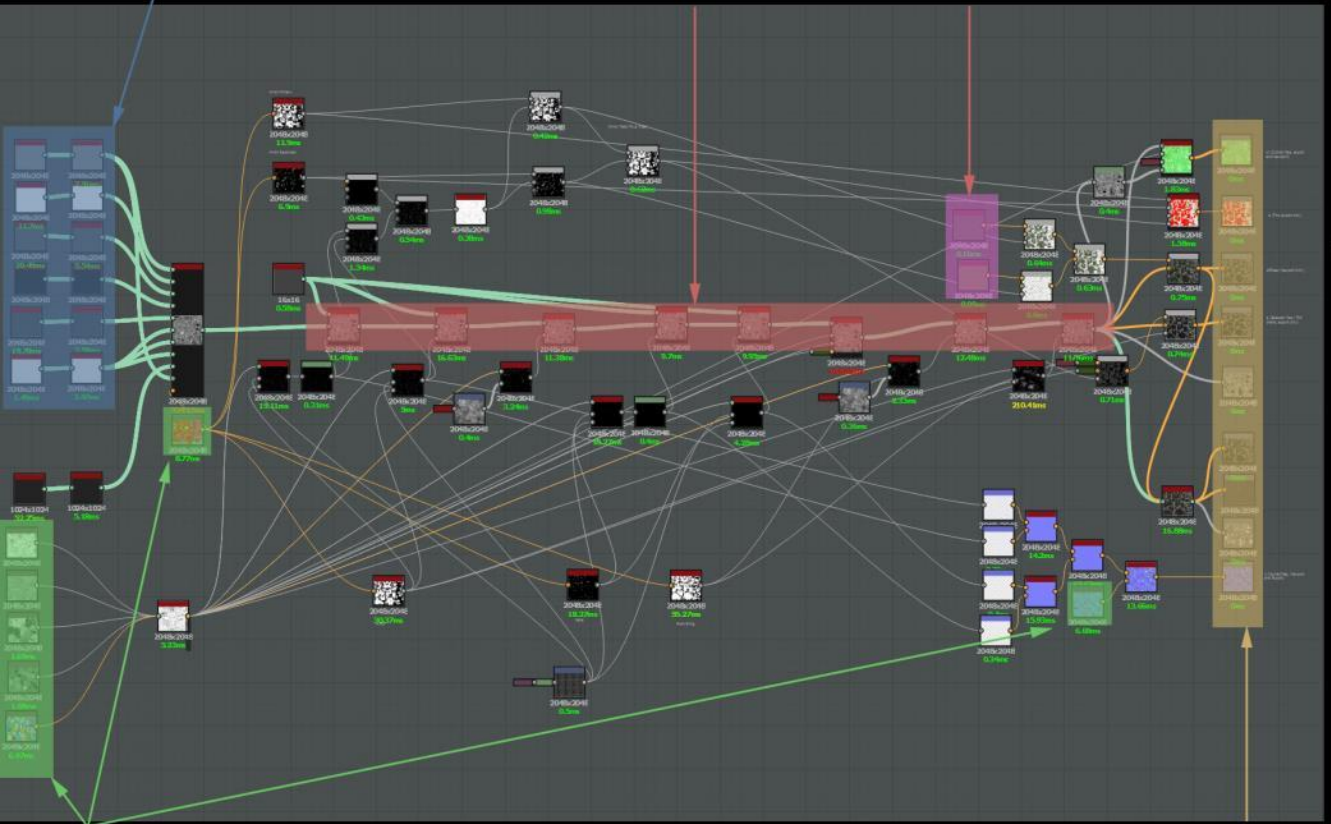




Approved Materials

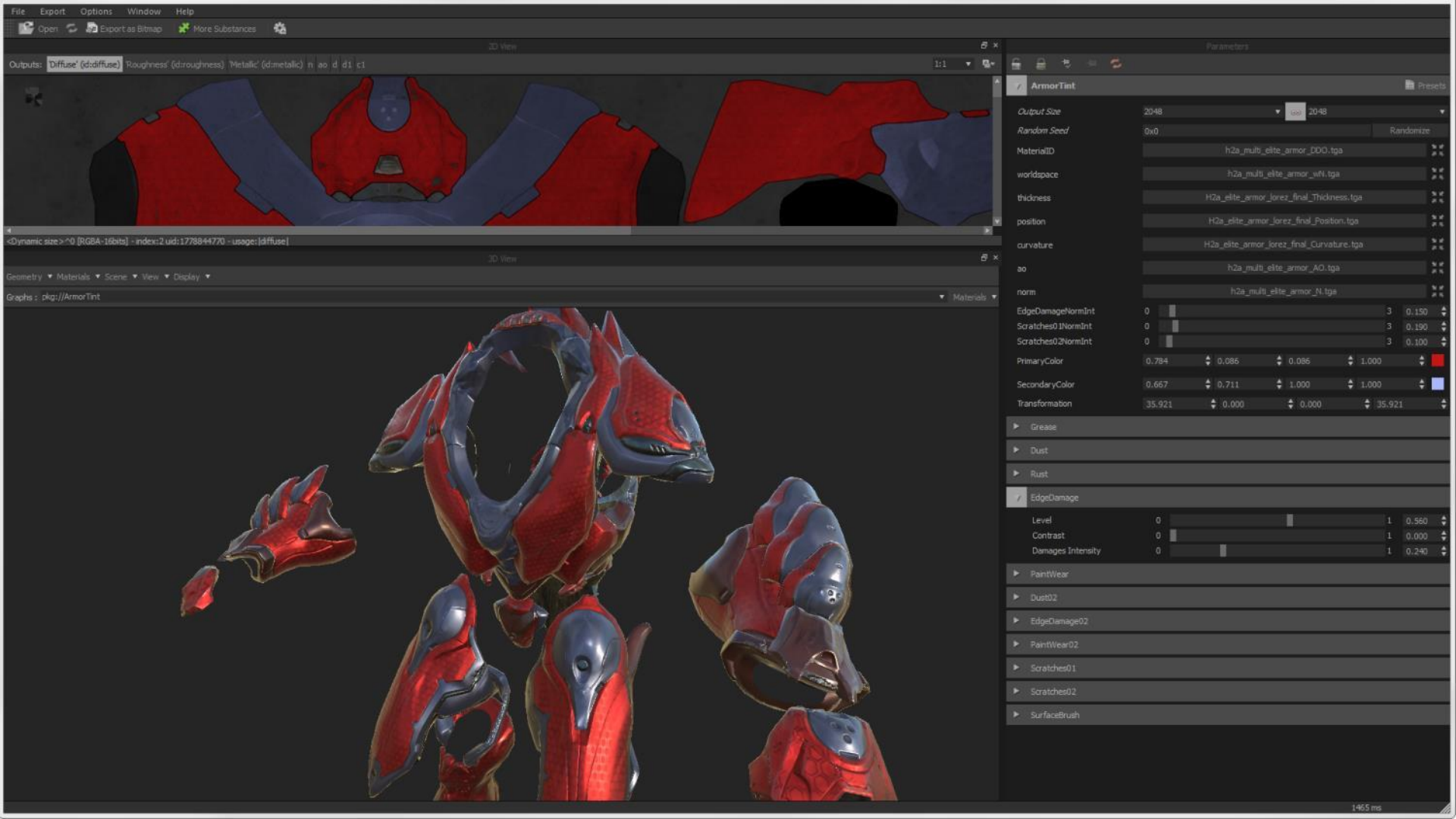
Wear (Exposed to End User)

Colors (Exposed to End User)



Baked Maps

Exported Maps (including packed Combo maps)


