

Inspiration

VR

- 2019 [AYAHUASCA](#)
- 2019 [Afterlife: Combining Branching Narratives With Live Actors In VR](#)
- 2017 [Alice - The Virtual Reality Play](#)

Overview UnityTeam Digital Human Rigging & Shading

A general overview of some of the tools and workflows used and applied by the Unity Team for the creation of their state of the art Digital Human, Gawain.

Maya File

Rig

They used two different rig hierarchies. One for the body the other for the head.

Body Rig

Classical full body game rig. Skin weights up to the torso. Corrective blendshapes for the hands and the back.

Head Rig

Combination of Joint hierarchy and over 200 Blendshapes.

Model

Non-deforming body parts like the gum don't have an optimized topology.

All the hair consists of cards. Hair is exported as a separated object and is not part of the head mesh. It's attachment to the deforming mesh happens in Unity.

Unity Files

Attachment Tools

The Unity Team developed a set of very useful tools to attach elements to a deforming mesh in realtime. You can implement those tools in your own project by getting them [here](#).

First an empty dataset is created in the Assets Window. (right click → Digital Human → skin attachment data)

Then in the outliner you select the object you want to have attached to the deforming mesh. Add a 'Skin Attachment Target'-Script to it's Inspector and specify the dataset you just added.

Select the mesh driving the deformation, add a 'Skin Attachment'-Script to its inspector and specify the targets. (This only works if you insert the script after the 'Skinned Mesh Renderer'/'Mesh Renderer')

Go back to the inspector of the target and fill in the dataset with the required mesh information.

As for now these tools only work with meshes being deformed by the GPU.

Shading & Rendering

The skin and eyes are using a dedicated shader connected to a set of dedicated scripts.

The eyes can easily be customized to fit the needs of the required reference model.

We're still looking into the skin shader, particularly the system they applied to blend 82 different textures based on the faceshape.

Links

For further insight into this project, please refer to these links:

Readings

[Blog with emphasis on artistic aspects](#)

[Blog with emphasis on the technical aspects](#)

Code and Material

[Unity Digital Human Assets](#)

[Unity Digital Human Tools](#)

RealTime PreViz

- 2018 [Siren \(Unreal\)](#) Siren with Actress
- 2018 [Reflections \(Unreal\)](#)
- 2018 [ForestScene \(Unity\)](#)
- 2018 [Andy Serkis Face to Face \(Unreal\)](#)
- 2019 [Ted Talk about Digital Humans with real time character](#)

Dance

- 2014 [Peking Opera](#)
- 2017 [Exisdance \(Unity\)](#)
- 20xx [Huge collection of dance performances](#)

Scenography / Dance

- 2014 [HAKANAI](#) by Adrien M / Claire B
- 2018 [Dökk](#) (OpenFrameWorks)
- 2019 [Das Totale Tanztheater - 100 Jahre Bauhaus - Palais Populaire](#)

Projection Mapping & Dance

- 2014 [OMOTE](#)
- 2017 [INORI \(Prayer\)](#) Making-of

Scenography / Theatre & Opera

- 2002 [Jude von Malta](#) by Art+Com
- 2010 [IAM4Mime](#)
- 2016 [Manipulation | Pepper's Ghost](#)
- 2017 [The Tempest | Royal Shakespeare Company](#)

Tradeshow examples

- 2017 [Dynamic Projection Mapping](#)

Technology

- [Why CG sucks / or not \(Essay\)](#)

AI

- [Realtime Face Reenactment](#)
- [Image Synthesis through semantic manipulation](#)
- [Interactive AI rendered 3d World](#)
- [Reconstructing Images](#)
- [Tranform Video from Winter to Summer / Day to night](#)
- [Reflections on deep fakes](#)
- [creative AI in the arts](#)

FilmSets

- [Realtime Compositing](#)

Film VFX

- [The Social Network VFX Breakdown](#)
- [Rachel in Blade Runner 2049](#)
- [VFX Oscar Winners from 1929-2018](#)
- [The Lion King 2019 - Making Of - How it was filmed in a realistic way](#)

Robotics

- [Uncanny Valley/Unheimliches Tal by Stefan Kaegi with robot-avatar as double of the author Thomas Melle](#)
- [Why Artists Love the Eerie Sensation of Characters That Look Almost Human](#)

Old Style

Scenography

- [Opera Scene change](#)

Film / Animation

- [Loving Vincent Making of / Rotoscope](#)
- [Loving Vincent Rotoscope Painting in Time Lapse](#)

Companies

- [LuxMachina](#)
- [Stiller Studios](#)
- [Meow Wolf](#)

Volumetric

- [Intel Studio](#)

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<https://wiki.zhdk.ch/IASpace/> - **immersive art space**

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<https://wiki.zhdk.ch/IASpace/doku.php?id=inspiration>

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