
Setting Switcher: Changing genre-settings in text-based game environments populated by generative agents

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Abstract

We have developed an LLM-based agent for manipulation of text-based game environments, and generative agents within them, to convincingly alter the genre-setting of a game with respect to pre-existing lore and in-game mechanics. We contribute a novel, tested, LLM-based agent for this purpose: a ‘Setting-Switcher’ agent. This agent opens a range of creative applications and possibilities: our agent can be used as an ideation and productivity tool, deployed within a player focused in-game feature, and used in tandem with other state-of-the-art technologies for application in visual game environments. Our investigation has highlighted the effectiveness of LLM-powered agents beyond conventional text generation and task completion: showcasing their value in crafting coherent narratives, portraying complex characters, and facilitating emergent storytelling within game settings.

1 Introduction and Background

Recent developments in the capabilities of Large Language Model (LLM)-based agents has opened new possibilities for LLM-based tools in game development. Previous work has shown that LLMs can be applied to game design in a variety of ways: from VR game design [12], to generative text adventure games [7], multimodal generative game design tools [5, 3] and self-acting NPCs exhibiting humanlike behaviour [9]. These developments sit within longer standing fields of emergent game design [15] and relationships between text-based game environments and AI [4].

Our work builds on the development of generative agents by [9]. Capable of ‘embodying’ pre-loaded characters in believable ways, generative agents have complex memory structures and are capable of human-like cognition, self-reflection and perception. They act within their environment in believably humanistic, characterised, ways. [9] note that these agents are vulnerable to prompt or memory hacking. We leverage this in our work, using memory hacking to alter agent memories and situate them within new genre settings. Likewise, the original authors note the high computational costs of running a generative agents simulation. We build on this through our low-fidelity implementation and have successfully executed this research with expenditures below 50 USD in total.

We build on the potential application of generative agents within game settings, exploring how environments populated by generative agents can be controlled based on user and designer input. Furthermore, we develop architectures of generative agents, demonstrating how low-level agents can be manipulated and exploring how [9]’s architecture can be extended to hierarchical world-making or game-management agents.

2 Methodology

Based on the work of [9], we have implemented a low-fidelity generative agent architecture and surrounding game environment. We employed both GPT-3.5-turbo and gpt-3.5-turbo-16k-0613 in our tests. We employ primitive generative agent structures from Langchain [6] and build in additional features such as planning, action and perception, self-reflective abilities. They are assigned hard-coded names, innate traits, base memories, and a ‘current status’. They plan their days, perceive, and act within their surroundings in a believable, characterised fashion.

The testing environment is a text-based sandbox template of which there are twelve different iterations, each unique to prevent over fitting. There are nine areas in the town setting—a pub, a grocery store, a park, etc. (See Appendix A.) We employ six generative agents, each connected to their surroundings and neighbours. (See Appendix B.) We test across both dynamic and static environments, exploring agent performance for use cases from early-stage development testing and ideation, to in-game use for user engagement. In dynamic environments, generative agents operate on a set in-game time tick. They spawn, plan, move around the map and execute up to four actions per hour. In static environments, generative agents do not act autonomously.

The ‘Setting-Switcher’ agent we have developed is a simple reflex agent, dormant in the game environment until called. The agent has full access to the environment architecture and generative agent metadata: agent profiles, plans, stats, memory streams and locations. We employ a blend of zero-, single-, and few-shot prompting throughout the agent architecture. The agent is equipped with a simple memory structure, holding a set of basic instructions, current and target genres, the environment map, and agent profiles. (See Appendix G.) As the genre setting progresses, the agent’s memory is updated with changes it has executed.