File
Export
Options
Window
Help
Open
Export as Bitmap
More Substances
3D View
Outputs:
'Diffuse' (d:diffuse)
Roughness' (d:roughness)
Metallic' (d:metallic)
n
ao
d
d1
c1
1:1
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3D View
Geometry
Materials
Scene
View
Display
Graphs : pkg://ArmorTint
Materials
Parameters
ArmorTint
Presets
Output Size
2048
2048
Random Seed
0x0
Randomize
MaterialID
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worldspace
h2a_multi_elite_armor_wN.tga
thickness
H2a_elite_armor_lorez_final_Thickness.tga
position
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H2a_elite_armor_lorez_final_Curvature.tga
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norm
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EdgeDamageNormInt
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3
0.150
Scratches01NormInt
0
3
0.190
Scratches02NormInt
0
3
0.100
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0.086
0.086
1.000
SecondaryColor
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0.711
1.000
1.000
Transformation
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0.000
0.000
35.921
Grease
Dust
Rust
EdgeDamage
Level
0
1
0.560
Contrast
0
1
0.000
Damages Intensity
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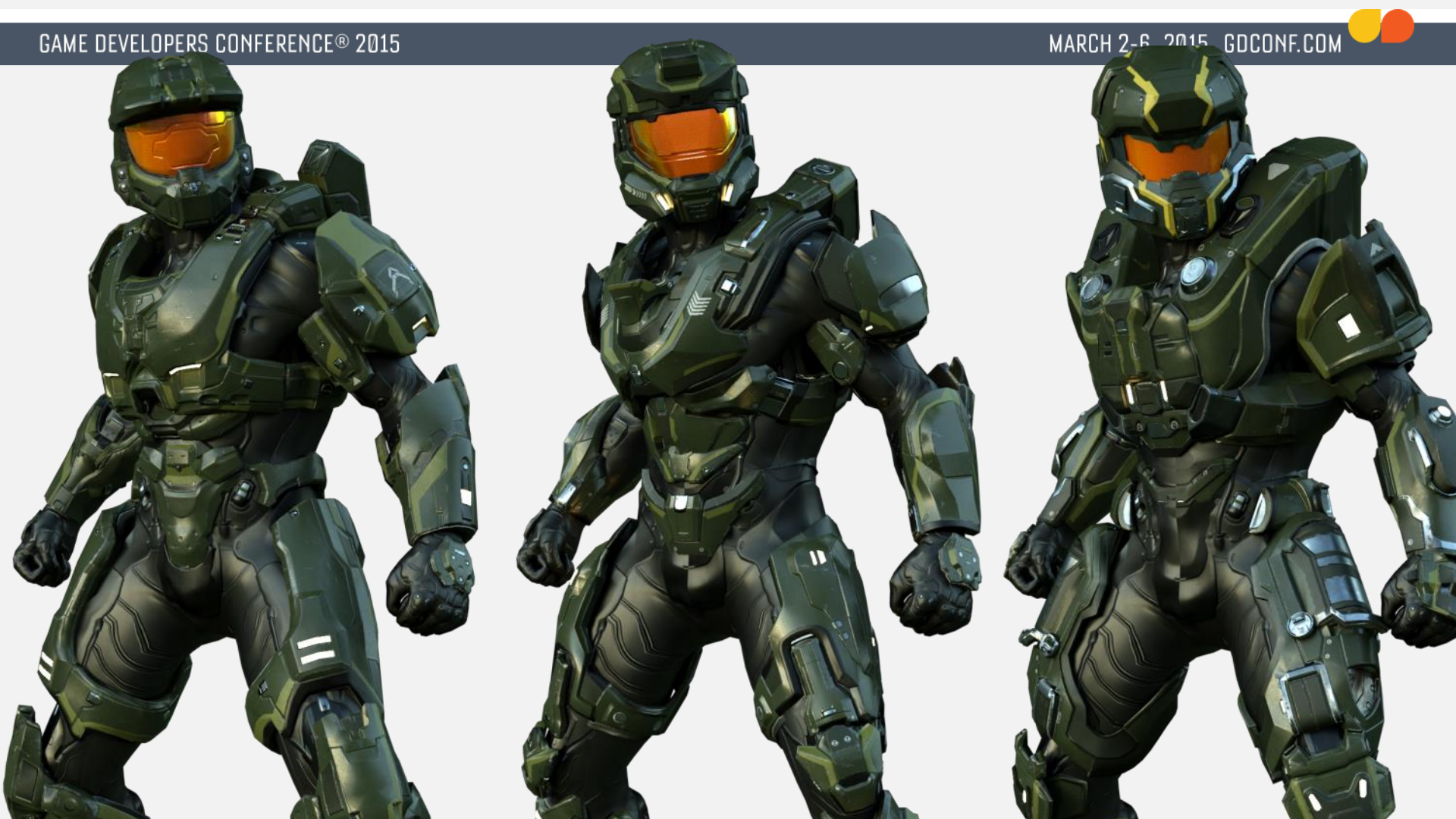
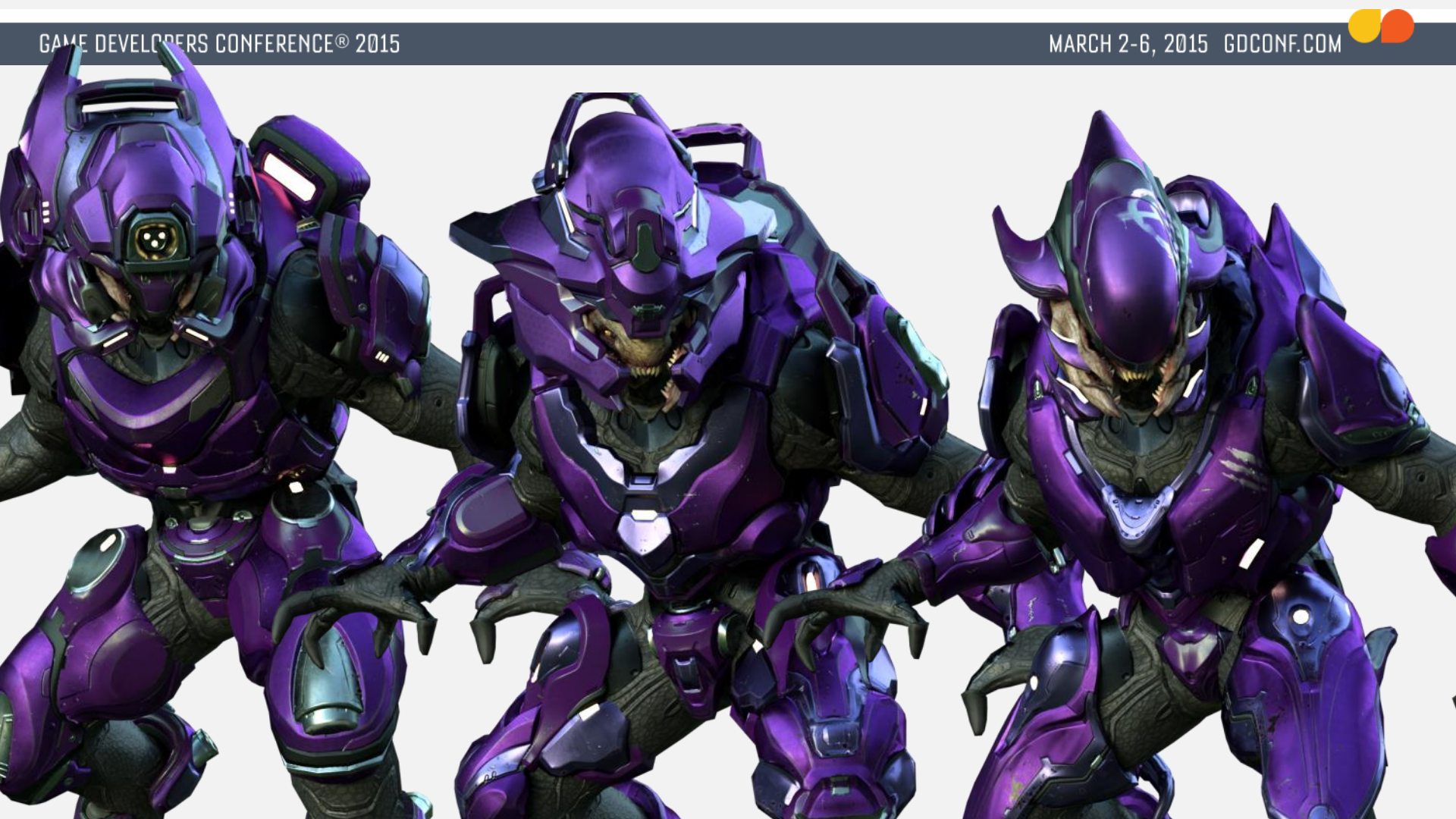
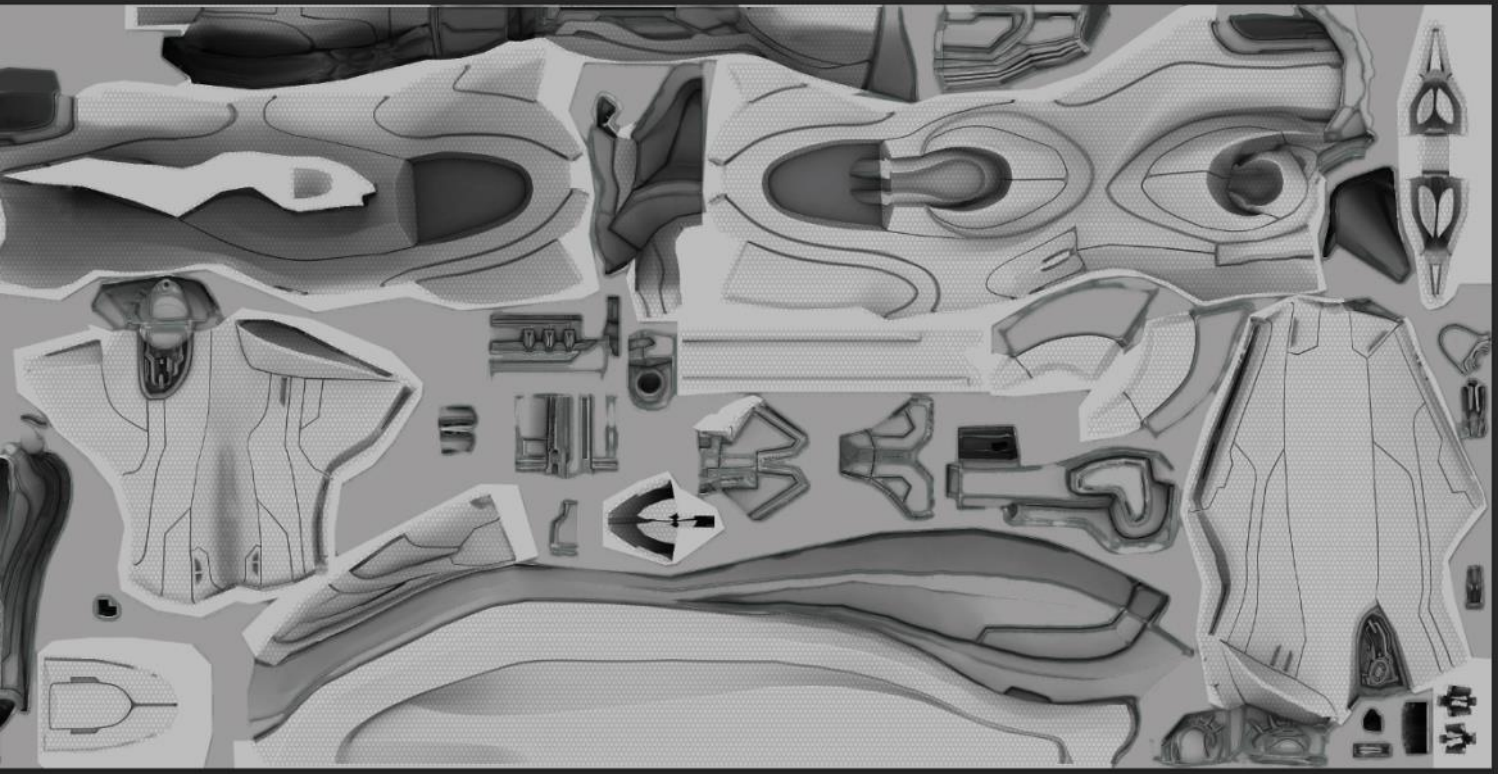
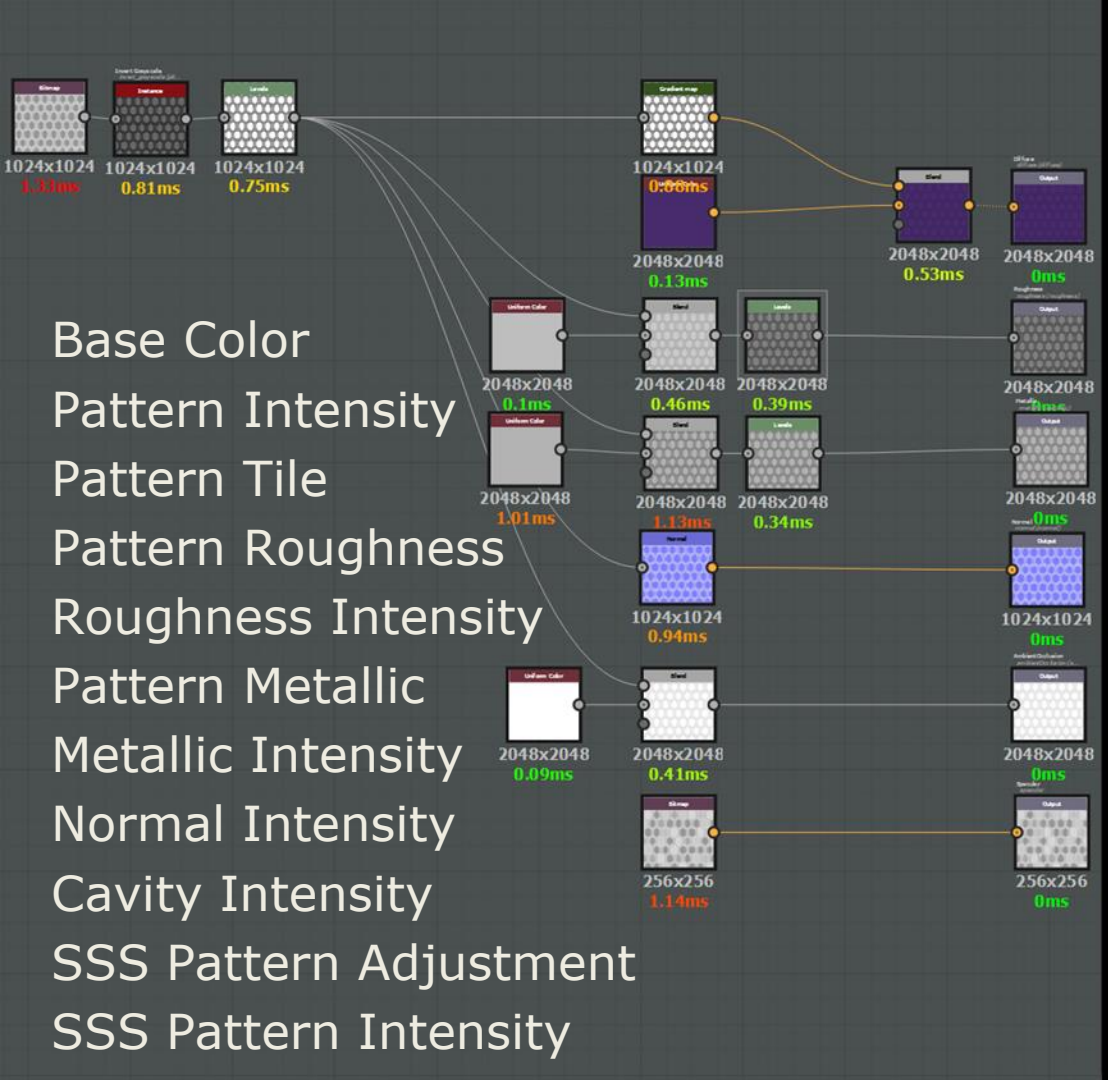
PaintWear
Dust02
EdgeDamage02
PaintWear02
Scratches01
Scratches02
SurfaceBrush
1465 ms







Diffuse
SpecForDiff
Layer 2 copy
HexMaterial
#FF00A8
AO
Layer 2 copy 2
Diffuse AO
Roughness
Gloss base color
Normal
Hex10%
Normal map
Normal base color
SSS
Gloss materials copy
Layer 3 copy
Effects
Pattern Overlay
HexMateri...
Gloss base color copy
Irid
Gloss materials copy 2
HexMateri...
Diffuse AO copy
Lev...
Layer 4
#FF00...
Gloss base color copy 2



Base Color
Pattern Intensity
Pattern Tile
Pattern Roughness
Roughness Intensity
Pattern Metallic
Metallic Intensity
Normal Intensity
Cavity Intensity
SSS Pattern Adjustment
SSS Pattern Intensity

