1001 Nights - An text-based open-domain narrative game

enabled by GPT-2

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ABSTRACT
The game is adopted from the Arabian folklore collection, Arabian Nights, enabled by GPT-2 text generation model trained on Guttenburg short story dataset. The player has to advance the story by telling new stories.
In the game, a player will act as the girl Scheherazade. The player has to tell tales to the Sasanian King to postpone the execution, then the king will continue the story in turns through the story generation model. The player has a special ability to turn words into reality: When the king’s continuation contains keywords like “sword”, “knife” or “shield”, those object will materialize and drop, which allows the character to fight the king. This game aims to turn human-machine creative collaboration into open-domain narrative gameplay.

CCS CONCEPTS
• Human-centered computing → Human computer interaction (HCI) → HCI theory, concepts and models

KEYWORDS
Intelligent narrative, machine learning, gaming

1 Introduction
If videogames are the hallucination created by the computer, then machine learning with creativity can keep it growing according to the player's intuition. The base of the game, Arabian Nights, is a classic example of a framed story and embedded narrative: the character narrates a set of tales, and tales contain other tales. Based on the folklore, with the text-generation algorithm, this game allows players to affect the direction of the story by telling stories itself through natural language. With the help of machine learning, I aim to create the embodiment of the transcending language inside the game, present a procedural rhetorical experience that makes metaphor and language invade into reality, just like Wittgenstein’s statement: The limits of my language mean the limits of my world (Wittgenstein 2001).

2 The Game
The game includes two parts: storytelling and battle. In the first part (Fig.1), the player needs to keep telling stories to lead the King with AI behind to produce story continuation that includes the important items for battle. The King's AI model is trained on Guttenburg short story dataset (Kaggle 2021) through GPT-2 (Openai/Gpt-2 2020), so it's familiar with common tropes in various adventure stories. For instance, if the player writes a paragraph about a knight meet a demon on the road, then the king might say "The knight slashed his blade", then the player could materialize the word "blade" and put it into the inventory.

Fig 1. Screenshot of Part 1: Storytelling

After getting weapons, the player can enter the turn-based battle part (Fig.2) to fight with the king. Under the structured digital environment, the game not only produces entertaining experience, but also...
provides a creative writing collaboration with AI (Fig.3), and the result of writing will change the environment itself.

Fig 2. Screenshot of Part 2: Battle

You: One day a cat set an assassin in the forest...

King: The assassin's arrow hissed at the cat, but the cat dodged and hit the assassin. Then the assassin's mother, who had no other children...

You: The lady rushed out and cried aloud, Suddenly, the cat turn into a little boy...

King: "We, you are the personification of the virtue of one of the race: Hsiang-chou. I can hardly believe that you are not already dead, for you are already an old woman. That...

You: The lady Hsiang-chou get shocked when she heard the words. For decades, she finally heard a person mention her past stories...

King: "I heard them from a friend. They were all true, but the story has gone on too long. You shall not have heard of me.

What was your name?" asked Hsiang-chou. "My name is Chou yen," replied Chou-yen...

You: Chou yen looked away. The lady suddenly realized that this might be her last chance to kill him. Even though her son is still nearby, she...

King was not afraid of his life. She moved to close the door. "Well, you are to be taken away to a hospital," he said. "I will wait for you and have you checked out."

"I wish the boy who lost the sword. I am sorry," said Chou-yen...

Fig 3. The example story log

3 Future plan

This game is still in progress and undergoing improvements in gameplay and detail. In the future, I will use it to inquire about the possibility of open-ended improvisational collaboration in human-computer interaction. To reach that, I would consider adding a scoring system to evaluate the quality of the player’s story input and AI’s continuation. Meanwhile, to improve the text generation model, I will put clear start and endpoints in the dataset for each story, so the game can define a night based on the progress of a story, rather than decreasing time-based on the number of conversations. Furthermore, I hope that the new interaction that I design can be regarded as a rebellion action toward masculinism and patriarchy inside the story.

REFERENCES