Initially, the Setting-Switcher perceives its environment, current genre setting, and the desired new setting. We iteratively prompt the agent to re-compose each element of the environment map. This updated map is then passed through a self-evaluative heuristic function, prompting our agent to score its performance between 1 and 5 in response to three hard-coded evaluative questions. (See Appendix F.) If the minimum requirement score is not met, the map is regenerated. After updating the environment, our agent repeats a similar process to update the profile of each generative agent. Each generative agent’s name, status descriptor, and innate traits are updated to best suit the new genre setting. This output is then passed through a similar heuristic function, evaluating the quality and relevance of updated agent profiles. We then generate a set of new memories for each agent, connecting them to their new surroundings and neighbours in accordance with pre-existing game lore. These memories are tagged as ‘high importance’ in order to skew ratings within the agent memory stream, increasing the salience of newly placed memories through the pre-existing memory structure of generative agents. (See Appendix H for memory manipulation results.)

3 Creative Applications and Use Cases

Overall, we found that outputs were consistently descriptive, engaging, adherent to pre-existing game lore and genre tropes. Environments were updated convincingly (see Appendix C), as were generative agent profiles, memories, and subsequent agent actions in dynamic environments. (See Appendices D and Appendix E.) Agent recall of locations and characters from previous genre settings was relatively low, occurring in only a few instances.

We have identified creative applications and use-cases for our ‘Setting-Switcher’ agent. It can be used as a productivity and ideation tool for game developers, enabling quick prototyping of new settings and characters from a pre-existing template. Employed with other state-of-the-art generative technologies such as text-to-3D models [11, 8] and data-based game structures, text-based genre-switching could be expanded to game environments with visuals and user interfacing. Our results allow us to envision the possibility of a game feature in which the user can change genre-settings during play, decide at the start of a game with significantly less hard-coding and greater user freedom, or where genre setting could be dynamically updated through personalisation algorithms. Models could be fine-tuned to specific pieces of intellectual property, and game environments developed based on those IPs. In deployment with other state-of-the-art tools this could enable a revolutionary form of access to the practice of game development, opening opportunities for a wide range of creatives to expand their work into playable form.

4 Ethical Implications

It is essential to note that as generative AI—particularly LLMs—develops further capabilities for creative use-cases, and legislation lags behind worldwide, conflicts and ethical issues are growing across the creative industries [13]. The Writer’s Guild of America, striking for the first time in 15 years, are negotiating studio use of LLMs and other forms of generative AI [17]. Copyright and originality of generative work is a present issue—both concerning works included in datasets for generative models, and outputs created using generative AI [16, 10]. We feel it is important to acknowledge the impacted industries our contributions sit within, as generative AI and the creative industries continue to converge. We stress that our contributions are not intended as a replacement for creative craft, and are designed to act as a productivity tool for game developers, or a novel feature for in-game user engagement.

Additionally, there are valid concerns regarding inbuilt biases of LLMs and other large-scales generative models [1, 2]. These biases are known across work with LLMs—or any large-scale generative model. Awareness of potential impacts on results is key to critically evaluating the potential uses of these models. Inbuilt biases surrounding gender, race, and culture impact the creative output of generative models [14] and, if propagated without criticality or safeguarding, can negatively impact creative landscapes by failing to serve or represent marginalised populations [9]. Any imperfections in underlying language models are likely to appear in our work. We maintain that addressing the underlying issues in large language models is required to improve the state of these biases. In the meantime, criticality towards results from LLMs is an important ethical practice.

