

# Virtual Immortality in XR

History, Present and Future Evolution



Gregory Peter Panos © 2024

**PERSONA FOUNDATION**

IMMORTALITY THROUGH TECHNOLOGY

# What is Virtual Immortality ?

**Virtual immortality** refers to the idea of preserving one's physical identity, expressions, memories, and experiences in a virtual form, allowing for continued existence beyond physical death.

This concept raises questions about the nature of existence, identity, consciousness and one's human experience while alive and intention(s) beyond their time alive with regard to their self and others.

So, what might be the benefits of achieving this goal ?

- **Potential for reunification with loved ones**
- **Interaction with future family generations**
- **Ancestral history education and connection**
- **Preservation of knowledge and experiences**

# Brief History of Virtual Immortality ?

**History has many examples of humanity's desire to achieve "virtual" life extension :**

Cave drawings, portraiture drawing/painting, sculpture (busts, statues), portrait photography, stereoscopic photography, audio recording, video recorded interviews, 3D human scanning, human motion capture, human 3D modeling, human simulation through avatarism, AI personality capture of images, life events and experiential archiving, etc.

Each of these milestones have contributed to the evolution of current day, state-of-the-art manifestations of progressively believable human simulation constructs.



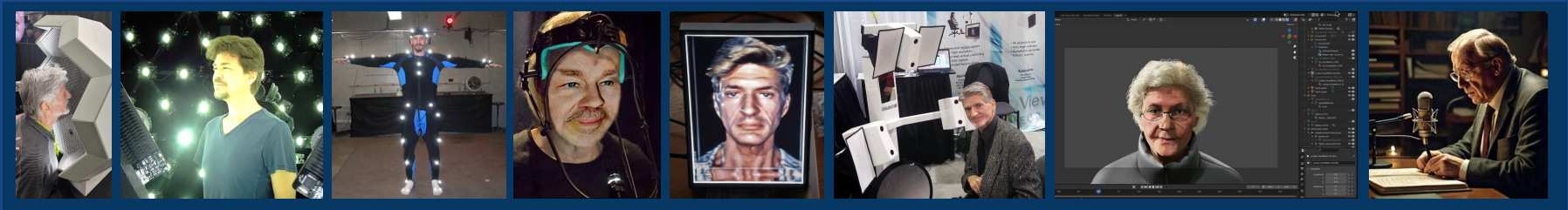
# Current Tools used to achieve Virtual Immortality ?

There are a variety of component assets that can be used to contribute to one's ability to create a realistic and effective human simulation construct. Each asset poses specific value in raising the "believability bar" in achieving a desired result. Here are the 3 of the primary "asset acquisition categories" required to engage in a satisfactory effort:

**Physical Acquisition:** Motion / Performance Capture, 3D Scanning, Photogrammetry, Image based modeling, Artistic model building, AI video decoding, AI Image Synthesis

**Personality Acquisition:** Facial / Body Movement and voice audio recording, analysis, parameter generation and modeling extrapolated from audio and video live recording

**Experiential Acquisition:** Intentional Life-logging (blog, vlog and interview collection), Internet Search / available published information, tagged imagery / video and personal historical material submission



# Present Day embodiments of "Virtual Presence"

*"Virtual Presence" refers to the ability for a believable human construct (i.e. Avatar) to inhabit a live, real-time, interactive environment / interaction platform. By offering a sense of immersion and engagement through various techniques, listed below, Virtual Presence can function a potential pre-condition toward Virtual Immortality:*

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- **Photorealism:** Highly detailed and realistic virtual representations of humans, often created using 3D scanning and modeling techniques as well as AI created constructs that cross the "believability barrier".
- **Animation:** Sophisticated animation systems that simulate human-like movements, gestures, and facial expressions.
- **Natural Language Processing (NLP):** AI-powered dialogue systems that enable conversational interactions, often indistinguishable from human communication.
- **Emotional intelligence:** Simulated emotional responses and empathy, creating a sense of connection and understanding.
- **Contextual awareness:** The ability of the simulation to understand and respond to its virtual environment and situation.
- **Real-time rendering:** High-quality, real-time graphics rendering that creates a seamless and immersive experience.
- **Haptic feedback:** Tactile feedback technology that simulates physical sensations, further enhancing the sense of presence.

