

Chatbot in VR

Connection of a chat AI to an NPC in VR

Graduate



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Introduction: Artificial intelligence and virtual reality are two of the most innovative technologies of our time, which are finding more and more points of contact in our everyday lives. So what would happen if these two technologies were combined? This question is at the heart of this bachelor thesis, where AI is integrated into virtual reality. The achieved results are explained, and it is shown what is currently possible and what could still be possible in the future.

Approach / Technology: Unreal Engine was used for the virtual reality. The entire environment is realized in this powerful engine, as is the behaviour of the non-player character (NPC). The VR headset used is the "Pico 4", which also enables hand recognition and already has integrated speakers and a microphone. The AI interface is implemented in C++. Real-time recorded conversation snippets are sent via HTTP requests to OpenAI and its models, and responses are converted into seemingly spoken audio and gestures by the NPC.

The AI integration in Unreal Engine was developed as a reusable plugin, so that this solution is not limited to this project, but can be implemented in any project and can therefore be used variably.

Result: This bachelor thesis lets the user experience a functional VR environment, where it is possible to have a conversation with an AI-based NPC. This project shows the possibilities currently available with technology and provides initial insights into how the combination works. This technology offers new possibilities for conducting conversations in virtual reality that are not based on a fixed script. Conversations can be held without limited scope and predetermined answers. There are many possible applications for this technology in education, training, therapy, and many more.

Used AI-Models

Image Source: wikipedia.org/wiki/File:OpenAI_Logo.svg



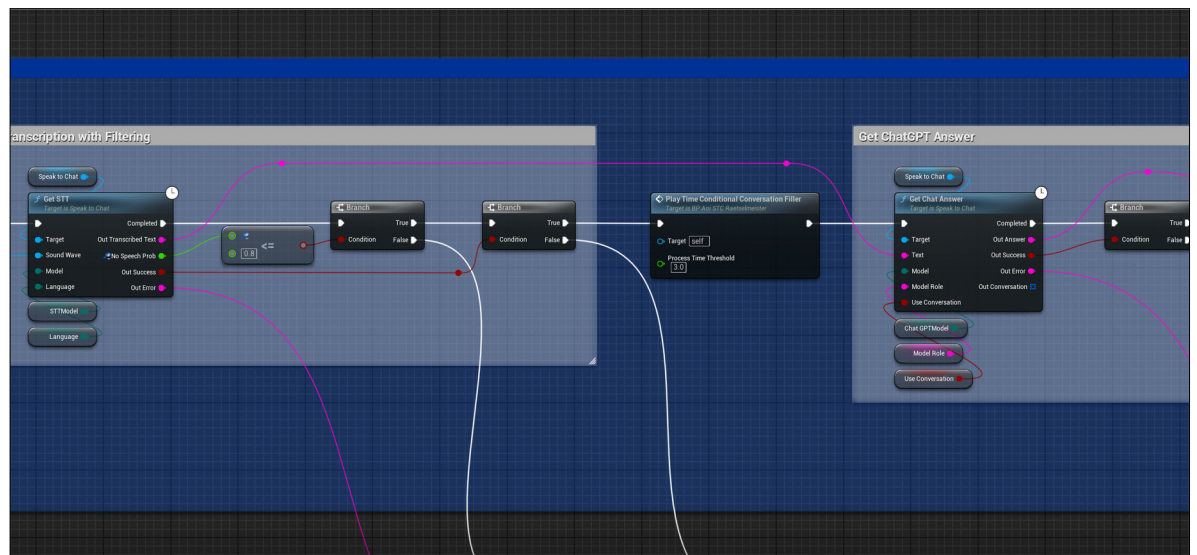
Section of the VR environment

Own presentation



Section of the Blueprint-Function in Unreal Engine

Own presentation



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Subject Area

Computer Science