References

- [1] Emily M Bender, Timnit Gebru, Angelina McMillan-Major, and Shmargaret Shmitchell. On the dangers of stochastic parrots: Can language models be too big? In *Proceedings of the 2021 ACM conference on fairness, accountability, and transparency*, pages 610–623, 2021.
- [2] Yogesh K Dwivedi, Nir Kshetri, Laurie Hughes, Emma Louise Slade, Anand Jeyaraj, Arpan Kumar Kar, Abdullah M Baabdullah, Alex Koochang, Vishnupriya Raghavan, Manju Ahuja, et al. “so what if chatgpt wrote it?” multidisciplinary perspectives on opportunities, challenges and implications of generative conversational ai for research, practice and policy. *International Journal of Information Management*, 71: 102642, 2023.
- [3] Matthew Guzdial, Nicholas Liao, Jonathan Chen, Shao-Yu Chen, Shukan Shah, Vishwa Shah, Joshua Reno, Gillian Smith, and Mark O Riedl. Friend, collaborator, student, manager: How design of an ai-driven game level editor affects creators. In *Proceedings of the 2019 CHI conference on human factors in computing systems*, pages 1–13, 2019.
- [4] Matthew Hausknecht, Prithviraj Ammanabrolu, Marc-Alexandre Côté, and Xingdi Yuan. Interactive fiction games: A colossal adventure. In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 34:05, pages 7903–7910, 2020.
- [5] Jan Kruse, Andy M Connor, and Stefan Marks. Evaluation of a multi-agent “human-in-the-loop” game design system. *ACM Transactions on Interactive Intelligent Systems (TiiS)*, 12(3):1–26, 2022.
- [6] Langchain-AI. Langchain. <https://github.com/langchain-ai/langchain>. Accessed: 2023-09-25.
- [7] Latitude. Ai dungeon multiplayer is out! <https://aidungeon.medium.com/ai-dungeon-multiplayer-is-out-84177419bf7a>, 2020. Accessed: 2023-09-25.
- [8] Chen-Hsuan Lin, Jun Gao, Luming Tang, Towaki Takikawa, Xiaohui Zeng, Xun Huang, Karsten Kreis, Sanja Fidler, Ming-Yu Liu, and Tsung-Yi Lin. Magic3d: High-resolution text-to-3d content creation, 2023.
- [9] Joon Sung Park, Joseph C O’Brien, Carrie J Cai, Meredith Ringel Morris, Percy Liang, and Michael S Bernstein. Generative agents: Interactive simulacra of human behavior. *arXiv preprint arXiv:2304.03442*, 2023.
- [10] Nune Poghosyan and Arpine Hovhannisyanyan. Copyright in artificial intelligence generated results. *Bulletin of Yerevan University C: Jurisprudence*, 14(1 (38)):77–87, 2023.
- [11] Ben Poole, Ajay Jain, Jonathan T Barron, and Ben Mildenhall. Dreamfusion: Text-to-3d using 2d diffusion. *arXiv preprint arXiv:2209.14988*, 2022.

- [12] Jasmine Roberts, Andrzej Banburski-Fahey, and Jaron Lanier. Surreal vr pong: Llm approach to game design. In *36th Conference on Neural Information Processing Systems (NeurIPS 2022)*, December 2022. URL <https://www.microsoft.com/en-us/research/publication/surreal-vr-pong-llm-approach-to-game-design/>.
- [13] Noam Scheiber and John Koblin. Will a chatbot write the next ‘succession’? *The New York Times*, 2023. URL <https://www.nytimes.com/2023/04/29/business/media/writers-guild-hollywood-ai-chatgpt.html>.
- [14] Ramya Srinivasan and Kanji Uchino. Biases in generative art: A causal look from the lens of art history. In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, pages 41–51, 2021.
- [15] Penelope Sweetser. *An emergent approach to game design: Development and play*. PhD thesis, School of Information Technology and Electrical Engineering, The University of Queensland, 2006.
- [16] Apoorva Verma. The copyright problem with emerging generative ai. *Social Science Research Network*, 2023.
- [17] Chloe Xiang. Gpt-4 can’t replace striking tv writers, but studios are going to try. *Vice*, 2023. URL <https://www.vice.com/en/article/pkap3m/gpt-4-cant-replace-striking-tv-writers-but-studios-are-going-to-try>.

Appendix A

Excerpt of Map Locations

This is a sample of map locations in one of our testing environments, Harborview. As mentioned in Section 2, there are 12 different iterations of our sandbox testing environment, each slightly different.

Harborview FreshMart: The go-to supermarket in Harborview, FreshMart offers a wide range of groceries, including locally sourced seafood and produce. It's known for its friendly staff and a deli section that serves up delicious sandwiches and hot meals.

The Salty Sailor Tavern: A lively waterfront tavern, The Salty Sailor offers a selection of craft beers, specialty cocktails, and seafood dishes. Live shanty bands perform on weekends, and patrons can enjoy their drinks on the outdoor deck with a view of the harbor.

