The "Aha" Agent: a Role for Generative AI in Team-based Collaborative Creative Production

RAY LC
City University of Hong Kong
Hong Kong SAR, China
LC@raylc.org

Abstract

Artists and creatives have begun to utilize Generative AI (GenAI) to create inspiring work by leveraging its access to large datasets that can provide unexpected outputs in the human corpus of possibilities. So far, research has focused on how individual creative professionals work with GenAI, neglecting the role that other humans have in the process of co-creativity with GenAI. Here, we give examples of works generated in human creative teams while utilizing GenAI agents as ways to inspire creative ideas or implement human-level productions. We also share research into the way teams overcome challenges working with GenAI, and examine the way we perceive GenAI in machine-supported creative production. Our image and video examples generated by Stable Diffusion provide a case study for how this creative process with human and AI collaborators work in human-AI co-creativity..

Keywords

GenAI, creative support, teamwork in creativity, collaborative production, generative artworks.

Introduction

GenAI is being used across creative disciplines to empower artists and creative professionals to produce work while inspired by a large dataset of existing human knowledge condensed into the form of a generative agent. However, relatively few works have addressed the way GenAI is being used in teams in facilitating collaborative creation. Conversely, little is also known about how teams interpret GenAI work together with these agents in overcome their limitations and utilizing their inspiration.

This talk describes the collaborative process with GenAI by showing: (1) examples of works produced by the author in collaboration with humans in the creative workflow while working with GenAI tools like ChatGPT, Stable Diffusion, GPT-2, etc., often using them as instruments in the production or as ways to inspire the creative workflow (Figure 1); (2) a study of team-based creativity where art designers for a stage performance worked with each other in pairs to overcome challenges posed by GenAI (Midjourney in this case), while interpreting the GenAI as a tool rather than a collaborative member of the team. These two thrusts of art practice and art-based research results in an exploration of how GenAI affects the practice of collaborative art-making.

Works Described

The artworks discussed in this talk includes (Figure 1):

- RE:GENERATE - a set of Stable Diffusion Deforum-generated videos about the effect of, and adaptation to climate change, working between the artist and a Machine Learning artist programmer (Latisha Hendra).
- DIALOGUE - a film by the artist and a filmmaker (Yao Lan) including two separate segments with script generated in conversation with ChatGPT about two characters' discussion on an abandoned island of the future.
- IMITATIONS OF IMMORTALITY - a book of poetry generated by the artist and a collaborating editor-curator, who took GPT-2 outputs fine-tuned to major poets' oeuvre and adapted them to the book form.
- FRAGMENT OF OUR IMAGINATION - an installation including photos of grandparents who died before the artist and the collaborating photographer was born. The captions are alternative takes on the photos generated by ChatGPT and curated by the collaborating humans.
- THE PRESENT IN THE FUTURE IS THE PAST - a set of images of cultural heritage sites imagined by collaborating participants with the help of Stable Diffusion in a GenAI workshop for making images about the historical sites as part of an urban walk in the city.

The study discussed is published work led by the artist:

- Han YN, Qiu ZY, Cheng JL, **LC R**. (2024) "When Teams Embrace AI: Human Collaboration Strategies in Generative Prompting in a Creative Design Task." In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24)*, May 11-16, 2024, Honolulu, HI, USA. ACM, NY, USA, 14 pages. Online.

In the study, pairs of performers and artists created art designs for a performance based on the theme of a poem by Dylan Thomas. The study explored how GenAI made ideas tangible for the collaborators, mediated conflict when disagreements arise, and created points of unexpected inspiration when attempting to implement specified idea.

