

THE PRESENT IS IN THE FUTURE: Participatory Generative AI Co-Created Visions as Intangible Cultural Heritage

RAY LC
City University of Hong Kong
Hong Kong
LC@raylc.org

ABSTRACT

Museums often show visions of Cultural Heritage (CH) as tangible forms represented through our current lenses of what they ought to be in our perception, showing reconstructions that show our own limited visions and biases about what we imagine the CH to have been. Often neglected are the human connections to these sites, their childhood memories, their relationships with what happened there, their conceptions of what the CH symbolizes in their lives and their communities. We applied Generative AI (GenAI) to let participants express their visions of CH in concrete forms, showing their relationships to these sites through the process of GenAI interactions that lead to visual depictions full of details revealing their perceptions of the CH. The resulting images are shown as images of different CH locations in Hong Kong on a map as imagined present and future forms, and also as a set of drawings iteratively being sketched by a drawing-robot, which converts the intangible form of record into tangible media. This work demonstrates the use of GenAI technology to empower a form of realization of human imagination for social purpose.

CCS CONCEPTS

• Applied computing → Media arts.

KEYWORDS

Generative AI, Intangible Cultural Heritage, Interactive Installation

ACM Reference Format:

RAY LC. 2024. THE PRESENT IS IN THE FUTURE: Participatory Generative AI Co-Created Visions as Intangible Cultural Heritage. In *The 17th International Symposium on Visual Information Communication and Interaction (VINCI 2024)*, December 11–13, 2024, Hsinchu, Taiwan. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3678698.3687200>

1 INTRODUCTION

The way we preserve the past is a lens into how we may preserve the present for the future. Visitors to historical Cultural Heritage (CH) sites are often only able to observe the current degraded state of these locations without the understanding of their history and personal connection possessed by local inhabitants. Museums often show photos and 3D reconstructions of these sites without

providing the crucial missing data of how people of the time had relationships with these places, including their memories of childhood at these locations, habits growing up there, family and local customs involving these places, what they mean to the people as part of their identities, etc. What the CH sites mean to them now is data for our looking back from the future, just as the historical past is viewed with nostalgia and regret by us today.

Based on previous work with GenAI participatory interventions [3, 14–16, 18], we facilitate expression of this intangible information regarding CH with a participatory design workshop for residents to describe and imagine their CH sites in their own imagined past and future states, a speculative design method we previously employed in context of climate change [11–13, 17, 19]. As described in recent work [2], we applied GenAI text-to-image tools to empower people without sketching and design ability to imagine alternative states of CH sites, obtaining a series of image data from human-GenAI collaboration that serves as process data for their thoughts, connections, and relationships to CH.

2 ART WORK DESCRIPTION

The intangible data is displayed in exhibition form, including:

- (1) Selected images as generated by participants about connection to CH locations in Hong Kong,
- (2) An Augmented layer of participant images on top of a map of CH sites in the city,
- (3) Sketch forms of the generated images as tangibly drawn sequentially by a drawing robot.

The collected imagined CH images forms a dataset of preserving intangible human cultural connections with CH for the future. The AR app uses markers on a large scale map model of the city to enrich understanding of each CH with the corresponding human-GenAI-created images. The drawing robot physically instantiates these imaginations of CH by sketching selected images from the workshop sequentially, creating a wall of images that visualizes a collective imagining of the city's CH. The physical instantiation of the intangible heritage is made concrete by robot action.

Previous work have created participatory GenAI installations [4–6, 8], embedded in exhibition and performative formats [1, 7, 9, 10]. This approach shows that previous visitors have found the experience engaging for illuminating intangible connections of people to CH sites. Moreover the findings of human-GenAI interactions suggests that humans overcome challenges posed by the technology and bias engrained in these AI models, creating a customized strategy for speaking their imagination into existence, illuminating their connections to CH in process form. This work highlights the way GenAI-supported workflows can empower imagination and expression of data for social purpose.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

VINCI 2024, December 11–13, 2024, Hsinchu, Taiwan

© 2024 Copyright held by the owner/author(s).