0

DirectX Normal

False

Material: Clearcoat

Clearcoat Norm Scale

1

Clearcoat Roughness

0.61

Material: Iridescence

Iridescence Coefficient

0.05

Iridescence Color Blend

0.07

Iridescence Intensity

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Iridescence Offset

1

Iridescence Scale

0.3

Material: Subsurface

Subsurface Ambient

0.1

Subsurface Distortion

0

Subsurface Power

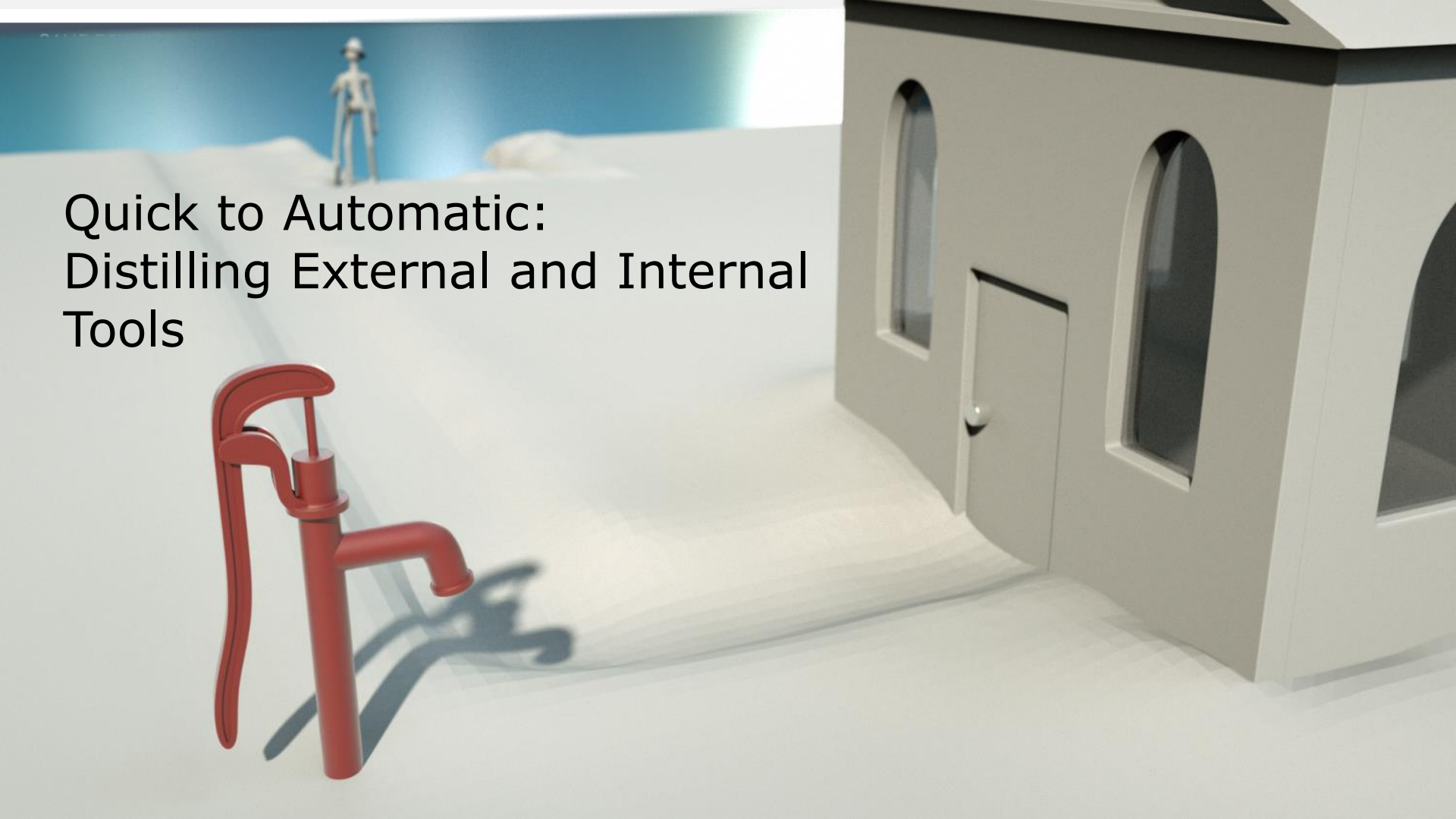
1

Subsurface Scale

0.48

UNSC

Quick to Automatic: Distilling External and Internal Tools



Distilling Tools

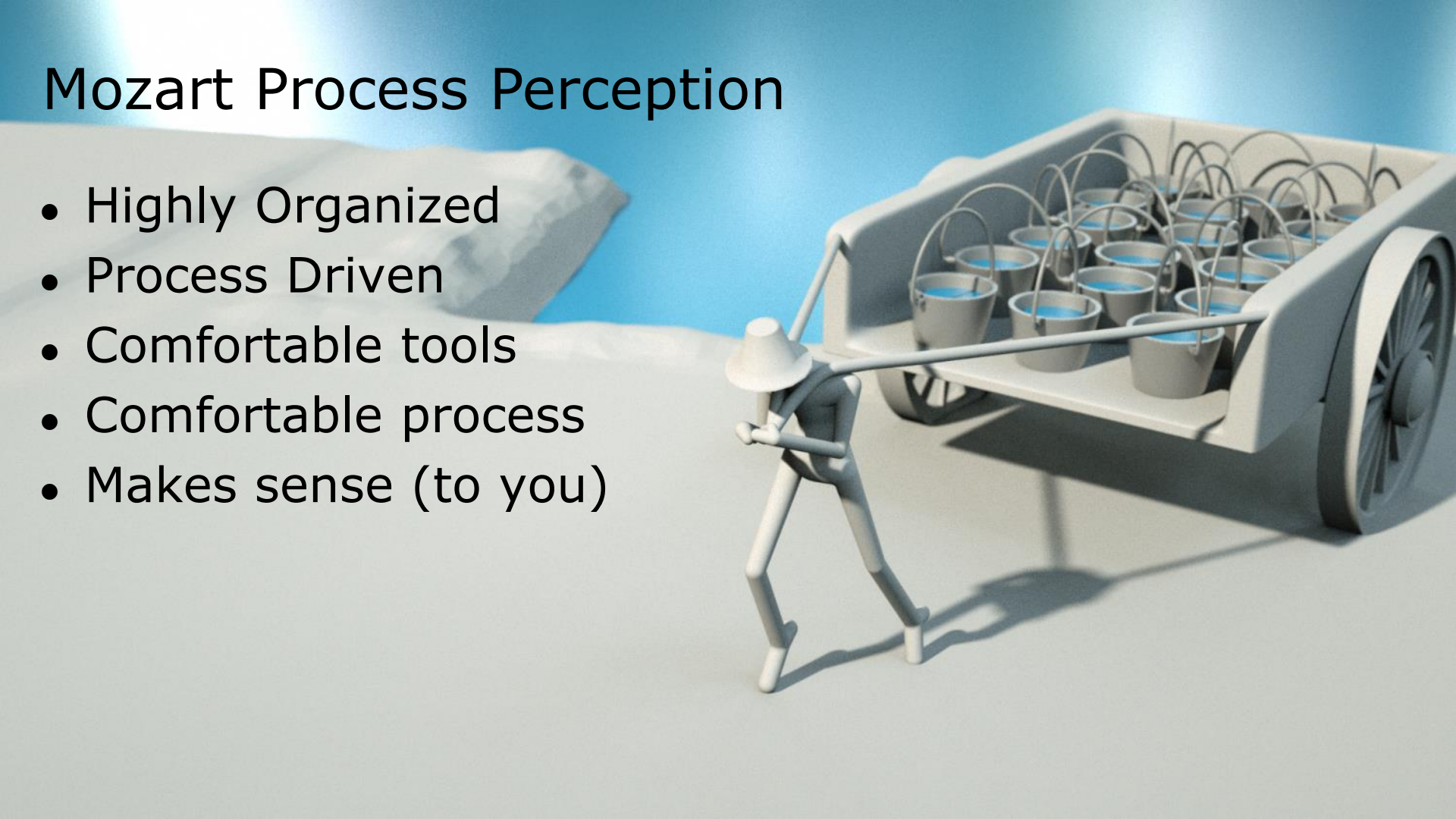
- Studio-wide R&D
- Ancillary tools

Utilizing Mozarts Correctly

- Automate process
- Avoid menial process task fatigue
- Avoid rocket powered shit shoveling
- Keep skilled workers doing skilled work
- Allows for tiers of workers

Mozart Process Perception

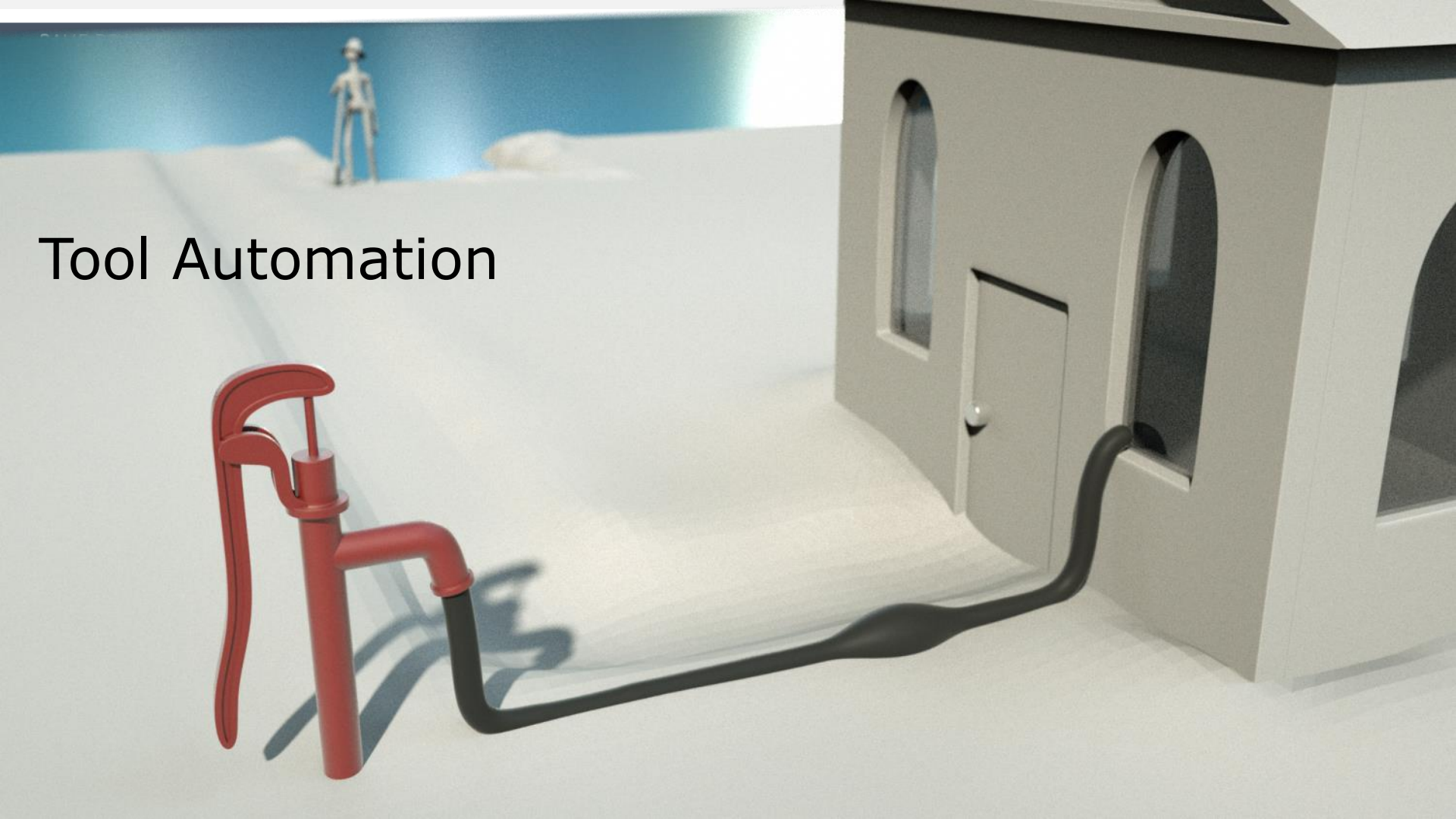
- Highly Organized
- Process Driven
- Comfortable tools
- Comfortable process
- Makes sense (to you)



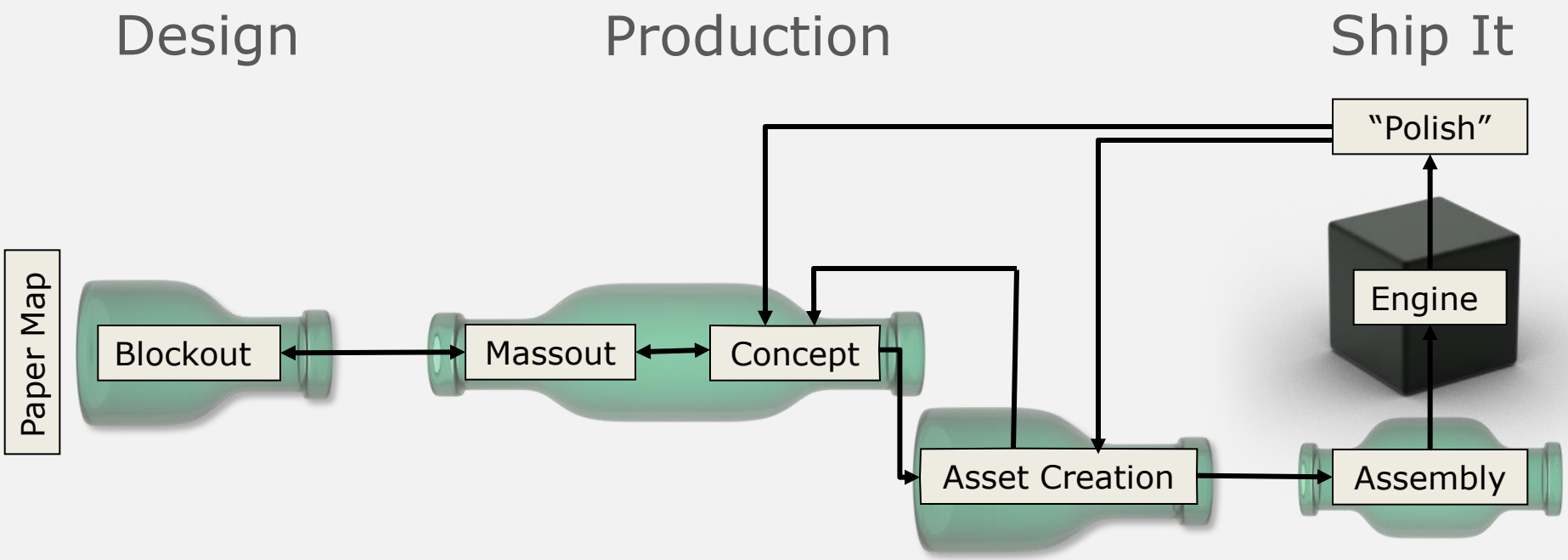
Mozart Process Reality

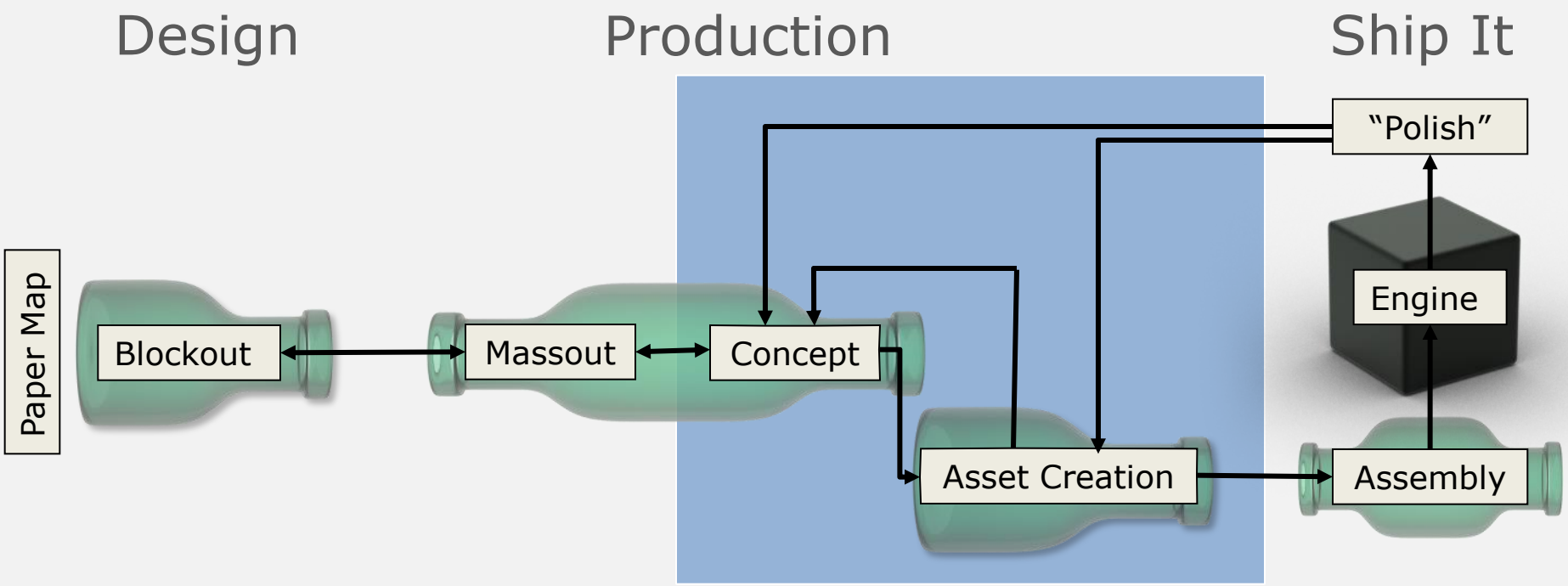
- Fatiguing
- Non-interruptable
- Not as fast as you think
- Huge potential for human error
- Only works for your assets