# Examples and application of "Virtual Beings"

*"Virtual Being(s)" has evolved as a generalized term, being adopted to describe and refer to relatively anthropomorphic character constructs (or Avatars) created to inhabit a live, real-time, interactive environment / interaction platform as an autonomous "agent", chatbot or live, performed character, either by a real person or an AI chat program.*

- **XR Guide:** A construct designed to introduce, escort, guide or accompany a person who has entered an VR metaverse program, online virtual world, multi-user gaming platform or communications environment.
- **Virtual Assistant:** A construct designed to interact with a live person, online and/or in an XR environment, with access to a knowledge database, help files, the general internet or custom curated information asset collections to help answer questions.
- **Virtual Influencers:** A construct designed to represent a unique, custom personality fashioned after a celebrity or as a stand-alone, custom designed, animated character personality that can engage in conversational interactions with live guests participating through with video/audio/text messaging for product, service and experience reviews and endorsements.
- **Gaming Players:** A construct designed to interact with, compete, assist, challenge and/or guide real people in a video game world. These NPCs (Non-Player Characters) often have scripted movements, responses, story guidelines or utilize autonomous intelligence based on a "character bible" governing behavior in complex contextual conditions that can continually change.
- **Telepresence:** A construct designed to represent a real-world human as a proxy in a live, real-time communications scenario with other people, also represented as either real, camera-based video participants or as other virtual constructs. These live communication encounters can occur in XR environments / metaverses or on traditional 2D screen interactions.

# "Virtual Immortality" (and Avatar) product / tool offerings

*"There are many entities offering services, tools and products designed to assist human users in the creation, utilization and deployment of custom, personal human simulation constructs as chatbots, video respondents, autonomous agents and Avatars for variety of purposes, here are but a few that are worth noting:*

- **Soul Machines**: creates hyper-realistic digital humans, known as "Digital Souls" with their innovative platform enabling emotionally intelligent, interactive, and immersive virtual humans powered by AI and machine learning, for healthcare, education, and customer service.
- **Synthia**: creates synthetic humans (Expressive Avatars), capable of simulating human-like emotions, expressions, and behaviors, making them almost indistinguishable from real humans, used to create immersive and interactive experiences.
- **YOU only Virtual - Versona**: AI startup YOY (You, Only Virtual) facilitates capture and recreation of the unique dynamics of a person as a "Versona" to continue to share precious moments with a loved one, even after physical death..
- **Eternos.Life** : service platform to create a personal eternal AI complete with voice, memories, career, relationships, opinions, videos, photos, and everything else that makes you what you are.
- **StoryFile**: cloud-based no-code SaaS platform for creating interactive, personal, conversational video AI of a real person
- **Uneeq** (SynAnim): generative AI Virtual Human service platform for the creation and deployment of Virtual agents / guides.
- **PinScreen** : generative AI for lip sync, face reenactment, face swaps, de-aging, and avatar digitization service.
- **MetaPhysic** : generative AI service to create photorealistic virtual actors / face-swap for use in live performance, video / film.

## A few product / tools offerings - Continued

- **D-ID**: specializes in AI-powered video and image manipulation using deep learning to remove facial imperfections, enhance facial features, and create realistic virtual avatars from images or videos.
- **DeepFaceLab**: DeepFaceLab is a deep learning-based software for face manipulation and editing that uses neural networks to create realistic faces and facial expressions from images and videos.
- **FaceApp**: AI-powered photo editing app that allows users to transform their faces into various ages, genders, and emotions using advanced neural networks and machine learning algorithms.
- **Meta Pixel Codec Avatars**: cutting-edge technology that generates ultra-realistic, high-fidelity 3D avatars from 2D images or videos, using advanced machine learning algorithms to create lifelike digital representations of individuals. (Not yet Available)
- **NVIDIA (Omniverse Avatar)**: cloud-based platform that uses AI and computer vision to create realistic 3D avatars for virtual reality, gaming, and metaverse experiences. Nvidia also offers "Audio2Face" software to rapidly produce accurate 3D real-time facial animation from a 3D model and spoken audio.
- **VASA-1 - Microsoft Research**: Lifelike Audio-Driven Talking Faces Generated in Real Time from a single photo and audio file. (Not yet Available)
- **Avaturn**: product to create life-like, 3D, Avatars from a 2D photos using generative AI.
- **Unreal Metahuman**: tool within Unreal Engine enabling generation of photorealistic virtual humans.
- **Action Face**: AI-powered platform to generate realistic facial animation / emotions for virtual characters with nuanced and expressive facial performances.
- **Mixamo (Adobe)** 3D animation platform, library, editor, with automatic character rigging of photorealistic avatars of real people, for virtual reality experiences.
- **AvatarSDK**: can create realistic and expressive 3D human avatars from a single image, offering facial expression tracking supported by native iOS, Android, Unity, Flutter, React Native, and web browsers.
- **ReadyPlayerMe**: online tool to create personalized, photorealistic 3D avatars used across various XR and online experiences using AI to generate avatars from a single photo, to create a digital representations used in Social XR, Gaming, Virtual Fashion, etc.