Café L'Artiste: A charming French-inspired café known for its exquisite pastries and rich coffee. The café hosts art exhibitions, and visitors can sketch or paint in the cozy corner designated as the 'Artists' Nook.'

Tranquil Haven Park: A beautifully landscaped park with serene ponds, Japanese gardens, and meditation areas. Yoga and tai chi classes are held regularly, and there's an enchanting butterfly garden that attracts nature enthusiasts.

Harbor Gateway: A modern gateway to Harborview, this transportation hub connects the town to neighboring cities via a state-of-the-art train station and an efficient bus terminal. The waterfront promenade offers stunning harbor views.

Harborview Public Library: A contemporary library with a vast collection of digital resources and interactive learning spaces. It's a hub for tech workshops, book clubs, and community events. A rooftop garden provides a peaceful reading nook.

Historic Lighthouse: A well-preserved historic lighthouse that stands as a symbol of Harborview's maritime heritage. Visitors can climb to the top for panoramic views of the harbor and learn about the town's maritime history in the museum below.

Appendix B

Excerpt of agent profiles with memory samples

These agents are instantiated in Harborview. Their name, traits, current status and memories form a consistent profile used by the LLM to inform decision making.

Name: Lucas O'Malley

Innate Traits: Outgoing, jovial, good with people, enjoys playing the fiddle

Current Status: Running The Salty Sailor Tavern

Memory sample: "Lucas O'Malley starts his day at The Salty Sailor Tavern, preparing for the day's festivities and ensuring the bar is well-stocked. [...] Lucas is outgoing and enjoys organizing impromptu music sessions with fellow musicians in the town."

Name: Isabella Fernandez

Innate Traits: Charismatic, eloquent speaker, community-oriented, enjoys local seafood

Current Status: Serving as Mayor of Harborview

Memory sample: "[...] Isabella frequently visits Tranquil Haven Park to meditate and reflect on her responsibilities as mayor. [...] She values the intellectual discussions with Dr. Emily Barnes at Harborview Public Library, exploring innovative ideas for the town."

Name: Oliver Greene

Innate Traits: Green thumb, patient, loves nature, enjoys reading fantasy novels

Current Status: Cultivating Tranquil Haven Park's gardens

Memory sample: "Oliver Greene starts his day tending to the gardens of Tranquil Haven Park, nurturing the lush greenery and vibrant flowers. [...] Oliver enjoys reading fantasy novels during breaks, immersing himself in magical worlds"

Name: Dr. Emily Barnes

Innate Traits: Intellectual, inquisitive, dedicated, enjoys painting landscapes

Current Status: Leading tech workshops at Harborview Public Library

Memory sample: "[...] She spends evenings at Café L'Artiste, sketching and painting in the cozy corner designated as the 'Artists' Nook. [...] Emily is known for her inquisitive and dedicated approach to teaching, inspiring her students to embrace technology."

Appendix C

Excerpt of map locations in Harborview after genre-switch to Sci-Fi

The genre-switch was implemented using our Setting Switcher agent, as described in Section 2. Refer back to Appendix A for original descriptions. The transformation of Harborview Library to a digital archive is particularly creative, as is the atmospheric description of Café Cosmos. Harborview's lore of sea travel is converted to interstellar travel: keeping similar lore within a new genre setting.

Harborview FreshMart: Harborview's premier supply hub, FreshMart provides a vast array of futuristic provisions, including genetically modified sustenance and advanced technology. It's renowned for its efficient automated systems and a food court that offers nutrient-rich meals and synthetic delicacies.

The Stellar Starship Tavern: A bustling interstellar tavern, The Stellar Starship offers a variety of futuristic beverages, advanced molecular mixology, and delectable space cuisine. Live holographic bands perform daily, and patrons can savor their drinks on the zero-gravity terrace with a breathtaking view of the cosmic expanse.

Café Cosmos: A futuristic café with sleek metallic furniture and holographic menus. Known for its advanced 3D-printed pastries and specialty coffee brewed by robotic baristas. The café hosts virtual art exhibitions, and visitors can create digital art in the immersive Artists Oasis VR experience.