Tool Automation



Mozart Mechs For Everyone


Design
Production
Ship It
Paper Map
Blockout
Massout
Concept
Asset Creation
Assembly
Engine
"Polish"


Design
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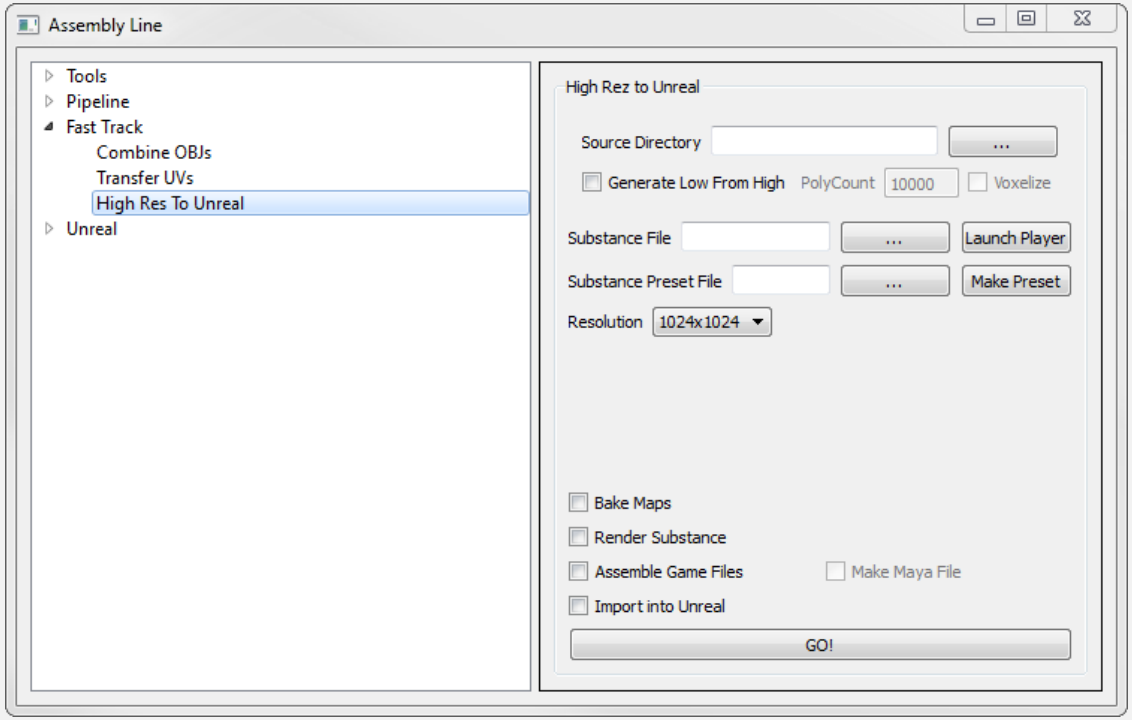
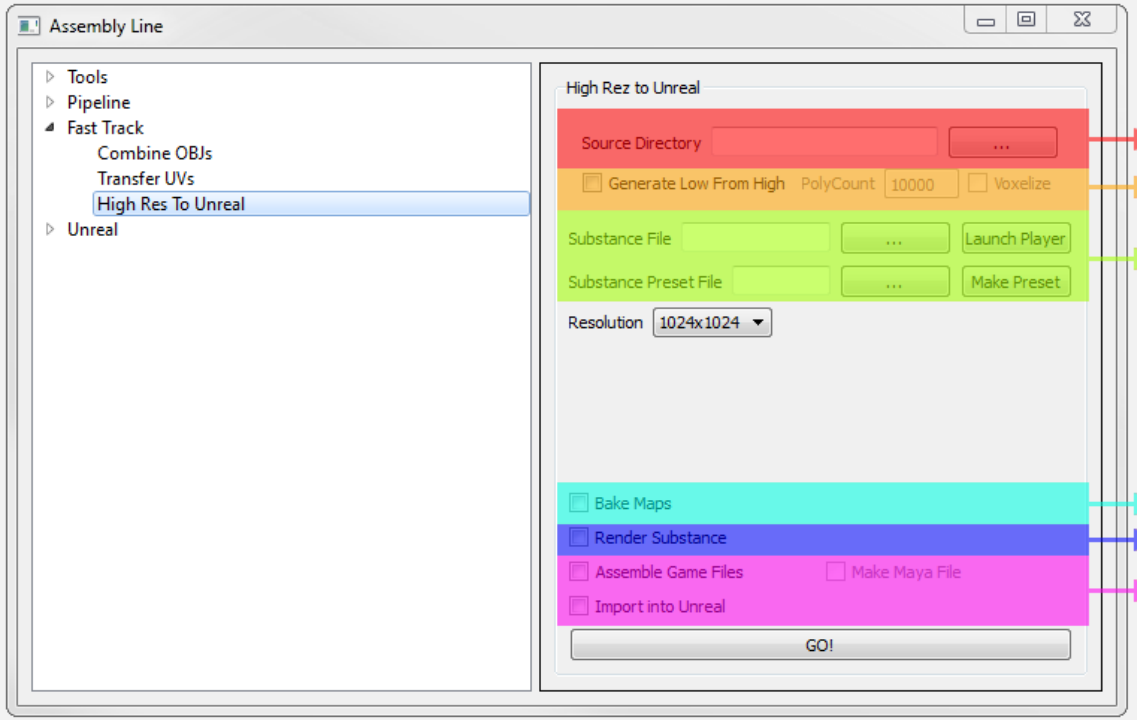
Paper Map
Blockout
Massout
Concept
Asset Creation
Assembly
Engine
"Polish"



