Research Note (2): The Future of Interactive Storytelling

All hail machine intelligence?

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AUG 25, 2024

This Research Note explores the impact and opportunities presented by recent innovations in AI technology.

On 26 July 2024, SAG-AFTRA, representing video game voice actors, went on strike due to failed negotiations with major gaming companies like Activision and EA over protections against the replacement of human actors with artificial intelligence (AI) driven tools. This dispute began in October 2022. The strike challenges the industry's use of AI, which the union argues undermines the unique qualities of human performance. Actors and game designers justifiably fear that AI-driven tools could replace human video game workers.

Indeed, the integration of AI into video games seems to be an unstoppable force for rapid change in the business model for game development. AI-driven characters and dynamic narratives will likely offer players unprecedented levels of immersion and engagement.

AI-driven video game design involves collaboration between various disciplines, including AI research, animation, and narrative design. This interdisciplinary approach is essential for creating complex and immersive game worlds. By combining expertise from different fields, developers can push the boundaries of what is possible in interactive storytelling.

AI-driven Digital Storytelling

AI technology can enable dynamic, unique, and personalized gaming experiences. Characters driven by AI can be scripted (to a surprising level of detail) to respond to player actions in nuanced ways, adding depth and realism to the narrative. This capability transforms the player's role from a passive participant to an active co-creator of the story.

The core of AI's impact on video games lies in its potential as a tool to create more immersive and responsive storytelling experiences. By utilizing advanced AI systems, developers (including a team I am working with) are crafting characters and narratives that adapt to player actions, resulting in unique and engaging gameplay. This integration would not only enhance player immersion but also hold some promise for expanding the potential for storytelling within the medium.

Innovators in AI-Powered Gameplay

CEO Kylan Gibbs's demo of InWorld.AI's Storyweaver at TED2024 explained his vision for using AI to augment human creativity as a means to change digital storytelling. Recent advancements in AI-driven game design reflect a growing focus on enhancing the depth and realism of player interactions. Ubisoft's NEO NPCs Prototype, for example, explores the potential of AI-powered characters capable of advanced reasoning and environmental perception, aiming to create more dynamic and immersive in-game experiences. In a similar vein, NVIDIA's Covert Protocol Demo integrates AI Digital Humans into social simulation mechanics, enabling lifelike interactions that mirror complex social behaviors. Meanwhile, Xbox's Project Explora introduces the Narrative Graph, a tool designed to create adaptive, responsive narratives that shift according to player choices, offering a more fluid and personalized story experience. Adding to these innovations, Epic Games' Metahuman Technology pushes the boundaries of character creation, generating highly realistic avatars that respond to player input in ways that enhance both visual fidelity and interactive engagement, marking a significant step forward in making virtual worlds more believable and immersive.

> *Rather than being nudged from one scripted interaction to another, AI offers the potential for real-time responsiveness – where every action has immediate and lasting consequences unique to the distinct choices each player makes. -* GamesBeat

It seems likely that AI-driven game design offers a transformative approach to interactive storytelling, allowing for the creation of dynamic and immersive narratives. Central to this approach is the integration of AI agents that facilitate both dialogue and autonomous actions within complex game environments. These agents are designed to perform multi-step tasks independently, exhibit personalities and emotions, and interact with the surrounding environment in real time. The intended result is a game environment where characters seem more realistic and engaging, ostensibly enhancing player immersion.

While this sounds promising, there remain important limitations to consider. AI agents are often credited with managing underlying game mechanics, controlling environments, and even influencing the narrative based on player choices. However, the extent to which AI can genuinely create individualized experiences remains to be thoroughly validated. Although AI introduces a degree of complexity into game design by enabling adaptive responses to player behavior, the claim that it can craft emergent narratives that meaningfully reflect player agency might be overstated.

Crucially, AI has not yet reached a level where it is significantly interchangeable with human game designers and narrative architects. Human oversight remains indispensable in crafting coherent storylines and ensuring that world-building retains its depth. AI tools, at best, augment the creative process, offering new methods for integrating interactive elements that provide a sense of agency. Whether AI can truly enable narratives that are "lived" by players remains open to scrutiny, as the notion of player-driven stories often encounters practical constraints.

Cognitive psychology suggests that greater narrative agency could enhance player engagement. However, it is unclear whether AI's current capabilities are sufficient to consistently deliver these results. The relationship between AI, agency, and flow states may not be as straightforward as proponents claim, and further empirical study is needed to assess the real impact on immersion and replayability.

In theory, AI-driven game design could lead to more fluid and responsive interactive worlds, offering new opportunities for developers. However, the broad application of AI across diverse settings, from education to digital environments, still hinges on unresolved challenges in design and implementation. While intriguing, the vision of AI revolutionizing storytelling demands careful consideration of both its promises and limitations.

Moment in Manzanar

Building on InWorld.AI technology, the creative team behind ***Moment in Manzanar: An Interactive Film*** brings together a dynamic mix of backgrounds and aspirations, each contributing uniquely to the project's realization. Moment at Manzanar is aimed at educating about the historical and emotional narratives of Japanese-Americans during World War II. Lead creator Kento's expertise in integrating technology with storytelling, drawn from their social activism and past work with media platforms like Google and Amazon, was pivotal in building the interactive experience.

Moment in Manzanar is an interactive documentary film that delves into the historical internment of Japanese Americans during World War II. The film uniquely blends personal testimonies, historical footage, and immersive storytelling techniques, allowing viewers to engage with the experiences of those who were held at the **Manzanar War Relocation Center**. This interactive format enables a more profound connection to the stories of resilience and hardship faced by the Japanese American community during this complex and unfinished moment in U.S. history.

It invites viewers to explore the diverse perspectives of former internees, uncovering both the larger historical context and intimate, personal memories. The film serves not only as an educational tool but also as a bridge to understanding the human impact of wartime policies driven by racial prejudice. Its innovative approach helps to ensure that the lessons of Manzanar remain vivid and relevant for future generations. *Moment in Manzanar* shows the potential of interactive storytelling powered by cutting-edge AI, rooted in a commitment to social justice and historical accuracy.

Concluding Thoughts

The integration of AI in video game development marks a significant advance in interactive storytelling. AI-driven systems have already demonstrated their ability to enhance player immersion by generating characters that respond in real time to player actions. These systems hold the potential for creating more personalized gaming experiences, promising greater narrative fluidity and player agency. As AI technologies continue to evolve, their influence on game design and narrative construction is likely to expand.

Yet, the extent to which AI can genuinely replicate the complexity and creativity of human storytelling remains uncertain. While AI can manage intricate game mechanics and simulate adaptive behavior, it has not yet proven its ability to replace human input in crafting coherent and emotionally resonant narratives. The notion that AI can independently generate emergent stories reflecting player agency may overstate the technology's current capabilities.

The application of AI in gaming requires careful consideration of both its potential and its inherent limitations. AI augments the creative process, but it does not supersede the need for human oversight in narrative construction. The future of AI in game design will likely depend on its capacity to complement human creativity, enhancing interactive experiences without compromising the narrative depth and coherence that remain essential to the medium.

AI offers valuable tools for advancing player engagement and expanding the scope of interactive storytelling. Its potential, however, is not in replacing human creativity but in working alongside it to open new possibilities in game design. The success of AI in this domain will rest on its ability to support and augment the nuanced, complex storytelling that defines video games as a unique narrative form.

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