Exhibition: https://gallery.styly.cc/scene/b9194fe7-5b8c-4235-9001-2fa380c7eb01

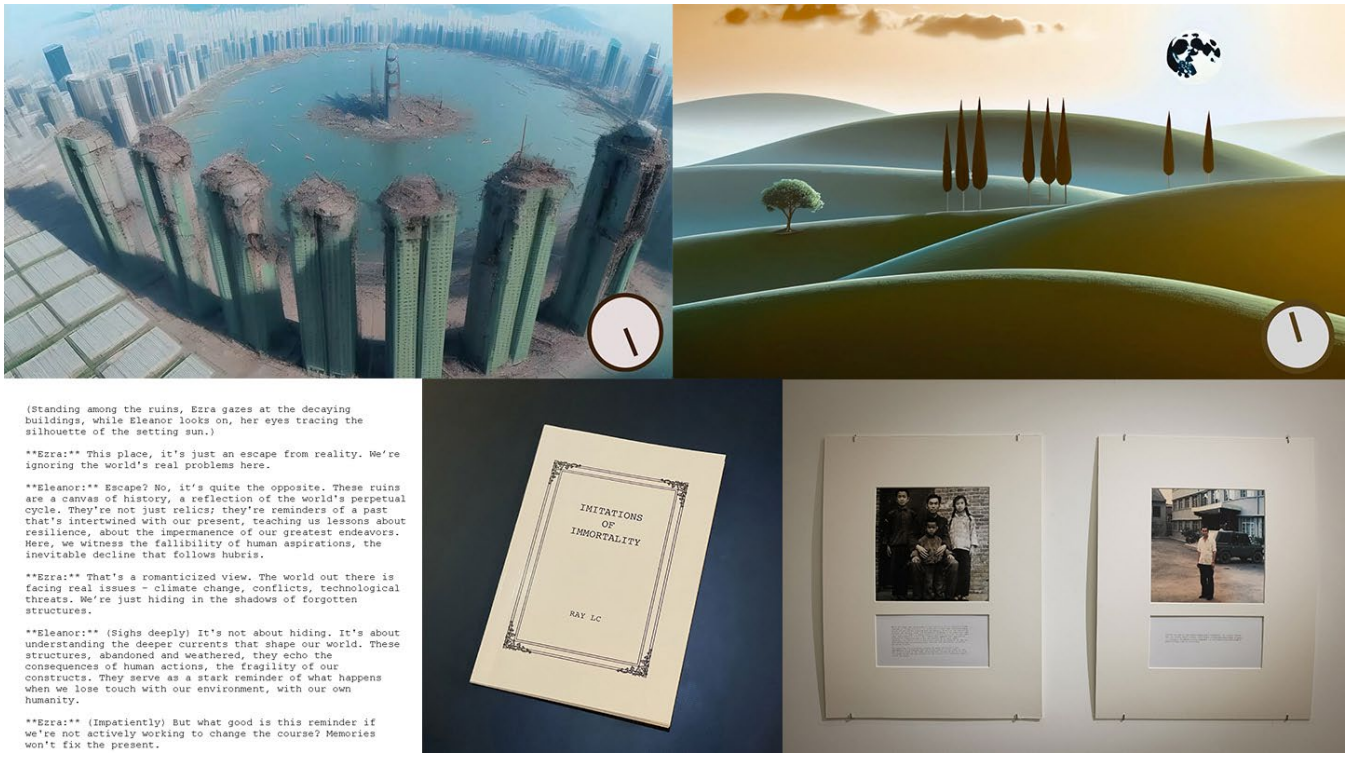

Figure 1. Generative AI-produced artworks where teams collaborated while the GenAI served as agents of inspiration and implementation. **(Upper)** Stills from RE:GENERATE, a Stable Diffusion 1.5-generated series of videos showing climate destruction and adaptation, created in collaboration between the author and a Machine Learning artist. **(Lower left)** ChatGPT-prompted film script for DIALOGUE, a narrative film by the author and a collaborating filmmaker. **(Lower middle)** A book of poetry created by the author and an editor based on outputs from GPT-2 fine-tuned to different poets' oeuvre. **(Lower right)** Two examples from a set of photographs of the artists' grandparents with captions curated from ChatGPT interpretations of the photos in a collaborative exhibition between the author and a photographer. All the works described are created using GenAI (Stable Diffusion, ChatGPT, GPT, DALL-E2, etc.) and in collaboration with human artists, filmmakers, editors, curators, or photographers, with the GenAI serving either as an instrument or as a key agent of inspiration.