Concept to Engine Automation



High res with material IDs

Game res with UVs

Material Library Presets

Base Texture Maps

Game Textures

Game File Assembly

5

MINUTES

Houdini Voxelization

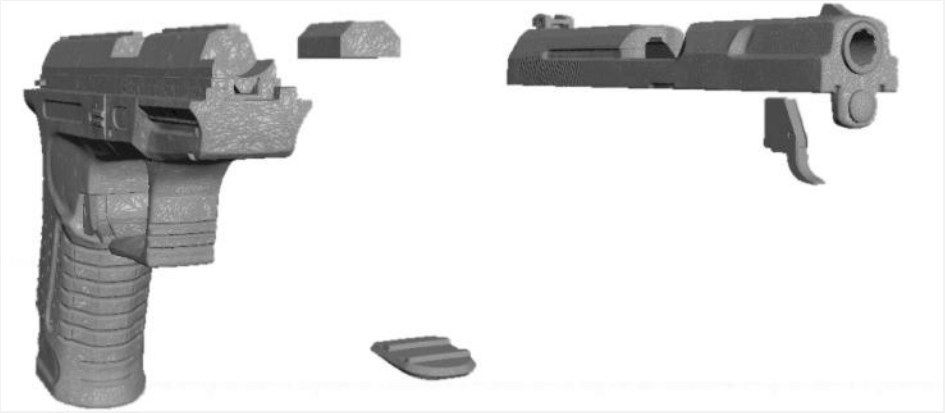
Houdini Poly Reduce

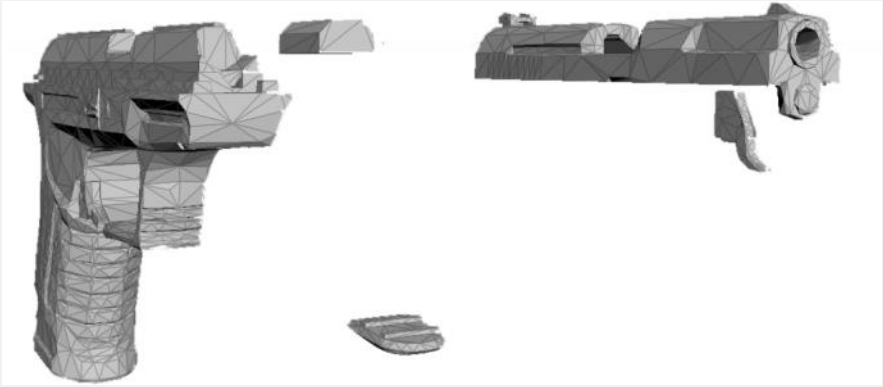
10k

5k

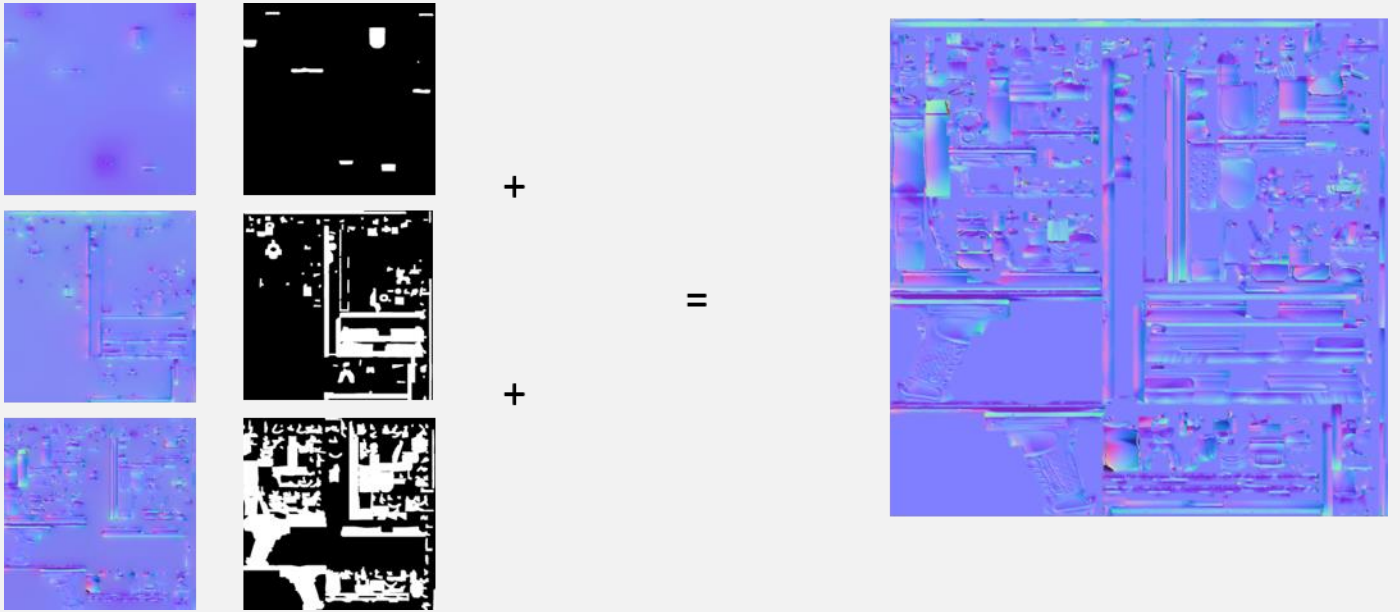
1k

Exploded Assets



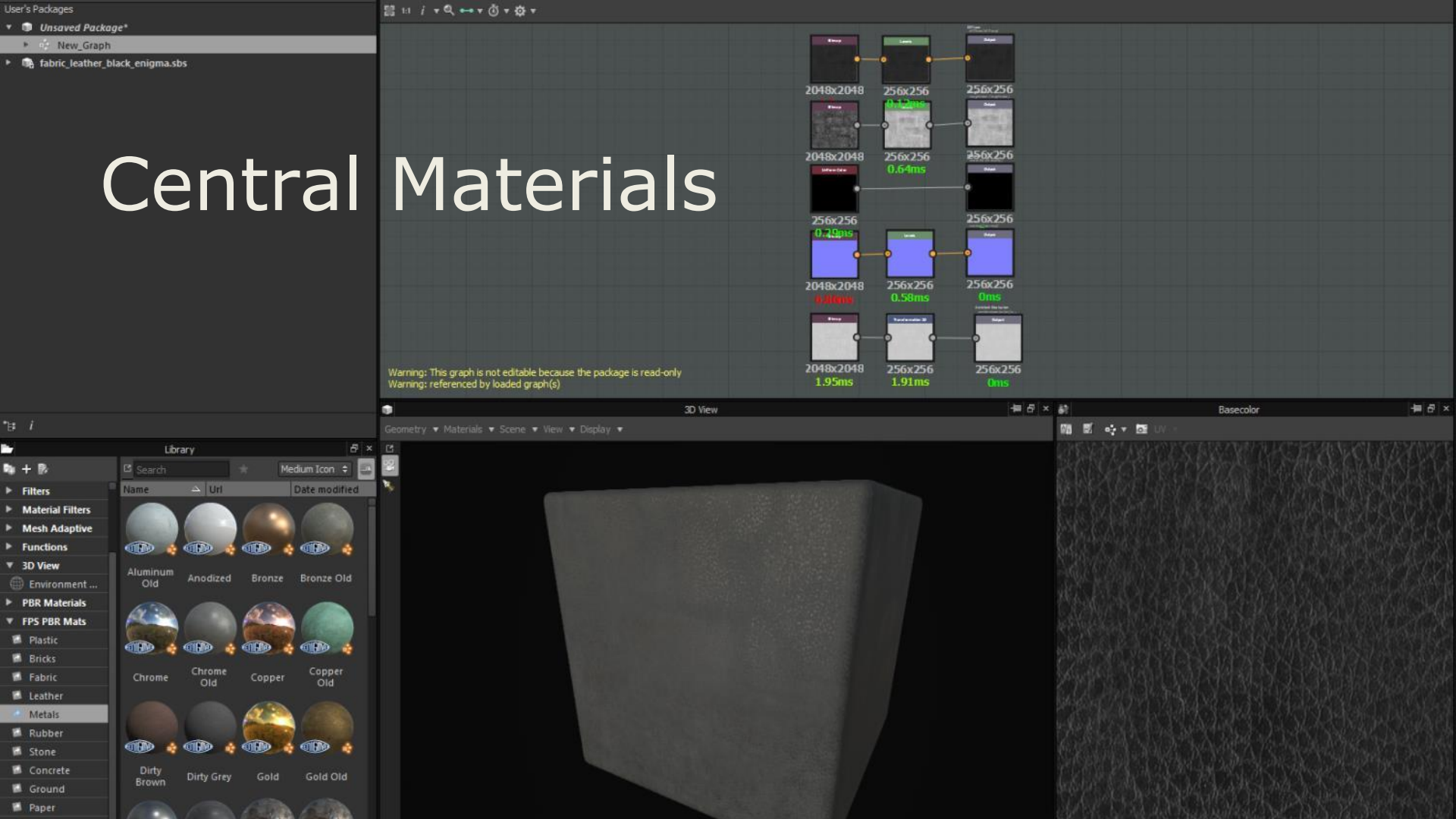


Auto Compositing

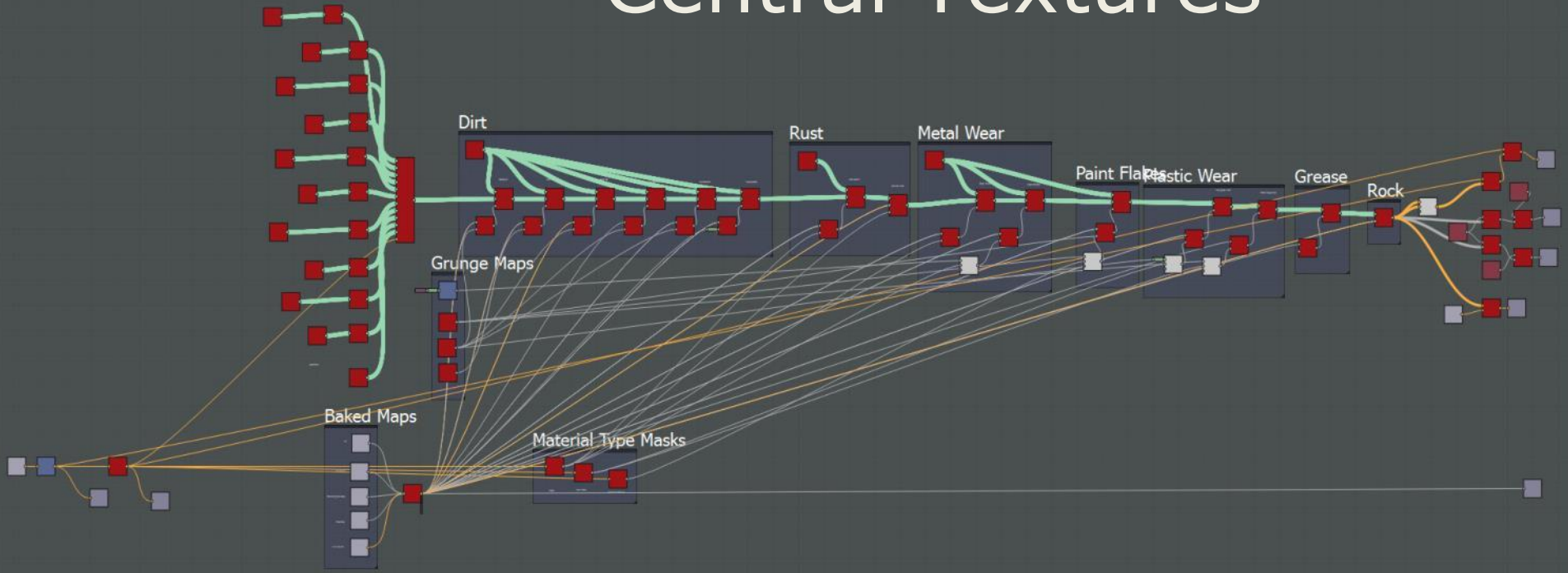


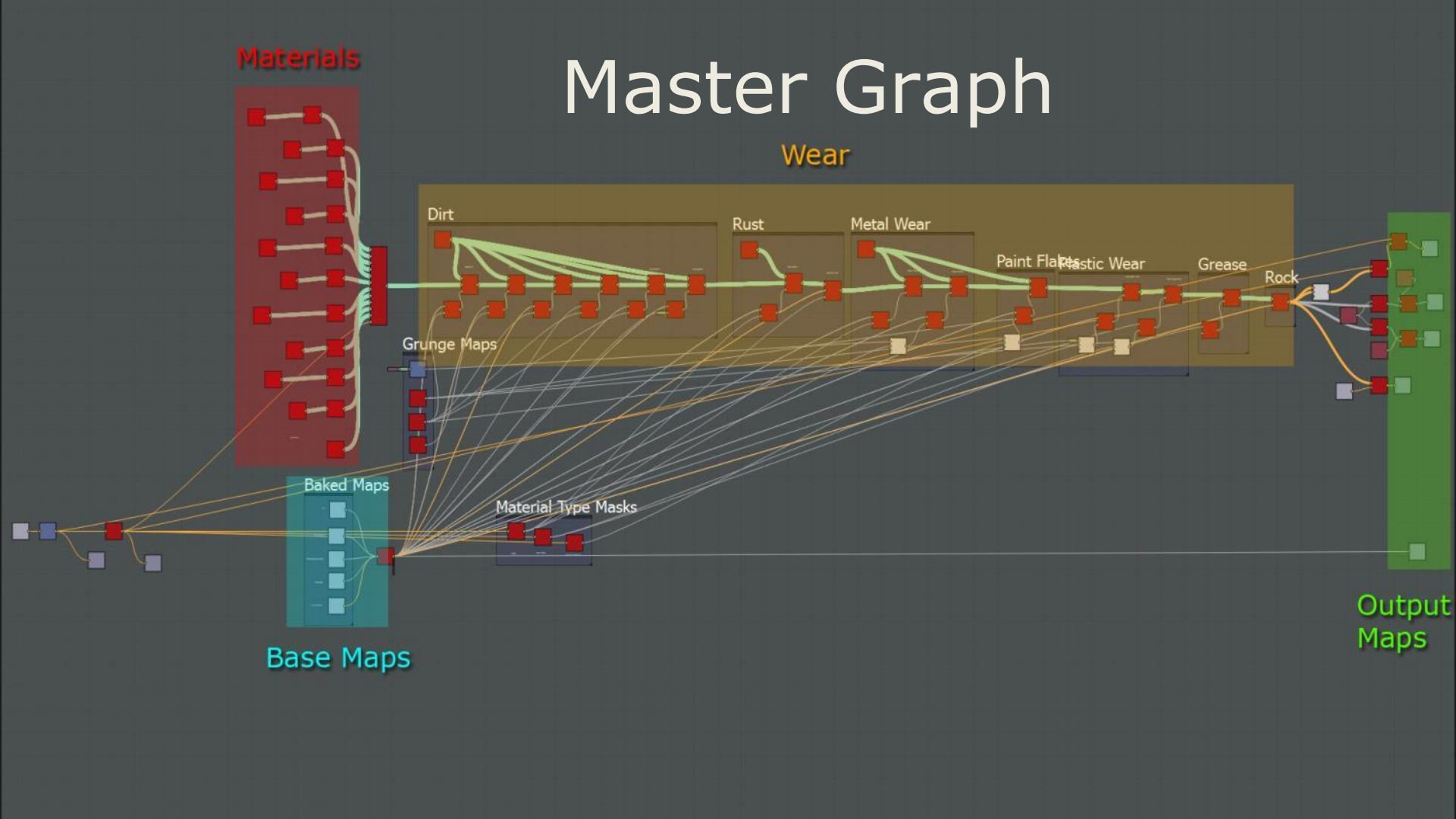
Baking Maps

Central Materials

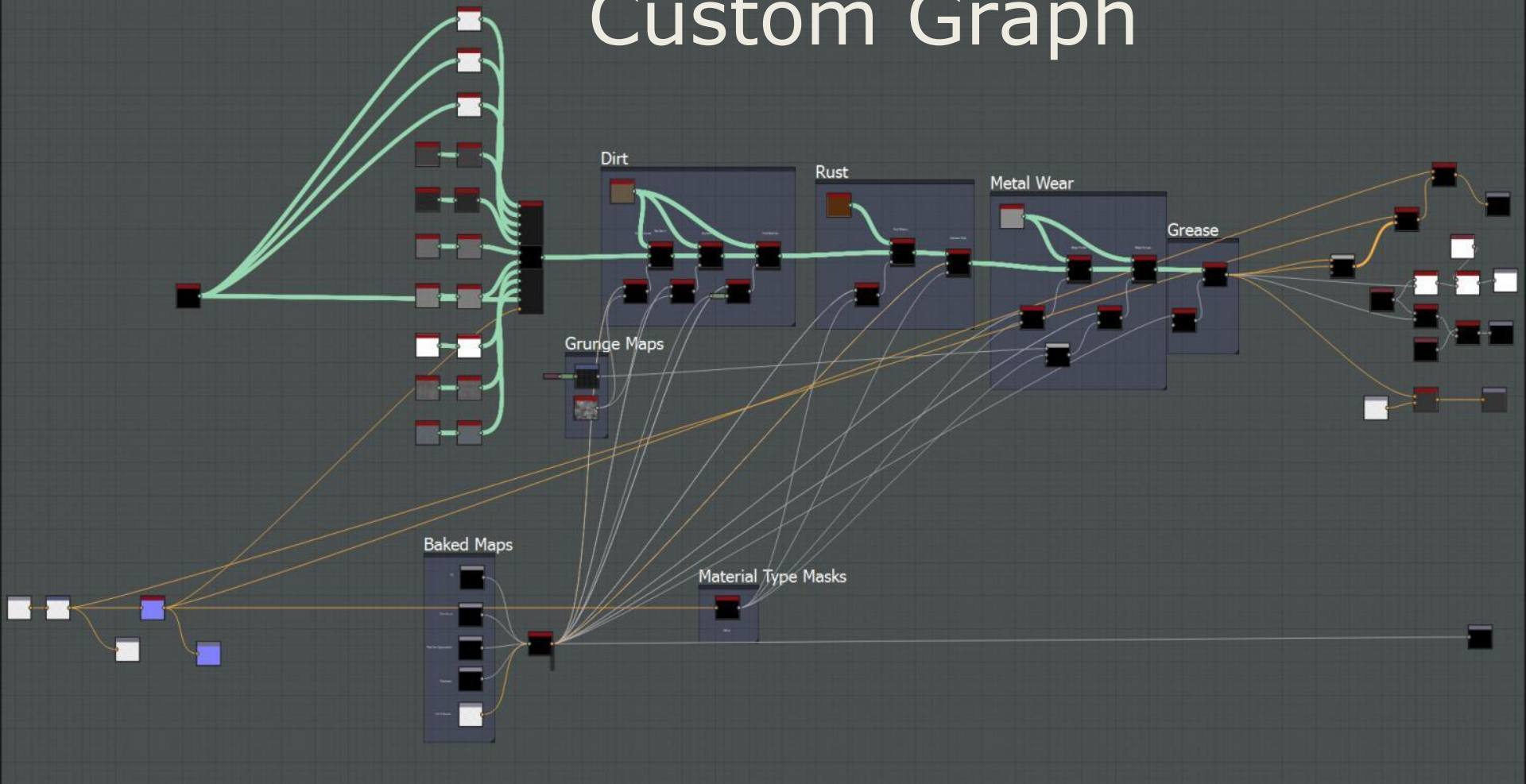


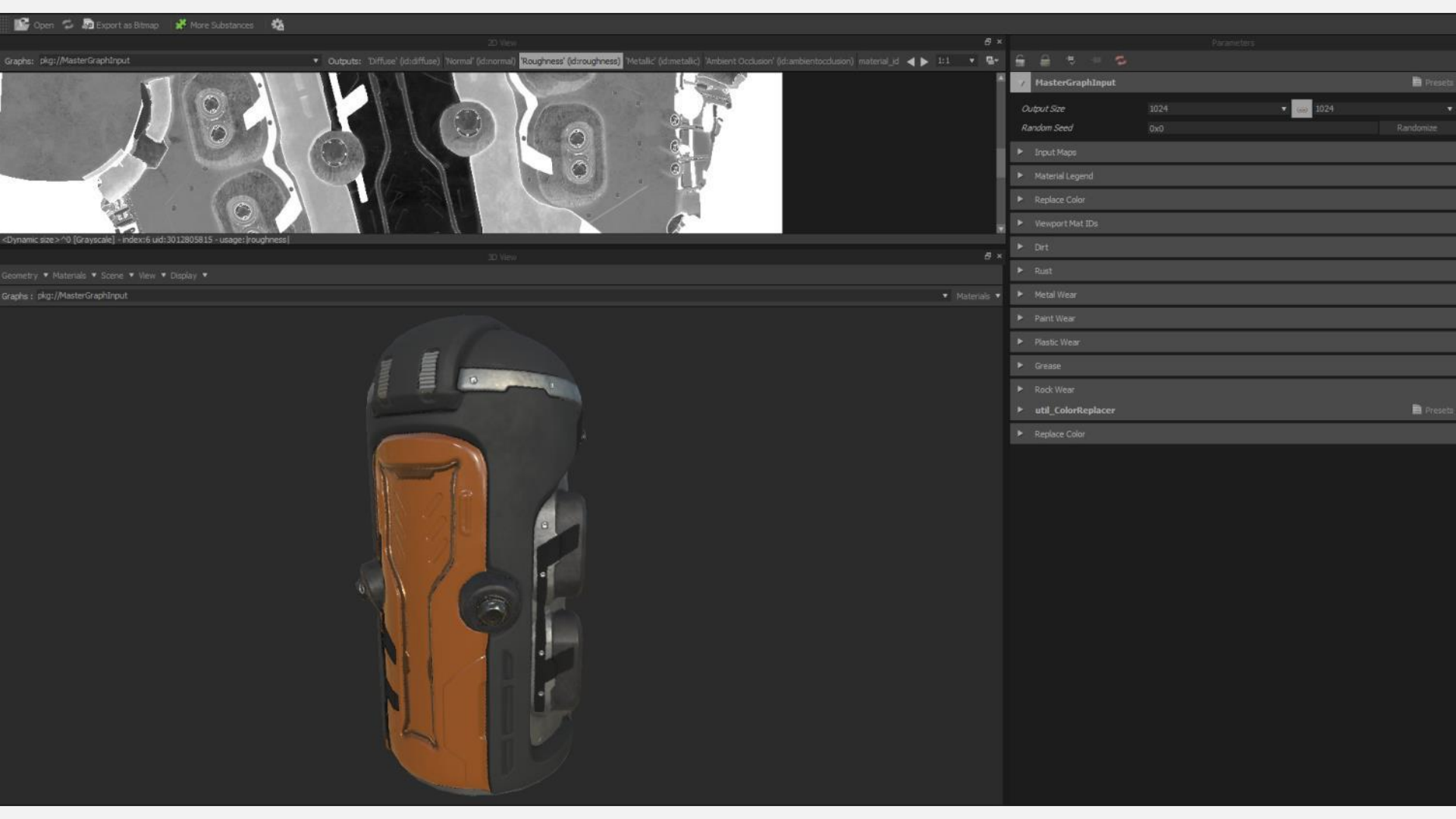
Central Textures

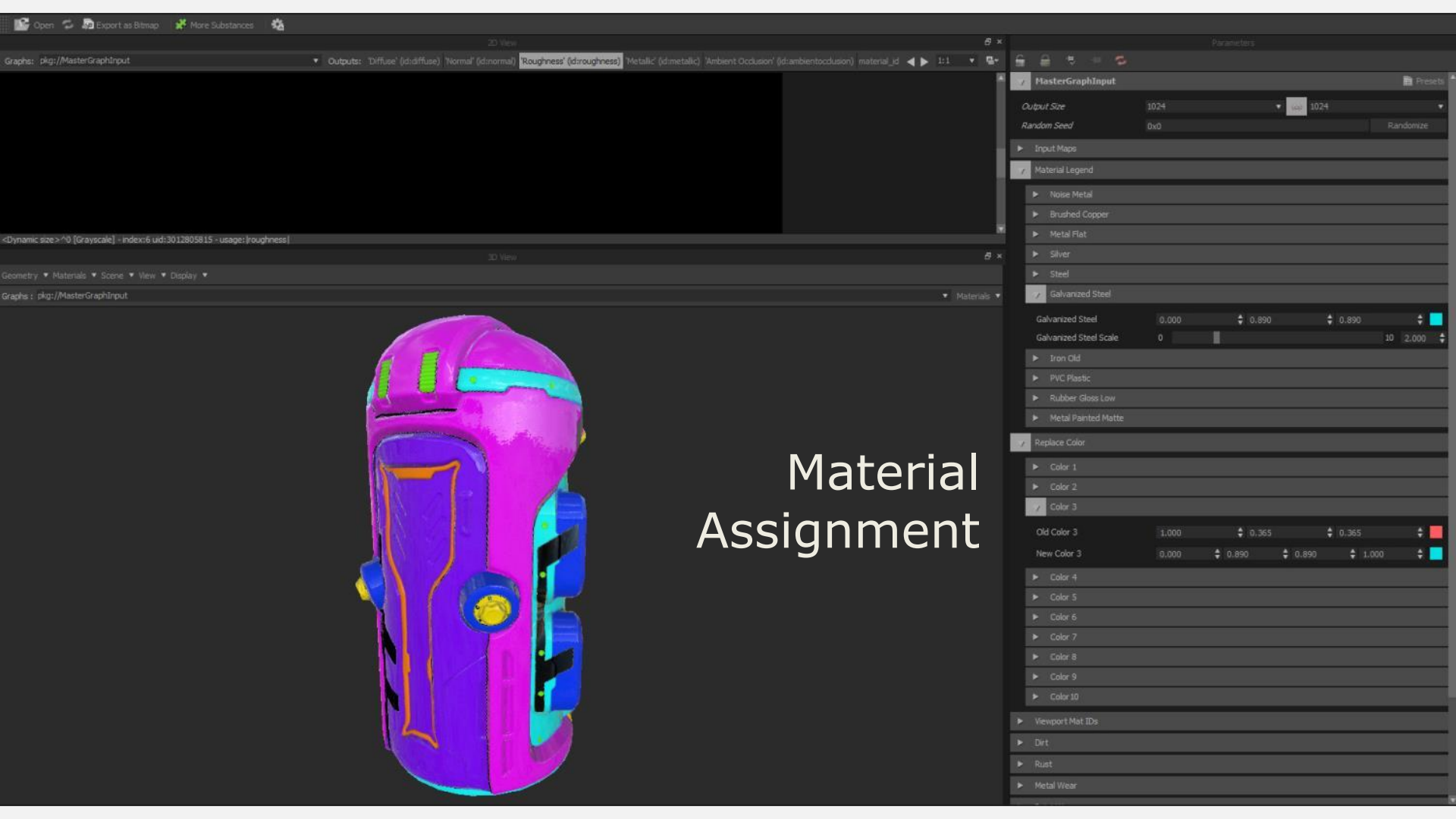



Materials
Master Graph
Wear
Dirt
Rust
Metal Wear
Paint Flakes
Plastic Wear
Grease
Rock
Grunge Maps
Baked Maps
Material Type Masks
Base Maps
Output Maps

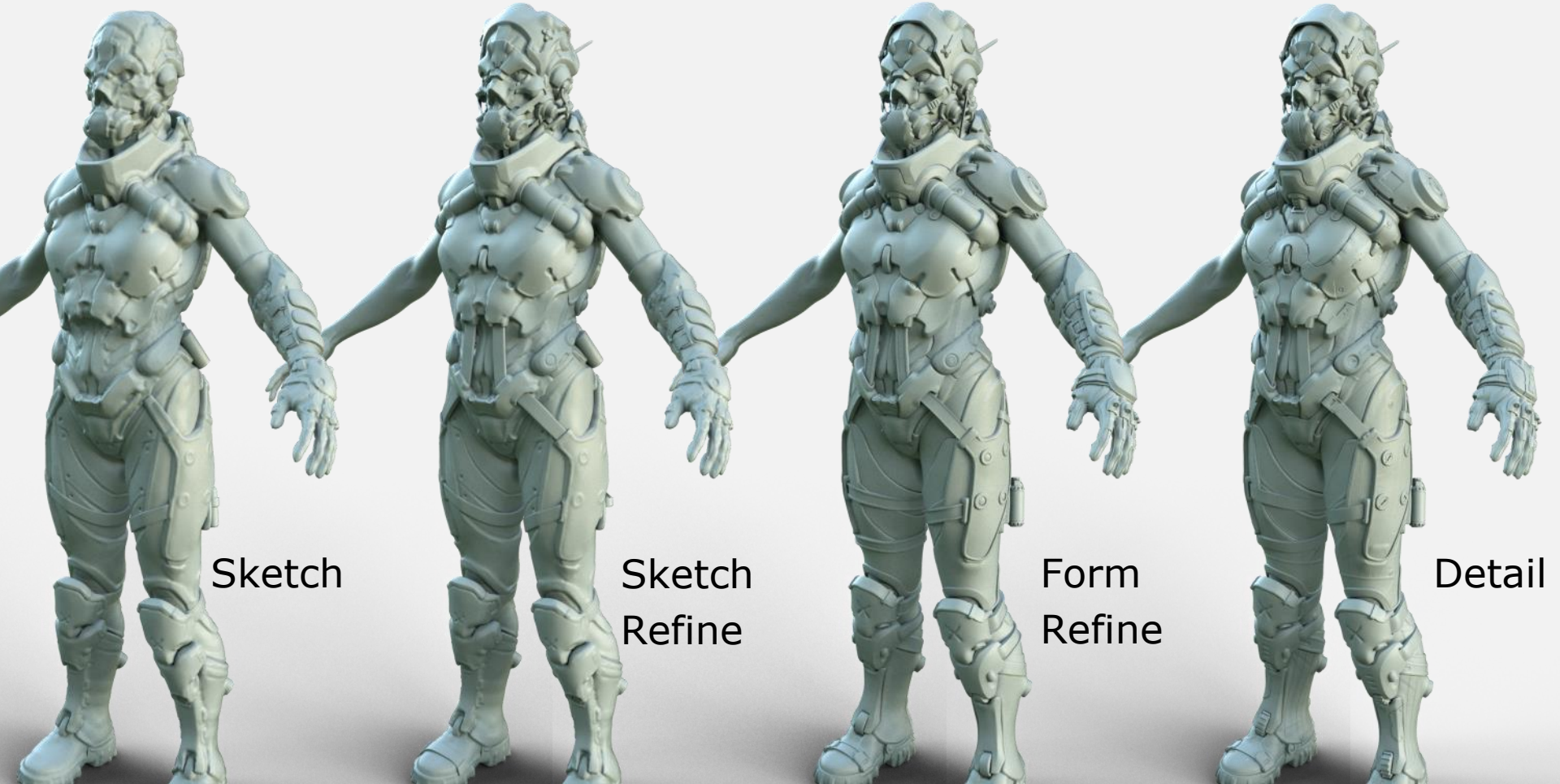
Custom Graph




Open
Export as Bitmap
More Substances
2D View
Graphs: pkg://MasterGraphInput
Outputs: 'Diffuse' (id:diffuse) 'Normal' (id:normal) 'Roughness' (id:roughness) 'Metallic' (id:metallic) 'Ambient Occlusion' (id:ambientocclusion) material_id
1:1
<Dynamic size>^0 [Grayscale] - index:6 uid:3012805815 - usage:|roughness|
3D View
Geometry
Materials
Scene
View
Display
Graphs : pkg://MasterGraphInput
Materials
Parameters
MasterGraphInput