# Virtual Immortality related Video Links

All Links are can be selected to access content

[Artificial Immortality \(2021\) The AI Documentary](#)

[Avatar therapy for schizophrenia](#)

[Miss Your Dead Family Members? AI Can Help You Talk to Them](#)

[Reid Hoffman meets his AI twin](#)

['I Spoke to My Dead Mother Through AI'](#)

[I Challenged My AI Clone to Replace Me for 24 Hours](#)

[Holocaust survivors share their stories after death](#)

[Future generations speak with Holocaust survivors](#)

[The Shotline – Voices Lost to Gun Violence Make the Call for Change](#)

[Amy Kurzweil: Artificial: A Love Story](#)

[Ray Kurzweil on Bringing Back the Dead](#)

[Transcendent Man](#)

[Rise of the Digital Human](#)

[Smiling, Laughing, Frowning AI Avatars](#)

[Regulation in Generative AI](#)

[Pinscreen Channel](#)

[Metaphysic](#)

[Synthetic humans: is the future of fashion fake?](#)

[Making Clones of Hollywood Actors](#)

[How People Are NOW Using AI to Clone Themselves](#)

Virtual Immortality Common Terms



# *PersonaForm*© - 1992



*PersonaForm*©

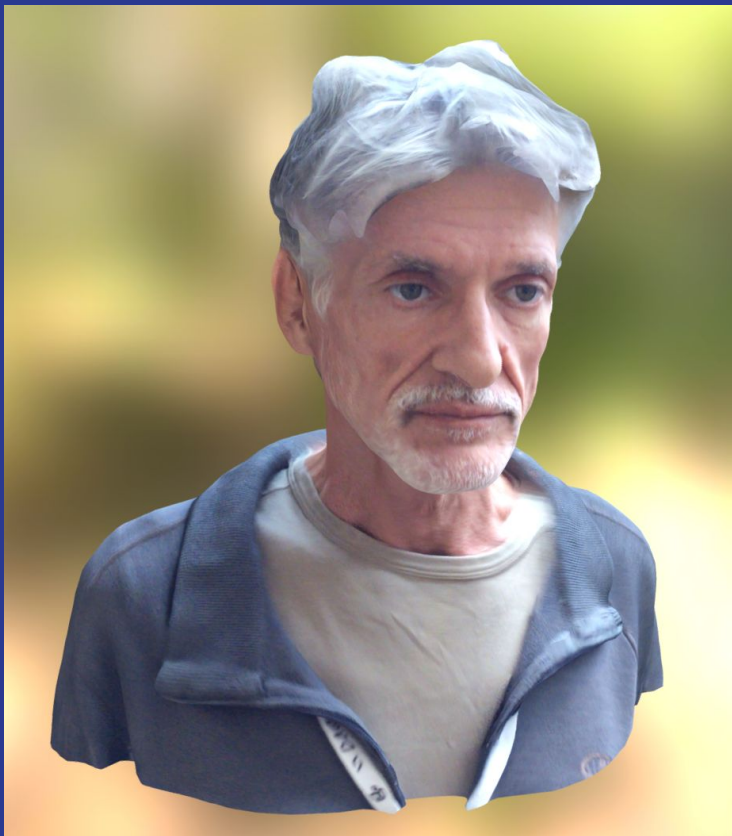
(Seminal Paper)



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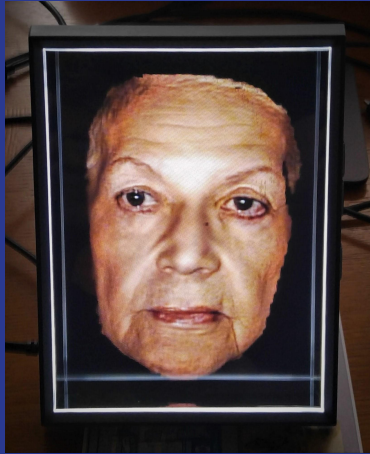
# Example 3D Scanned Model of Greg Panos



← Click Image to Launch  
SketchFab 3D Viewer

# Creation of *PersonaForm*© of Louise Panos

Work in Progress



3D Facial Scan - 20 years ago



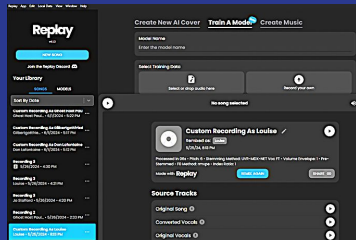
Blender 3D Model Creation from 3D Facial Scan and Image References



← 3D Modeling by Mike Amron



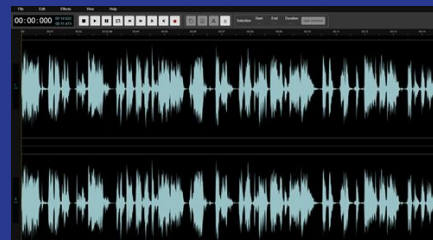
Capture Spoken Audio from Video Files



Train Voice Model from Audio



Import / rig Blender 3D Model  
into Nvidia's "Audio2Face"



Create Audio(s) from Voice Model



Create Facial Animation from Audio

# Thank You !



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