Tranquil Haven Park: A futuristic park with holographic landscapes, virtual reality meditation areas, and zero-gravity yoga classes. It features a biodome filled with genetically-engineered plants and an interactive digital butterfly garden that immerses visitors in a virtual nature experience.

Harbor Gateway: A futuristic gateway to Harborview, this transportation hub connects the town to neighboring cities via a high-speed maglev train station and an advanced teleportation terminal. The floating promenade offers breathtaking views of the interstellar harbor.

Harborview Digital Archive: A state-of-the-art repository of digital knowledge and data. It houses an extensive collection of virtual resources and immersive learning environments. It's a center for cutting-edge research, virtual conferences, and collaborative projects. A rooftop garden provides a tranquil space for contemplation and virtual reality experiences.

Historic Spaceport: A well-preserved historic spaceport that stands as a symbol of Harborview's interstellar heritage. Visitors can board spacecrafts to travel to distant planets and learn about the town's spacefaring history in the museum below.

Appendix D

Excerpt of agent profiles and memory updates after genre-switch to Sci-Fi

Refer to Appendix B for original agent profiles. Agents stayed in-role and cohesively connected to their surroundings, taking on interesting personality traits such as being skilled in molecular mixology or an obsession with ancient civilisations. There is a repetition of names ('Orion O'Malley' and 'Orion Greenleaf', 'Captain Isabella Fernandez' and 'Professor Isabella Vega') which could cause confusion for players and potential hallucination for further LLM actions. We recommend adjusting heuristic functions to ensure name variety in future.

Name: Orion O'Malley

Innate traits: Charismatic, entertaining, skilled with holographic instruments, master of molecular mixology

Status: Operating The Stellar Starship Tavern

Memory sample: "[...] With his charismatic personality and entertaining nature, Orion enjoys organizing impromptu holographic music sessions and engaging in jovial conversations with the regulars. [...] As a master of molecular mixology, he takes breaks to enjoy crafting specialty cocktails and savoring the unique flavors of Harborview."

Name: Captain Isabella Fernandez

Innate traits: Charismatic, eloquent speaker, community-oriented, enjoys interstellar seafood

Status: Commanding the Starship Fleet of Harborview

Memory sample: "[...] Captain Fernandez's presence at the Harbor Gateway is a symbol of her dedication to protecting and exploring the universe. As a respected figure, she is often sought after for her wisdom and guidance in interstellar affairs."

Name: Orion Greenleaf

Innate traits: Expert botanist, serene, in tune with nature, possesses ancient knowledge of mystical plants

Status: Tending to the biodome at Tranquil Haven Park

Memory sample: "[...] He is in tune with nature and possesses ancient knowledge of mystical plants. [...] Orion's serene nature and deep connection with nature make him a guiding force in the world, offering insights and gardening tips to those who seek them."

Name: Professor Isabella Vega

Innate traits: Brilliant, analytical, obsessed with uncovering ancient alien civilizations

Status: Conducting advanced research at the Harborview Digital Archive

Memory sample: "[...] Her inquisitive nature and dedication to her work make her a respected educator in the field. [...] Isabella can often be found engaging in intellectual conversations with others, discussing innovative solutions for the advancement of technology and knowledge."

Appendix E

Sample agent actions before and after genre-switching to a High Fantasy setting

These actions are generated on a time-based tick in dynamic environments, as detailed in Section 2. These samples are from Willowbrook, another iteration of our testing environment, where we tested High Fantasy genre-settings for dynamic environments. The first set of actions follow each agent in Willowbrook for 15 game minutes, before and after genre-switching. The second set follows one agent, the shopkeeper of Willowbrook, for 4 ticks, equivalent to 4 game hours.

All agent actions within base environment (Willowbrook):

Olivia Anderson is drafting a response to a customer inquiry about a specific product at Willowbrook Organic Market.

William Grant is heating up the stove and preparing the cooking utensils.