ACM ISBN 979-8-4007-0967-8/24/12

<https://doi.org/10.1145/3678698.3687200>

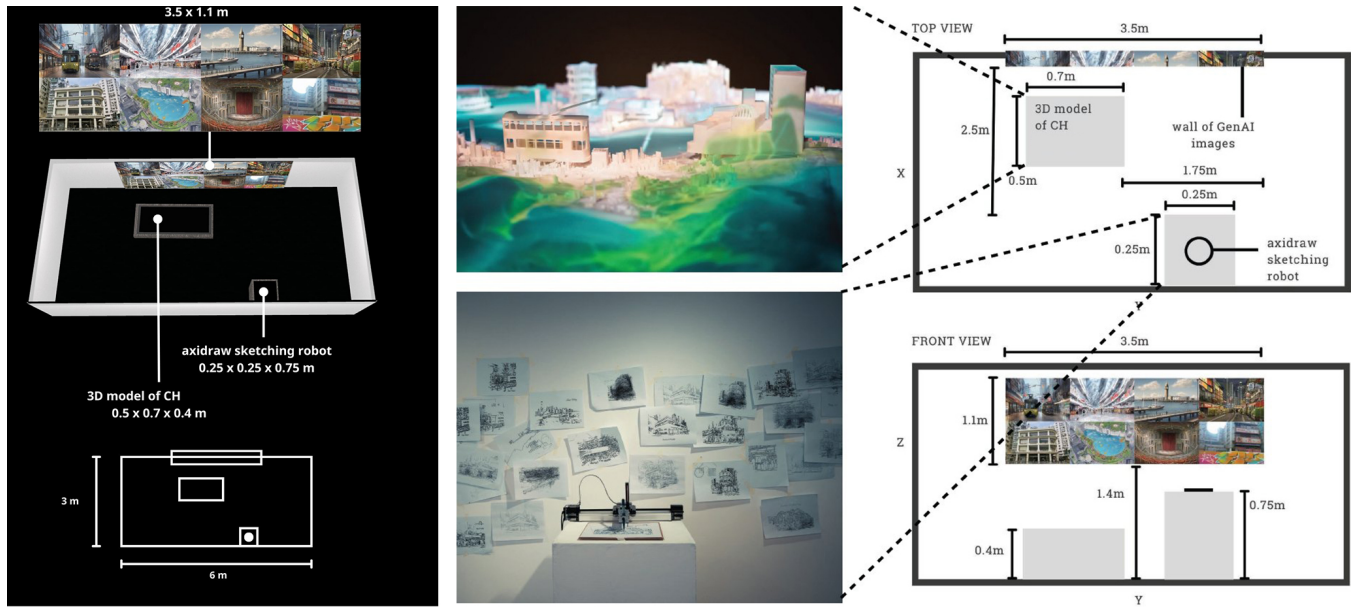


Figure 1: Floor plan for the installation, including 3D view (left), robotic realization (middle), and detailed specs (right).

3 PROPOSED INSTALLATION

We include: (1) Images created by participants shown on printed paper. (2) The optional app showing the images is available on Android. (3) Pre-installed Axidraw robot can be shipped.

Either 2D or 3D maps works for the AR interaction. 2D maps can be printed on-site. Axidraw robot can be brought on the plane or shipped. The AR and robot code are [online](#), and are pre-installed.

