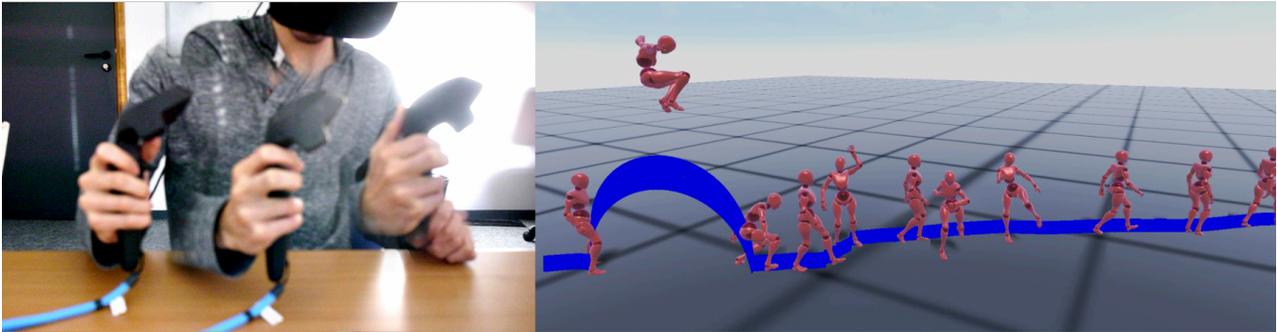


Directing virtual stage performances using voice and gesture

Masters Thesis Internship

Prepared by : Rémi Ronfard, remi.ronfard@inria.fr



Context

ANIMA is a computer graphics team created in July 2020 at Inria and Univ. Grenoble Alpes to invent new methods for authoring and creating story worlds. Towards this common goal, we pursue research in geometric modeling, physical modeling, semantic modeling and aesthetic modeling.

ANIMA is a member of the Performance Lab, a multi-disciplinary research project at Univ. Rhone Alpes investigating the frontiers between the art and science of live performances including theater and dance.

Objectives

In this context, we are investigating methods for directing virtual stage performances by using a miniature stage and physical puppets (figurines) equipped with virtual reality trackers. We have show in previous work [1] that we can quickly create virtual stage performances with a limited vocabulary of 3D animations (walking, running, jumping, slapping, etc.) using such as system.

In this internship, we would like to allow the puppeteer to send voice command to the puppets, as a means to increase the vocabulary of actions that can be performed on the virtual stage.

Voice-driven animation has been proposed in the past [6]. Building on this previous work, we would like to take a different approach with a focus on integrating voice and gesture together. This is an instance of a multimodal computer human interface [4,5] where we need to design methods for separately parsing the voice command and the motion of the puppet; merging them into an abstract action representation; and generating a suitable 3D animation for each action.

Such a system can be useful for creating new performances involving real actors, virtual actors or both [2].

The system can also be used for recreating historic performances not recorded in video, using indirect sources such as director's notes, photos, drawings, storyboards, written accounts, and imagination [3].

The internship is offered to Master students with a good knowledge of computer graphics, excellent programming skills, curiosity and enthusiasm.

The internship is expected to lead to a PhD on a related topic

References

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