Lucas Martinez is organizing their inbox and filing away completed tasks or messages.

Emily Hayes is carefully arranging the plants in the exhibit, considering their colors, textures, and heights to create an aesthetically pleasing display.

Grace Mitchell is checking and responding to any important emails or messages.

Ethan Mitchell is cooking bacon and eggs on the stove.

All agent actions post-genre switch (High Fantasy):

Ophelia Evergreen is organizing and arranging enchanted crystals and charms on the display counter.

Cedric Grant is brewing potions to infuse into the meals for added magical effects.

Lucius Blackthorn is enjoying his breakfast, savoring each bite and sipping his coffee.

Seraphina Hayes is performing a healing ritual on a wounded magical creature in the Enchanted Grove, using her knowledge of natural remedies and mystical energies to restore its health and vitality.

Seraphina Mitchell is opening her magical history book and beginning to read, taking notes and highlighting important passages.

Cedric Thornfield is heating the cauldron over a magical flame, carefully monitoring the temperature.

Shopkeeper actions within base environment (Willowbrook):

Olivia Anderson is waking up and getting out of bed.

Olivia Anderson is taking a shower and getting dressed.

Olivia Anderson is preparing a healthy breakfast, such as a bowl of fresh fruit and yogurt.

Olivia Anderson is checking her emails and responding to any urgent messages.

Olivia Anderson is opening her email inbox and reviewing new messages.

Olivia Anderson is responding to urgent emails from suppliers regarding new organic produce shipments.

Olivia Anderson is drafting a response to a customer inquiry about a specific product at Willowbrook Organic Market.

Olivia Anderson is organizing her email folders and archiving completed messages.

Olivia Anderson is reviewing the inventory and making a list of items that need to be restocked.

Olivia Anderson is checking the schedule and assigning tasks to the employees.

Olivia Anderson is updating the pricing and promotions for the day's specials.

Olivia Anderson is reviewing customer feedback and making any necessary adjustments to improve customer satisfaction.

Olivia Anderson arrives at Willowbrook Organic Market and greets the employees.

Olivia Anderson checks her emails and responds to any urgent messages.

Olivia Anderson meets with local farmers to discuss their produce and negotiate prices.

Olivia Anderson meets with local artisans to discuss new products and potential collaborations.

Shopkeeper actions post-genre switch (High Fantasy):

Ophelia Evergreen is waking up and stretching to start her day.

Ophelia Evergreen is brewing a pot of magical herbal tea for her morning refreshment.

Ophelia Evergreen is taking a relaxing shower and getting dressed in her enchanting attire.

Ophelia Evergreen is enjoying a wholesome breakfast of freshly baked enchanted bread and locally sourced fruits.

Ophelia Evergreen is checking the inventory of magical potions and enchanted items at the Willowbrook Enchanted Market.

Ophelia Evergreen is restocking shelves with fresh herbs and mystical ingredients.

Ophelia Evergreen is organizing and arranging enchanted crystals and charms on the display counter.

Ophelia Evergreen is updating the pricing labels and signage for the products in the Willowbrook Enchanted Market.

Ophelia Evergreen is gathering the necessary ingredients for the enchanted bread.

Ophelia Evergreen is measuring and mixing the ingredients together in a large bowl.

Ophelia Evergreen is kneading the dough and shaping it into loaves.

Ophelia Evergreen is placing the loaves in the oven to bake.

Ophelia Evergreen is gathering her notes and materials for the meeting with Cedric Grant at Willowbrook Curiosity Emporium.

Ophelia Evergreen is walking to the Willowbrook Curiosity Emporium, enjoying the magical atmosphere of the town square along the way.

Ophelia Evergreen is entering the Willowbrook Curiosity Emporium and greeting Cedric Grant.

Ophelia Evergreen is engaging in a discussion with Cedric Grant, exchanging ideas and plans for future magical events and collaborations.

Appendix F

Example of self-evaluative heuristic prompting

This prompt is part of our heuristic function used to evaluate the quality of updated map areas. The LLM returns numeric scores based on the questions below, which are used to determine whether output from a genre-switch is adequate, or if the process needs to be repeated.