Presets
Output Size
1024
1024
Random Seed
0x0
Randomize
Input Maps
Material Legend
Replace Color
Viewport Mat IDs
Dirt
Rust
Metal Wear
Paint Wear
Plastic Wear
Grease
Rock Wear
util_ColorReplacer
Presets
Replace Color


Open
Export as Bitmap
More Substances
Graphs: pkg://MasterGraphInput
Outputs: 'Diffuse' (id:diffuse) 'Normal' (id:normal) 'Roughness' (id:roughness) 'Metallic' (id:metallic) 'Ambient Occlusion' (id:ambientocclusion) material_id
<Dynamic size>^0 [Grayscale] - index:6 uid:3012805815 - usage:|roughness|
Geometry
Materials
Scene
View
Display
Graphs : pkg://MasterGraphInput
Parameters
MasterGraphInput
Presets
Output Size
1024
1024
Random Seed
0x0
Randomize
Input Maps
Material Legend
Noise Metal
Brushed Copper
Metal Flat
Silver
Steel
Galvanized Steel
Galvanized Steel
0.000
0.890
0.890
Galvanized Steel Scale
0
10
2.000
Iron Old
PVC Plastic
Rubber Gloss Low
Metal Painted Matte
Replace Color
Color 1
Color 2
Color 3
Old Color 3
1.000
0.365
0.365
New Color 3
0.000
0.890
0.890
1.000
Color 4
Color 5
Color 6
Color 7
Color 8
Color 9
Color 10
Viewport Mat IDs
Dirt
Rust
Metal Wear
Material
Assignment

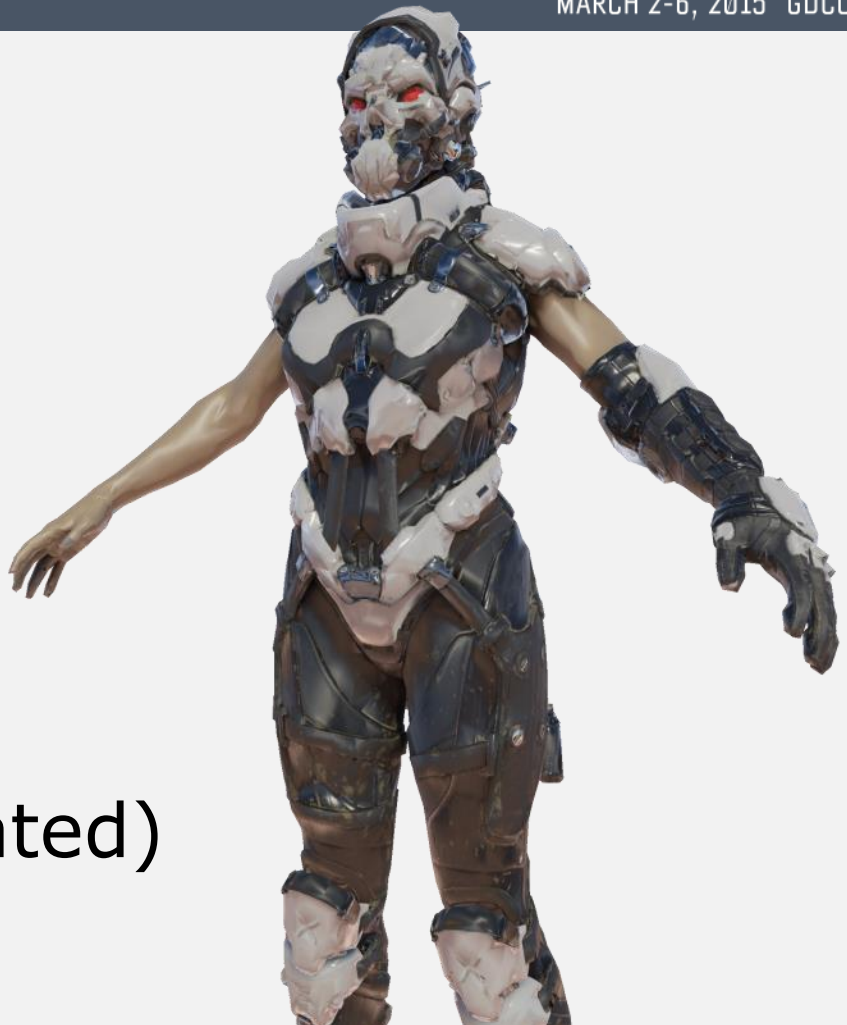
Detail vs Information vs Diminishing Returns


Sketch
Sketch Refine
Form Refine
Detail

Sketch

Sketch Refine

Form Refine



Final (Auto Generated)

Final (Production)

