

Player Engagement With Generative AI In Video Games: An Assessment Of AI's Current Ability

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Overview/Introduction

There is a growing interest in the applications of AI. This project tested the performance of generative AI in place of traditional NPCs (non-playable characters) in a small video game using Unreal Engine 5, a popular game engine. Generally, traditional NPCs follow one script which can harm player immersion or engagement. The main question in this research was how the use of AI NPCs in place of traditional NPCs affected user engagement. Unfortunately, this was not achieved at this time due to a prolonged IRB review process. However, there are still plans for data collection for the Fall 2024 semester. Going through the design and implementation process necessary for AI NPCs still brought forth various interesting factors in regards to writing/storytelling in video games. Further information regarding user opinion and engagement will be made available when this research is complete. This information will be based on two sets of data: Surveys answered by participants and data collected within the game itself. All participants will be asked to play the game for at least 30 minutes, ensuring that they interact with the AI NPCs. When the participant decides they are done playing, they will take a survey asking opinions on the AI NPC and prior experience with video games.

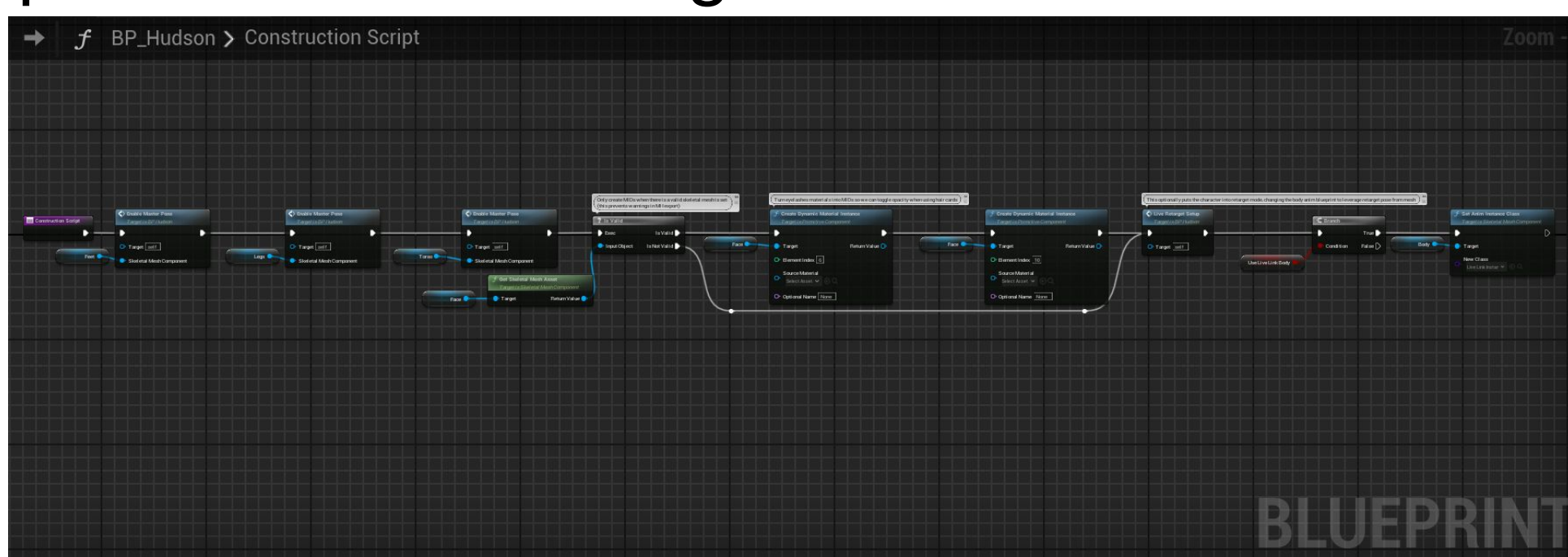


Image 2: A small glimpse into the Blueprint/Visual Code used for the AI NPCs.

Impact/Conclusions

This project adds to a growing pool of research rooted in assessing AI's capabilities in various fields and industries. Although the intended end goal has not been reached at this time, this project contributes to the assessment of AI's capabilities within entertainment. Specifically, AI's ability to carry out story-driven interaction in a way that is consistent with the game creators expectations.

Acknowledgements

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Key Findings/Results

There were two major findings in the design and implementation process between AI NPCs and traditional NPCs. Overall, AI NPCs proved significantly easier to code but required more effort to control than traditional NPCs. The AI had a tendency to contradict itself or make requests that were not achievable for the player given the available resources (actions, items, locations, etc.) in-game. In order to minimize contradictions and impossible requests, the AI needed a secondary repository explaining every instance or level within the game. This minimized, but did not totally remove the AI's tendency to contradict or make impossible requests. Generally, these issues are not encountered with traditional NPCs. Ultimately, AI NPCs can potentially offer an enjoyable or novel experience in small-scale games but its potential to rival traditional NPCs or operate on a large-scale AAA title is questionable as of right now.



Image 1: The map used in-game. Kept small to prioritize interaction with NPCs.

Explanation/Conceptual Framework

As previously mentioned, this research contributes to a rapidly growing pool of research. In regard to the topic of AI NPCs, large companies such as NVIDIA and Meta are presently developing AI specifically for the purpose of NPCs or characters. In fact, NVIDIA has released a line of models called "Metahumans" which are free and readily available for use on Unreal Engine.