REFERENCES

- [1] Jiaxun Cao, Qingyang He, Zhuo Wang, RAY LC, and Xin Tong. 2023. DreamVR: Curating an Interactive Exhibition in Social VR Through an Autobiographical Design Study. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (Hamburg, Germany) (CHI '23). Association for Computing Machinery, New York, NY, USA, Article 511, 18 pages.
- [2] Kexue Fu, Ruishan Wu, Yuying Tang, Yixin Chen, Bowen Liu, and RAY LC. 2024. "Being Eroded, Piece by Piece": Enhancing Engagement and Storytelling in Cultural Heritage Dissemination by Exhibiting GenAI Co-Creation Artifacts. In *Proceedings of the 2024 ACM Designing Interactive Systems Conference (DIS '24)*. Association for Computing Machinery, New York, NY, USA, 2833–2850.
- [3] Yuanning Han, Ziyi Qiu, Jiale Cheng, and RAY LC. 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)*. Association for Computing Machinery, New York, NY, USA, 1–14.
- [4] RAY LC. 2022. Imitations of Immortality: Learning from Human Imitative Examples in Transformer Poetry Generation. In *10th International Conference on Digital and Interactive Arts (Aveiro, Portugal)* (ARTECH 2021). Association for Computing Machinery, New York, NY, USA, Article 8, 9 pages.
- [5] RAY LC. 2023. HUMAN ENOUGH: A Space for Reconstructions of AI visions in Speculative Climate Futures. In *Proceedings of the 15th Conference on Creativity and Cognition (Virtual Event) (C&C '23)*. Association for Computing Machinery, New York, NY, USA, 217–222.
- [6] RAY LC. 2023. TOGETHER ENOUGH: Collaborative Constructions of Adaptations to Climate Futures. In *Companion Publication of the 2023 ACM Designing Interactive Systems Conference (Pittsburgh, PA, USA) (DIS '23 Companion)*. Association for Computing Machinery, New York, NY, USA, 55–59.
- [7] RAY LC and Mizuho Kappa. 2022. Presentation of Self in Machine Life : A human-machine performance. In *2022 IEEE VIS Arts Program (VISAP)*. 12–13.
- [8] RAY LC, Sijia Liu, Latisha Besariani Hendra, and Kexue Fu. 2024. TIME ENOUGH: Generative AI Visions of Climate Change as Cave Paintings of the Future. In *Proceedings of the 16th Conference on Creativity & Cognition (C&C '24)*. Association for Computing Machinery, New York, NY, USA, 608–613.
- [9] RAY LC, Sijia Liu, and Qiaosheng Lyu. 2023. IN/ACTIVE: A Distance-Technology-Mediated Stage for Performer-Audience Telepresence and Environmental Control. In *Proceedings of the 31st ACM International Conference on Multimedia* (Ottawa, Canada) (MIM '23). Association for Computing Machinery, New York, NY, USA.
- [10] RAY LC, Sihuang Man, Xiyang Bao, Jinhan Wan, Bo Wen, and Zijing Song. 2023. "Contradiction pushes me to improvise": Performer Expressivity and Engagement in Distanced Movement Performance Paradigms. *Proc. ACM Hum.-Comput. Interact.* 7, CSCW2, Article 333 (oct 2023), 26 pages.
- [11] RAY LC and Daijuro Mizuno. 2021. Designing for Narrative Influence: Speculative Storytelling for Social Good in Times of Public Health and Climate Crises. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems (Yokohama, Japan) (CHI EA '21)*. Association for Computing Machinery, New York, NY, USA, Article 29, 13 pages.
- [12] RAY LC and Vincent Ruijters. 2022. CHI KYUCHI: In-person/remote game exhibition for climate change influence. In *Sixteenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '22)*. Association for Computing Machinery, New York, NY, USA, 1–4.
- [13] RAY LC, Zijing Song, Yating Sun, and Cheng Yang. 2022. Designing narratives and data visuals in comic form for social influence in climate action. *Frontiers in Psychology* 13:893181 (2022).
- [14] RAY LC and Yuying Tang. 2023. Speculative Design with Generative AI: Applying Stable Diffusion and ChatGPT to imagine climate change futures. In *Proceedings of the 11th International Conference on Digital and Interactive Arts (ARTECHae'23)*. ACM, New York, NY, USA., Faro, Portugal: 28–30 November.
- [15] Sijia Liu, Kexue Fu, Xiaoke Zeng, and RAY LC. 2024. Falling Echoes: Expressing the Act of Falling in Dreams Through Generative AI. In *International Symposium on Electronic Art*. Brisbane, QLD, Australia.
- [16] Sijia Liu, RAY LC, Kexue Fu, Qian Wan, Pinyao Liu, and Jussi Holopainen. 2024. Dreamscaping: Supporting Creativity By Drawing Inspiration from Dreams. In *Proceedings of the 16th Conference on Creativity & Cognition (C&C '24)*. Association for Computing Machinery, New York, NY, USA, 93–99.
- [17] Zijing Song, Yating Sun, Vincent Ruijters, and RAY LC. 2021. Climate Influence: Implicit Game-Based Interactive Storytelling for Climate Action Purpose. In *Interactive Storytelling*, Alex Mitchell and Mirjam Vosmeer (Eds.). Springer, Cham.
- [18] Daijin Yang, Yanpeng Zhou, Zhiyuan Zhang, Toby Jia-Jun Li, and RAY LC. 2022. AI as an Active Writer: Interaction strategies with generated text in human-AI collaborative fiction writing. In *Joint Proceedings of the IUI 2022 Workshops: HAI-GEN, HEALTHI, HUMANIZE, TExSS, SOCIALIZE*. CEUR-WS, 56–65.
- [19] Suifang Zhou, Latisha Besariani Hendra, Qinshi Zhang, Jussi Holopainen, and RAY LC. 2024. Eternagram: Probing Player Attitudes Towards Climate Change Using a ChatGPT-driven Text-based Adventure. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24)*. Association for Computing Machinery, New York, NY, USA, 1–23.