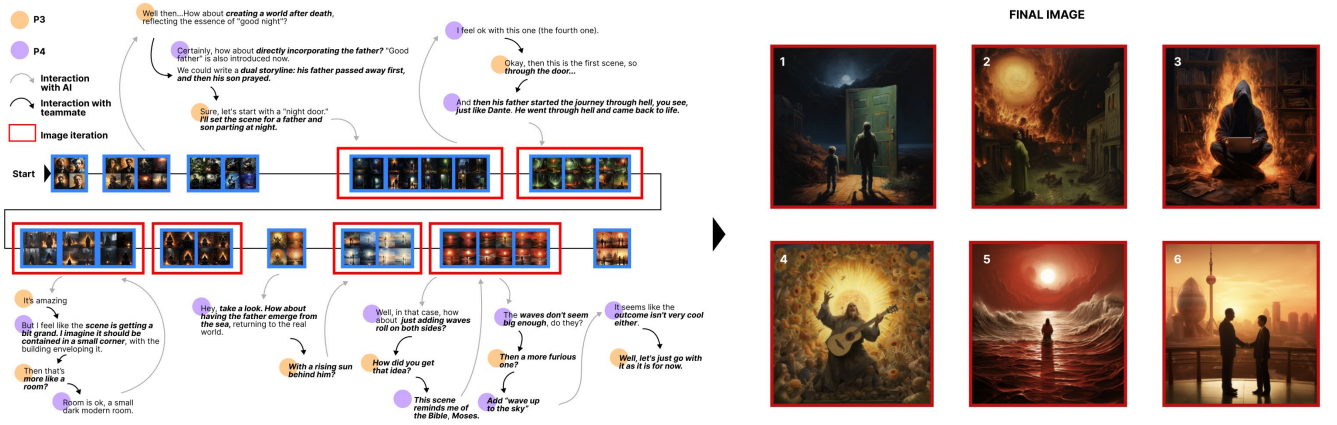

Figure 2. The documented process of collaboration in an example study that allowed stage designers, performers, and architects use GenAI in a team to create a backdrop for a stage performance based on the theme of "Do Not Go Gentle Into That Good Night" by Dylan Thomas. The study took place with 18 subjects (9 pairs of collaborators) along with Stable Diffusion 1.5 and occasional use of ChatGPT. The process of redoing prompts until the outcomes are satisfactory and inspired is shown on the left. A selection of the final outcome images produced by the participants is shown on the right.

Author Biography

RAY LC's practice creates interaction environments for building bonds between humans and machines. He uses human-computer interaction and speculative narrative approaches in diverse media to probe the ways humans adapt to technologies and machines in the context of spatial environmental influences. He takes perspectives from his own research in neuroscience (Nature Communications) and in HCI (CHI, CSCW, HRI, DIS) in his artistic practice, with notable exhibitions at BankArt, New York Hall of Science, KYOTO Design Lab, Elektra Montreal, Ars Electronica Linz, NeON Digital Arts Festival, Saari Residency, New Museum, NYC Short Documentary Film Festival, NeurIPS, Deconstrukt NYC, Angewandte Festival, Elektron Tallinn, Floating Projects HK, Jockey Club Creative Arts Centre, Osage Gallery, Macau Art Biennale, Videotage HK, Soho House Hong Kong, Goethe Institute, Hong Kong Arts Centre, PMQ, Science Gallery MSU, ISEA, IEEE VISAP, SIGGRAPH Asia.

RAY comes from Cal Berkeley EECS-Math (BS), UCLA Neuroscience (PHD), Parsons School of Design (MFA). He has been awarded by Japan Society for the Promotion of Science, Verizon Connected Futures, Adobe Design Award, Microsoft Imagine Cup, Kone Foundation, Davis Peace Foundation, NY Foundation for the Arts, Hong Kong Arts Development Council, Hong Kong Research Grants Council General Research Fund, Lumen Prize. RAY founded the Studio for Narrative Spaces: https://recfro.github.io/