Sketch

Sketch Refine

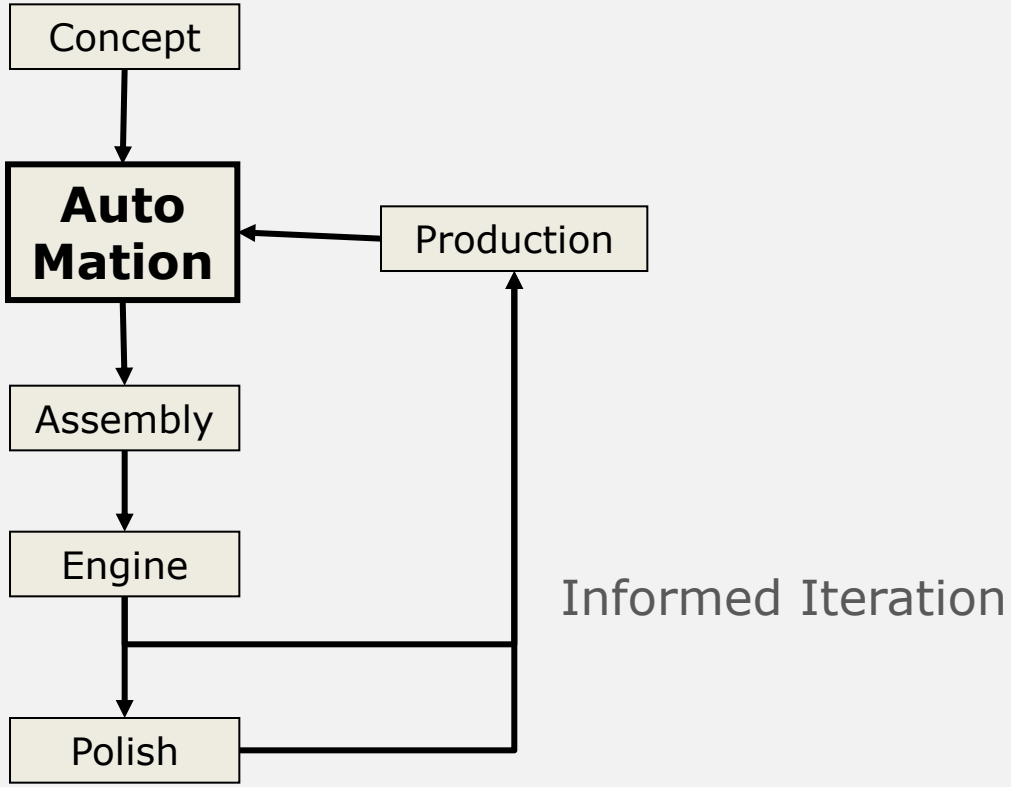
Form Refine

Final (Auto Generated)

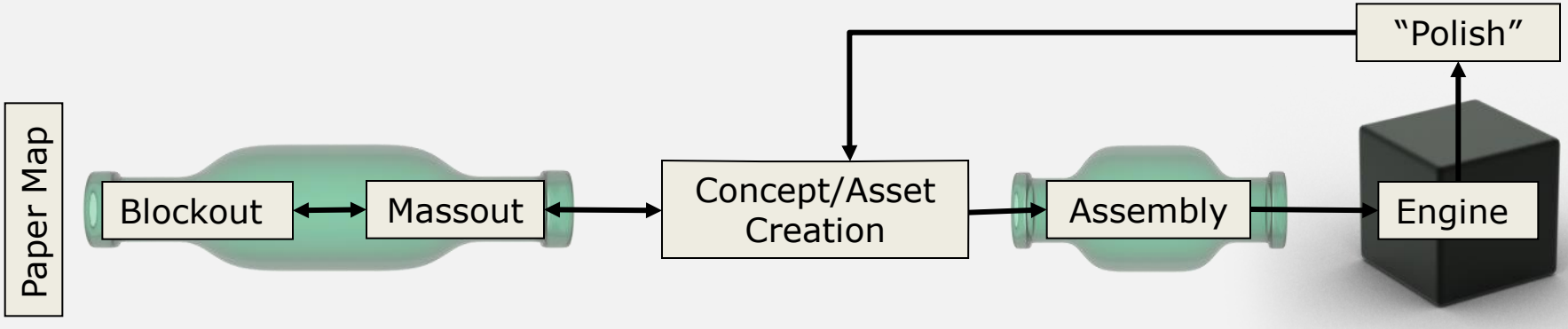
Final (Production)

UNREAL

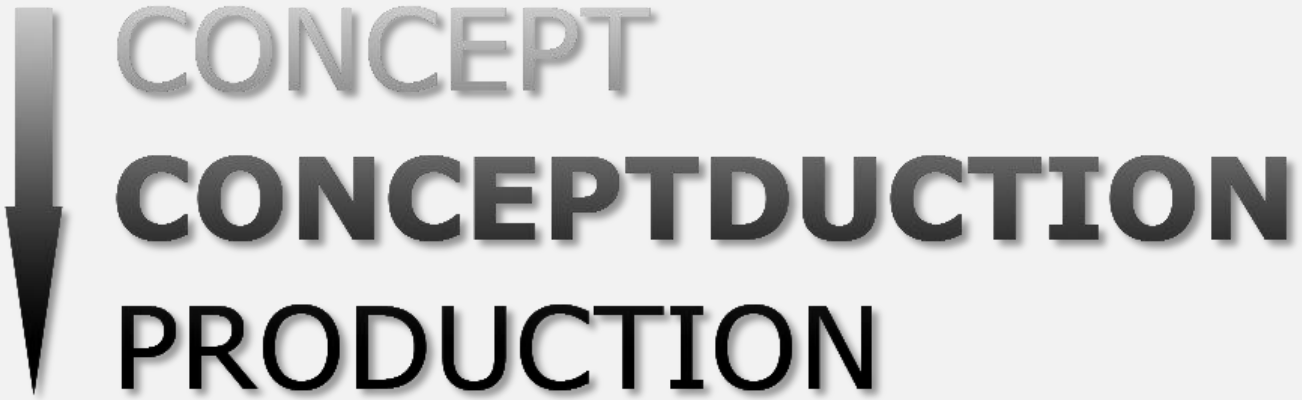
Concept / Asset Creation



Design Production Ship It

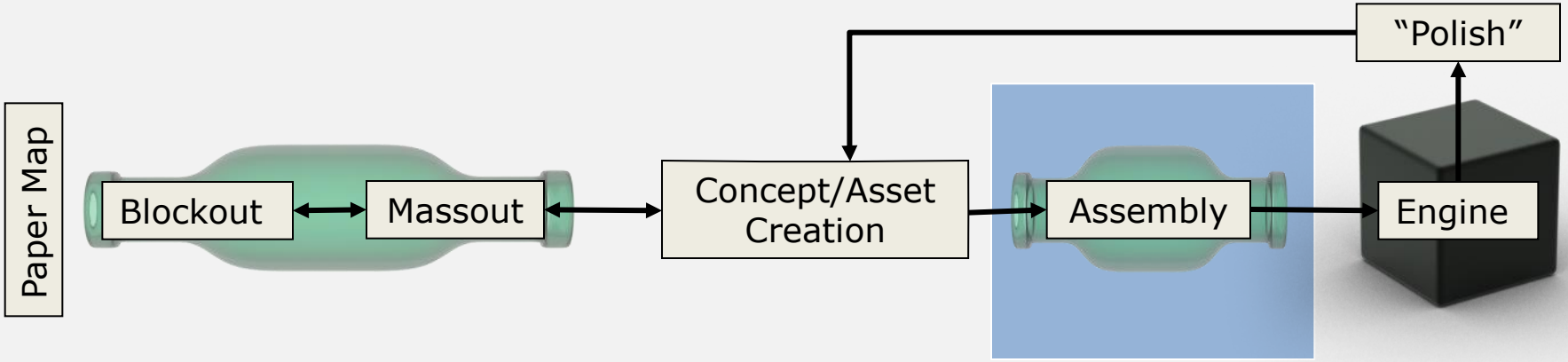


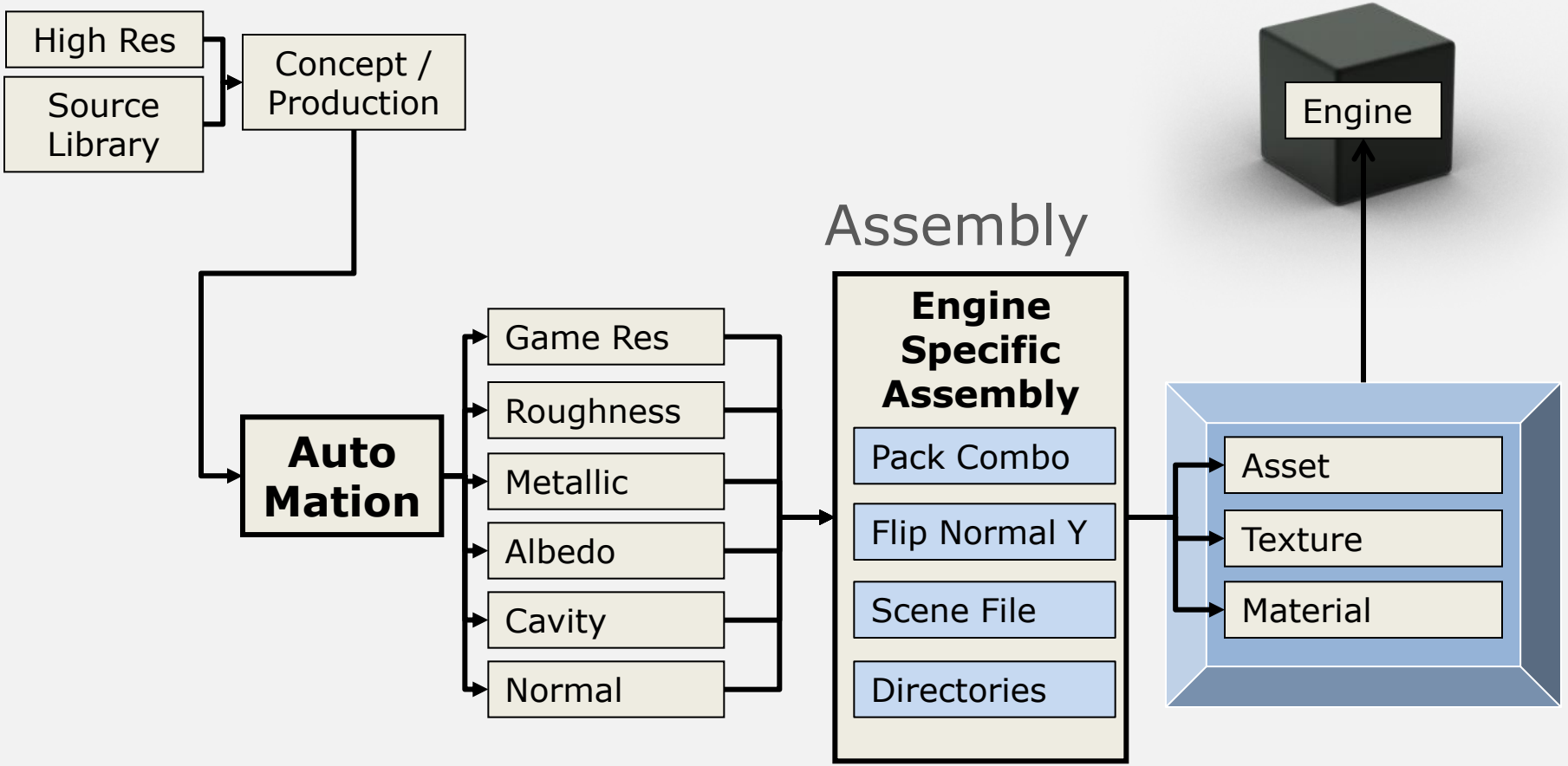
Team Roles



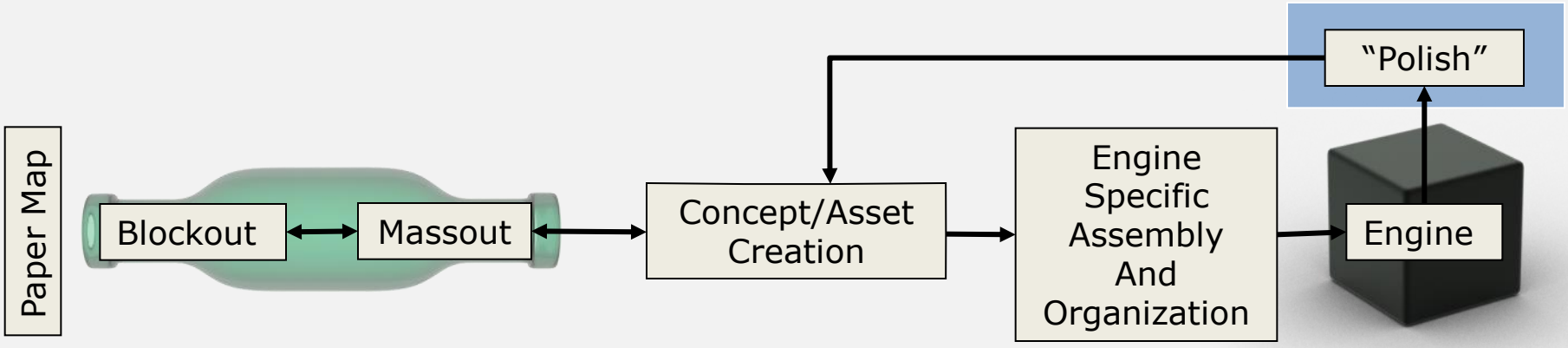
Packaging Production

Design Production Ship It




High Res
Source Library
Concept / Production
Auto Mation
Game Res
Roughness
Metallic
Albedo
Cavity
Normal
Assembly
Engine Specific Assembly
Pack Combo
Flip Normal Y
Scene File
Directories
Engine
Asset
Texture
Material

Design Production Ship It



- "Polish"
  - Fix assets
  - ~~Remake assets~~
  - Reuse unsuitable assets
  - Put out fires
  - Memory optimization
  - Put out more fires
  - …make it look better, time permitting