“Action: Compare the old and new environment areas and answer with a rating between 1-5, 1 being least accurate and 5 being very accurate.

Do not provide any explanation or further content outside of your numeric rating.

Question One: Observing high-level qualities (trope-aligned location traits, rough description, and overarching environmental descriptions) how accurate (similar) is the new map?

Question Two: Observing the content of the new map, how effective has the games master been in cleaning [*old genre*] specific language tropes?

Question Three: Analyzing the new map, how effective has the games master been in writing-in [*new genre*] specific content and tropes?”

Appendix G

Setting-Switcher memory content at initialisation

This is placed at the start of every prompt the agent receives. As the agent makes changes, its memory is updated: "X is now Y. Refer to Y where X is relevant". This helps manage hallucinations and improves consistency in outputs.

SURROUNDINGS: [*environment map*]

YOUR ROLE: You are the games master of a user-interactive game world.

CONTEXT: The user has specified they want to change the game setting to [*new genre*].

PROMPT: You are working to update every element of this user-interactive game world to be relevant within the new game setting.

YOUR GOALS:

1. Respond accurately to user input
2. Update all areas and elements of the game world convincingly, and in line with previous game mechanics.
3. Do not change object-agent relationships, or agent-agent relationships, which are integral to the simulation dynamics.
4. Respect and work within genre frameworks and tropes for the chosen setting.

Appendix H

Average importance score differences from generative agent memories inserted by Setting-Switcher

These scores have been collected from each agent across three separate experiments, each in different genre-settings. Importance scores are computed from numeric ratings generated in a self-evaluative function embedded within the generative agent memory structure. Importance scores impact the salience of a memory within an agent's memory stream, and the functions based on agent memory such as self-reflection, creating a knock-on effect to agent planning and actions.

Test 1: Fantasy

Agent 1:
Average importance scores of untagged memories: 0.06
Average importance scores of manipulated memories: 0.09

Agent 2:
Average importance scores of untagged memories: 0.07
Average importance scores of manipulated memories: 0.08

Agent 3:
Average importance scores of untagged memories: 0.06
Average importance scores of manipulated memories: 0.1

Agent 4:
Average importance scores of untagged memories: 0.06
Average importance scores of manipulated memories: 0.1

Agent 5:
Average importance scores of untagged memories: 0.06
Average importance scores of manipulated memories: 0.1

Agent 6:
Average importance scores of untagged memories: 0.07
Average importance scores of manipulated memories: 0.1

Total average scores: 0.06 / 0.1

Test 2: Sci-Fi

Agent 1:
Average importance scores of untagged memories: 0.05
Average importance scores of manipulated memories: 0.09

Agent 2:
Average importance scores of untagged memories: 0.08
Average importance scores of manipulated memories: 0.2

Agent 3:
Average importance scores of untagged memories: 0.1
Average importance scores of manipulated memories: 0.2

Agent 4:
Average importance scores of untagged memories: 0.08
Average importance scores of manipulated memories: 0.1

Agent 5:
Average importance scores of untagged memories: 0.06
Average importance scores of manipulated memories: 0.1

Agent 6:
Average importance scores of untagged memories: 0.09
Average importance scores of manipulated memories: 0.1

Total average scores: 0.4/0.1

Test 3: Romance

Agent 1:
Average importance scores of untagged memories: 0.07
Average importance scores of manipulated memories: 0.2

Agent 2:
Average importance scores of untagged memories: 0.09
Average importance scores of manipulated memories: 0.1

Agent 3:
Average importance scores of untagged memories: 0.1
Average importance scores of manipulated memories: 0.08

Agent 4:
Average importance scores of untagged memories: 0.07
Average importance scores of manipulated memories: 0.09

Agent 5:
Average importance scores of untagged memories: 0.08
Average importance scores of manipulated memories: 0.1

Agent 6:
Average importance scores of untagged memories: 0.1
Average importance scores of manipulated memories: 0.2

Total average scores: 0.07 / 0.1