Using Large Language Model's for NPC's

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Abstract

AI interactions could revolutionize the gaming space by creating dynamic AI that uses LLM's to create unique experiences for the player by creating not only almost human interaction for the player, but also can create scenarios that the NPC could react using to the Transformers that can change the interactions that the between the AI and the player. When creating the AI it learns with each interaction and that creates more options for the player to interact with them and creates a relationship between the player and the AI. In the sense of this research we have created a text-based AI that interacts with the player and with different distinguished base tratis of personalities and story is going to push the idea of this research.

1 Introduction

In modern narrative games the sense of simulated-realism is portrayed to a user based on its' fictitious yet captivating scenarios and decision based mechanics that can create different branches in the main story. NPC's (Non-Playable Characters) are a key element in story-driven games because the their interactive nature based upon pre-selected dialogue. Although the freedom of choice and action may seem present on the surface, these games have limitations to how far the user can expand their journey due to all possible branches leading to a set number of options/opportunities. In order to break this boundary and create a more dynamic environment for the player, these games would have to constantly update its' elements based on the user's choices. NPC dialogue can affect the main story by building/breaking relationships and create new possibilities like quests for the player to experience. Our challenge is to use large language modals (LLM), such as ChatGPT, to generate cohesive dialogue between and player and an NPC to expand the limits on usual narrative game play.

We briefly highlight some related work in Section 2, and then provide the definitions and results of our work in Section 3. We then conclude in Section 4 and point towards the general research goals for this work [3].

2 Related Work

Since artificial intelligence is still in its early stages, new research studies are implementing generative NPC dialogue to make a "realistic" experience for a user. (LLM) are powerful and adaptive modules that can retrieve a script and its ai can generate an appropriate response to that input. The more generative the ai modal can deliver, the more coherent the NPC will make itself for the narrative aspect in the game.

Implementation for this concept has been done by feeding the (LLM) specific data about the user and NPC characters, like their background, location, and role in the story. The power of the modal was further expanded in a research study about automating scene generation in a game called scene craft. The (LLM) identified specific emotions and gestures corresponding to each dialogue (Kumaran, 2023). This is important to notice because it proves the interaction from player to non-player can be "human-like" regarding to the tone of the narrative.

If there are multiple non-playable characters, then developing different characterizations for each would also create a more dynamic environment, leading to more possibilities on how the user can affect the story. Each unique NPC is created to fulfill a purpose (Gao and Emami, 2023). This study puts focus on the relationships these NPC's have on the user. If the player interacts with an NPC who is non-friendly then the player would have to gain their trust.

For these studies to feed the AI modal the data sets for the non-player characters the artificial intelligence would need to be correctly implemented. When a network request is sent to the ChatGPT API it responds with a object like JSON (Artus and Robert, 2023). These objects are able to instantiate the data within each request. This research study had a JSON object that had properties such as name, description, weapon, and size. Some of these would be key characteristics the api would need to remember when the user interacts with that specific NPC character.

This API is powerful tool that can not only generate how NPC's adapt, but can also create simulated worlds based upon the preset data sets. As mentioned earlier in this section, since AI is in it early stages problems can easily occur. Evaluating if this improves workflow for simulation designers. (Johnson-Bey, 2023) Testing if this route of new narrative game implementation is consistent can further prove of disprove if it goes beyond the limits of what is available to us in the modern day.

3 Our Results

When acquiring the results through our research we have gained new knowledge where we have a shown the power of AI. We have implemented ChatGPT to make calls to its API. This tool was revolutionary and should be researched further to create a more life like experience when

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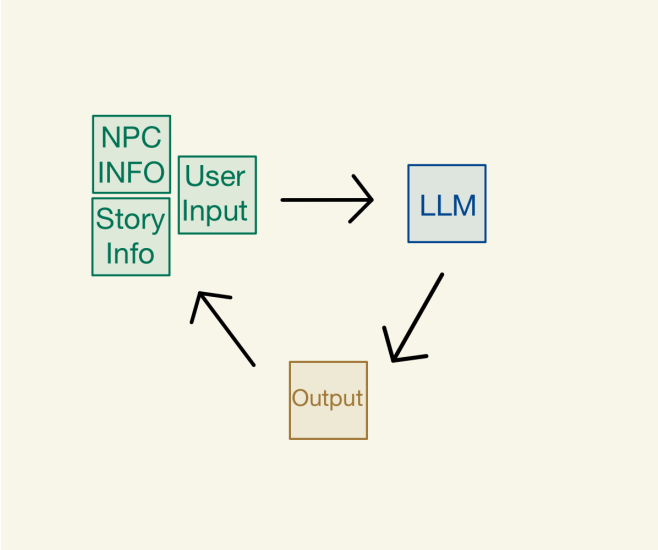

Figure 1: Flow Chart

experiencing NPC's in a new light.

We have first implemented the ChatGPT API into our code, to create the NPC responses. The AI creates generated scenarios with the given characters interacting within the world. This is going to be supported by a template of given NPC's where they have their basic stats (Background, Age, Morality, Relation) and a summarized story that is going to be fed through the AI. A combination of these 2 factors is going to create a life-like and dynamic AI that is going to be reacting to the player's input. To keep this ideology, we save the responses and the code makes the AI aware of the conversations, scenarios, and the world around them. This information is needed is a must to have an NPC that is going to be dynamic and stray away from the basic pick a choice and get the pre-generated response from the NPC.

4 Conclusion

When questioning ourselves if creating AI that is dynamic using Transformers. This would create a more lifelike experience when interacting with NPC's that stray from hard coded responses that give the AI a very robotic and repetitive responses that don't give much meaning to the player because this doesn't show any sort of genuine response, but when using AI we have those feedback that is lively. When using ChatGPT to create responses and the the scenarios this is going to not only change how the AI reacts, but this is going to change the situations of the world around them and the interactions that the NPC is going to reacting according to the awareness of their surroundings.

You have more freedom when doing this that your options become almost infinite on the scale of choices that you can from the story lines that generate within the storyline and this makes the NPC's not just something that you dread to, but the human experience and seeing this furthermore within the storyline that it remembers conversations to create a full experience of interactions.

References

[1] Q. C. Gao and A. Emami. The turing quest: Can transformers make good npcs?, 2023.

[2] S. Johnson-Bey, M. Mateas, and N. Wardrip-Fruin. Toward using chatgpt to generate theme-relevant simulated storyworlds., 2023.

[3] V. Kumaran, J. Rowe, B. Mott, and J. Lester. Scenecraft: Automating interactive narrative scene generation in digital games with large language models, 2023.

[4] A. Umbraško and R. Drury. Applying chatgpt in ai-based dynamic video game narrative generation system, 2023.

[3] [1] [4] [2]