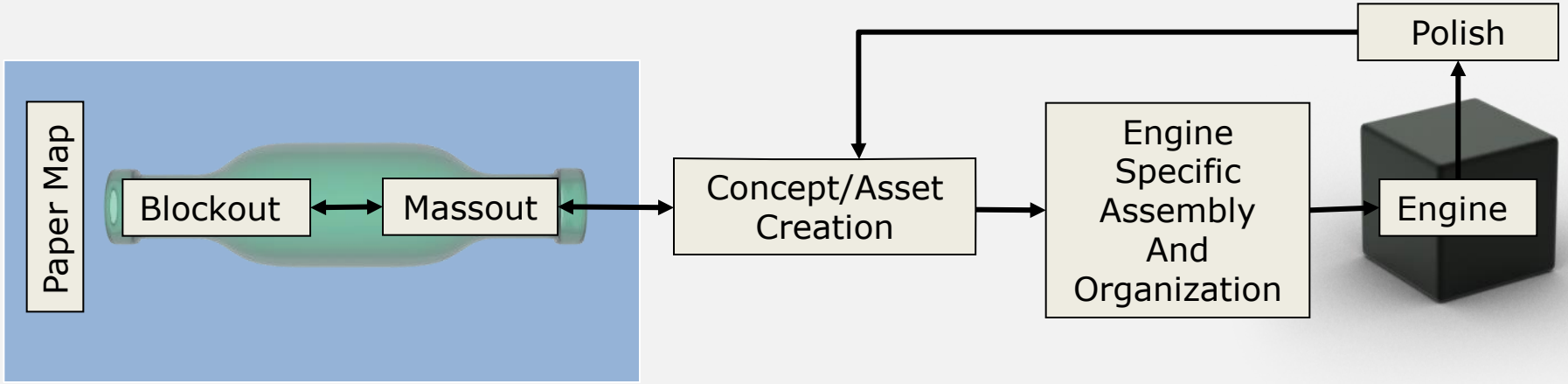
- Polish
  - Run through the game and make the POI's shine

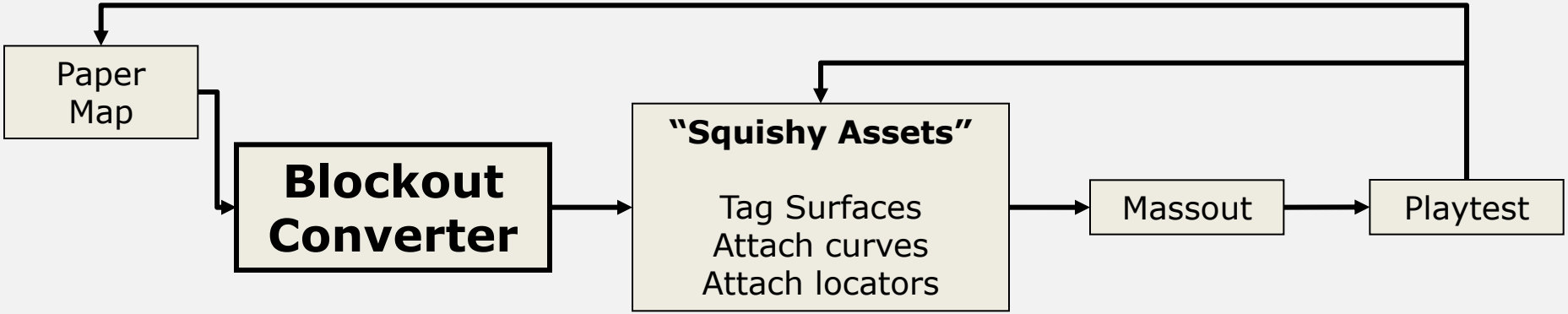
Extrapolation, and Beyond

Design

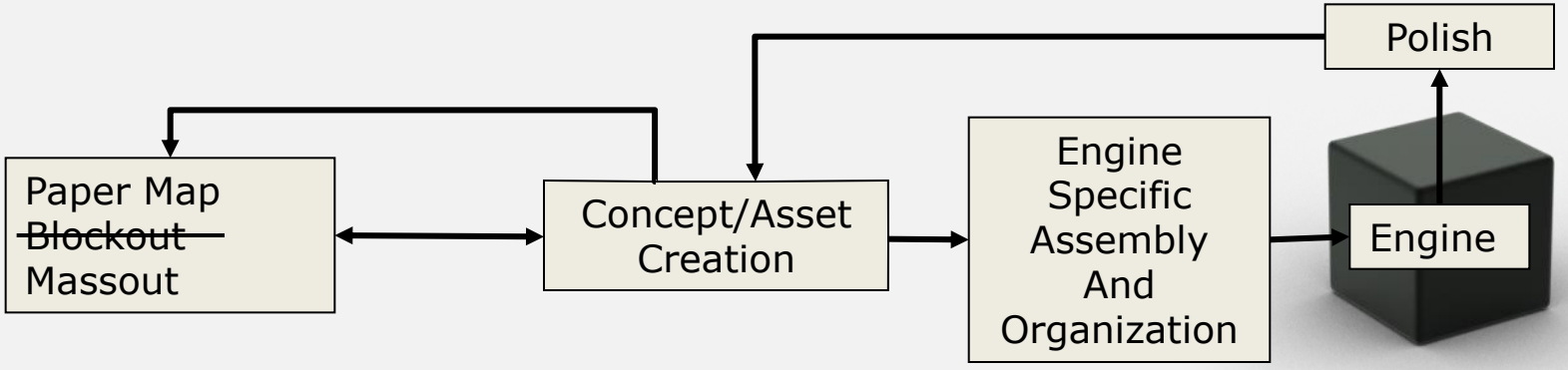
Production

Ship It

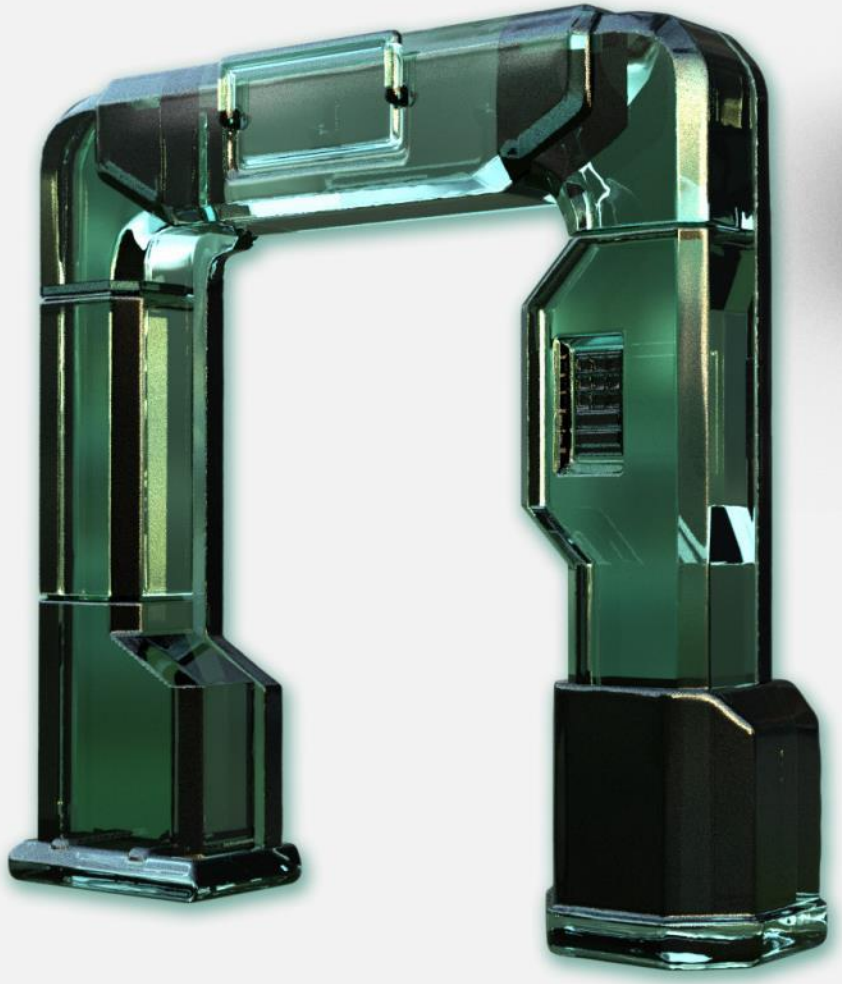



Paper Map
Blockout Converter
"Squishy Assets"
Tag Surfaces
Attach curves
Attach locators
Massout
Playtest

Design Production Ship It



- Medallion
- Foot L
  Asset: UC_DFTL#43320
- Foot R
  Asset: UC_DFTR#4112
- Tile V L
  Asset: UC_DVL#2220
- Tile V R
  Asset: UC_DVR#12555
- Tile Center
  Asset: UC_DTC#3115
- Corner L
  Asset: UC_DCL#1212
- Corner R
  Asset: UC_DCR#1212
- Keypad
  Asset: UC_DMAK#36

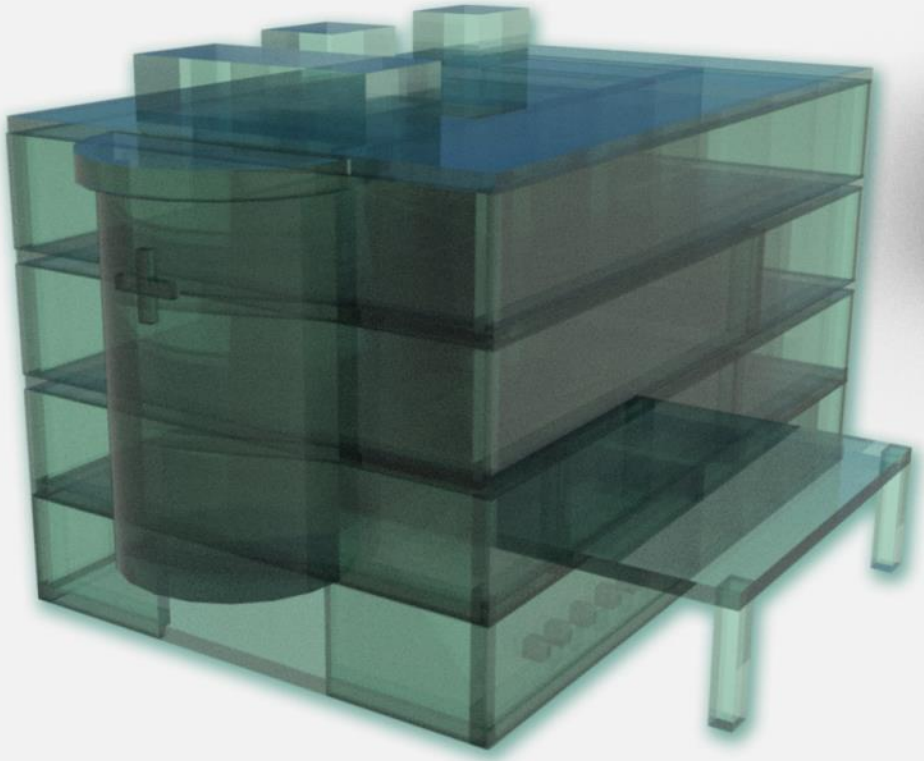


MAKE DOOR

Each object is a series of components with parameters

Variations Parameters

- Cardiology
- Maternity Ward
- Neonatal Unit
- General Surgery
- Cafeteria
- Pharmacy
- Doctors Offices
- Median Staff Income
- Median Patient Income



MAKE HOSPITAL

Each building is a series of components with parameters

Deathmatch

Range

Kill Hotspot Intensity

Spread

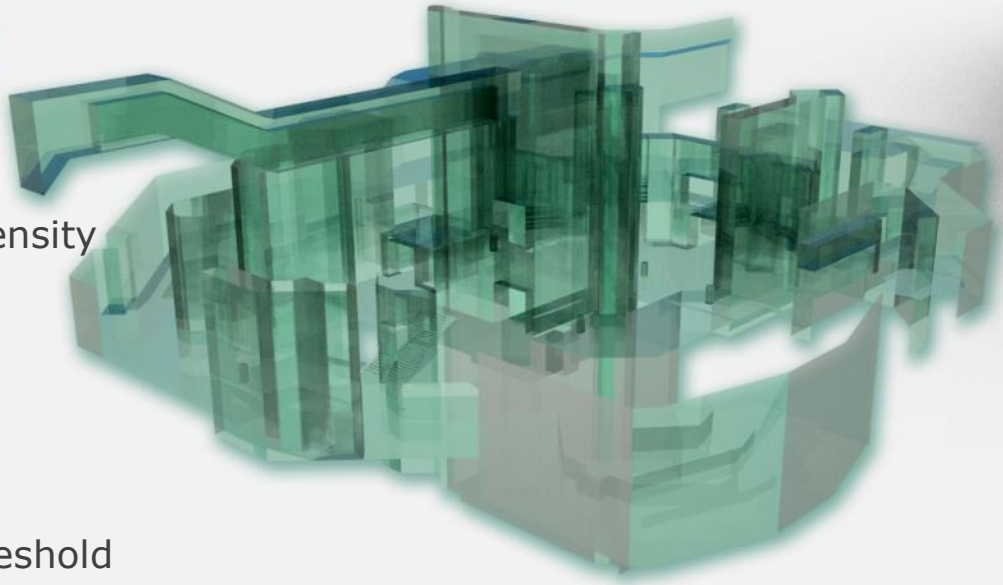
Fun

Teabagging Threshold

Average K/D

Noob Accessible

Rage Quit Propagation



MAKE LEVEL

Random Seed

Each level is a series of components with parameters

- Addictive
- QA
- Monetization
- Side Quest
  - Fun
- Random Nerf

- RPG
- Grindey
- Fantasy
- Orchestral
- Repetitive
- Side Boob
- Metacritic 72

MAKE GAME

VR Technology

The next milestone in entertainment **experience**

The Global Virtual Museum

- 1% inventory showroom
- Photogrammetry objects
- Virtual environment swapping
- 99% Inventory Crowd Sourcing

- Sporting Events
- Forensic Anthropology
- Forensic Crime Scene Reconstruction
- Cold Case Files
- Off-the-path Tours
- Spelunking
- Genghis Khan
- Show / Movie Tours

THE END??

MAKE WORLD PEACE

MAKE WORLD PEACE

Launch Enterprise

Blurring the Separation Between Concept and World Peace

Michael Pavlovich
Lieutenant Commander of the Supply Closet