

MAX-R Demo: AnimHost

Jonas Trottnow

<https://animationsinstitut.de/en/studies/lecturers/jonas-trottnow>

Simon Spielmann

<https://animationsinstitut.de/en/simon-spielmann>

Volker Helzle

<https://animationsinstitut.de/en/studies/lecturers/prof-volker-helzle>

Francesco Andreussi

<https://www.linkedin.com/in/francesco-andreussi>

Simon Haag

<https://www.linkedin.com/in/simonhaag2094/>

Research & Development department at

Animationsinstitut of Filmakademie Baden-Württemberg

With technologies like marker-less, video-based motion capturing and AI-generated character animation, pipelines for animated movies are transforming. Movie productions utilising game engines for rendering demand for interactive and real-time animation directing capabilities that can be driven by artists and directors. While e.g. AI-based human character animation generators exist in research, their applied usage in animated movie production is sparse. Integrating such solutions in industry standard DCC applications, game engines etc. is a lengthy process, especially since the interactive nature and the demand for artist controllability asks for new user interfaces and pipelines. AnimHost is addressing these challenges.

AnimHost is part of the TRACER ecosystem. TRACER is a software ag-

multiple devices simultaneously through DataHub. Interactive character control through a spline based walking path can be authored e.g. with Blender, which is also able to receive the streamed animations. Thereby it is possible to generate animations automatically and permit interactive directing/blocking by non-professionals and experts alike. The development is engine-agnostic, allow high-level interaction with a character in real-time, and be adaptable to any future DCC application.

The demo will showcase the pipeline provided by AnimHost and the

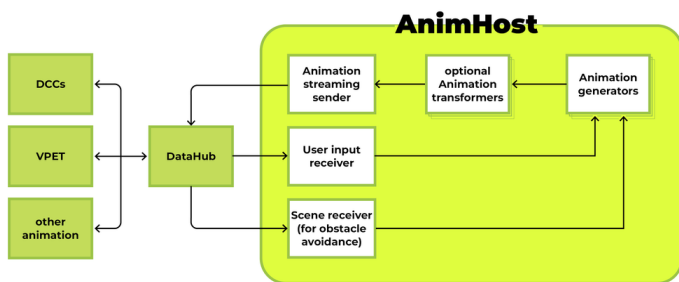


Figure 1: Overview of AnimHost

nostic communication infrastructure and toolset for plugging open-source tools into production pipelines, establishing interoperability between open-source and proprietary tools, targeting real-time collaboration and XR productions, with an operational layer for exchanging and synchronising scene data and updates between different client applications (Blender, UE, Unity ...).

AnimHost connects animation generators (such as AI deep neural net-

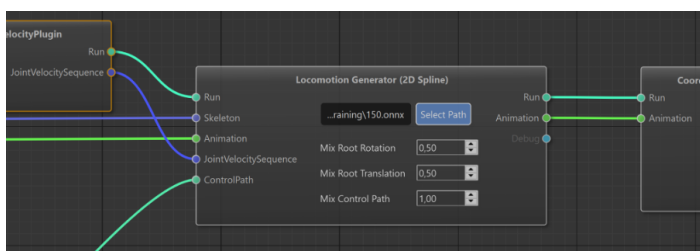


Figure 2: Screenshot of node based AnimHost UI

works trained on motion capturing databases, video-based, low-cost motion capturing, ...) to DCC applications, on-set tools or renderers in general. It is functionally independent of the animation receiving app and provides an intuitive interface to support new solvers, with a focus on real-time scenarios. AnimHost addresses compatibility issues between generators and end users by offering a defined API and data structure for sending human bone animations into arbitrary receivers. Generators are integrated into AnimHost as PlugIns. A simple node graph editor is used as a user interface to set up the animation pipeline within AnimHost. Generators get connected to the sending node, while needed transformations or eventually re-targeting can be added in the middle. Being part of TRACER, automatic generated or captured animations can be sent to

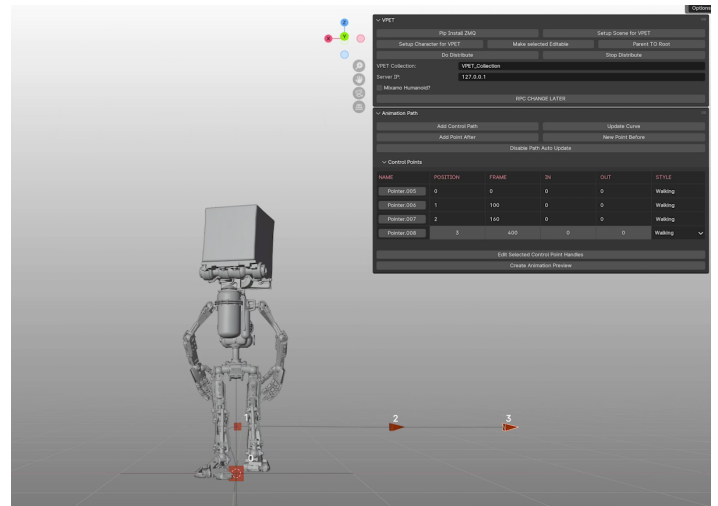


Figure 3: Animation authoring interface as plugin in Blender

TRACER framework based on assets from the testproduction "Survivor". Walking paths for a character can be defined as a spline by artists in standard DCC tools like Blender. AnimHost then immediately generates bone animations locally that are then applied in the original DCC application. The animated character animation can then be refined with a post-processing pipeline using classical animation tools like control rigs, inverse kinematics and forward kinematics. Being an open-source framework, TRACER, which includes AnimHost, also provides rich possibilities for future advancements through the modular plugin interfaces.

All components can be obtained from our GitHub repositories¹.



Figure 4: Screenshot of the animatic of the 'Survivor' testproduction

TRACER and AnimHost are developed within the Max-R project which received funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement No 101070072.

¹<https://github.com/FilmakademieRnd>