AI-Supported Dance Performances Provoke Audiences to Seek Creative Merit and Meaning in AI's Artistic Decisions

Jacqueline Elise Bruen
Computer Science
Virginia Tech
Blacksburg, Virginia, USA
jacquelineb@vt.edu

Myounghoon Jeon
Industrial and Systems Engineering
Virginia Tech
Blacksburg, Virginia, USA
myounghoonjeon@vt.edu

Abstract

With the development of tools using generative artificial intelligence (GenAI) to create art, stakeholders cannot come to an agreement on the value of these works. In this study we uncovered the mixed opinions surrounding art made by AI.

We developed two versions of a dance performance augmented by technology either with or without GenAI. For each version we informed audiences of how the performance was developed either before or after they had taken a survey on their perceptions of the performance. There were thirty-nine participants (13 males, 26 female) recruited and divided between the four performances. After the survey, we conducted focus groups with a subset of audience members. Results demonstrated that individuals were more inclined to attribute artistic merit to works made by GenAI when they were unaware its use. Our work contributes to the understanding of the design and reception of AI-made art.

CCS Concepts

• **Human-centered computing** → **Empirical studies in HCI**; **User studies**; *Interaction paradigms.*

Keywords

Generative AI, Live Performance, Technology in Arts

ACM Reference Format:
Jacqueline Elise Bruen and Myounghoon Jeon. 2025. AI-Supported Dance Performances Provoke Audiences to Seek Creative Merit and Meaning in AI's Artistic Decisions. In *Creativity and Cognition (C&C '25), June 23–25, 2025, Virtual, United Kingdom.* ACM, New York, NY, USA, 8 pages. https://doi.org/10.1145/3698061.3734397

1 Introduction

While the use of computers to help create art has been accepted by the general public, GenAI has brought this into question; GenAI can produce high-quality artistic media [3, 5, 9]. While research has been done on how GenAI might impact the cultural footprint of society [6, 12, 22], and individuals have written commentary on how it can either be a boon or bane to the art community [4, 7, 10, 11, 18], little research has been done to uncover the biases against GenAI art. The present study seeks to understand (RQ1) how withholding information on a technologically augmented artwork was made would impact how audiences valued the work, and (RQ2) how the type of technology used (GenAI versus traditional digital tools) would influence audiences' perceptions of the creative merits of the work.

We developed two versions of a technologically augmented dance performance; one made using non-AI software, and the other made using generative and non-generative AI software. We developed a Likert scale survey for audience members which included questions on the creative value and aesthetics of the technological components of the performances. To uncover potential biases against the technologies, we withheld information on how the performances were made to half of our audience members until after they had finished the survey. Hence, in this 2x2 between-subjects design we held four different performances (AI/Tell Before, AI/Tell After, Non-AI/Tell Before, Non-AI/Tell After). We analyzed the results of the Likert scale [14] surveys using Mann-Whitney tests [16, 25] and found trends between different pairs of performance responses reported in Section 3.

We conducted focus groups of 3-7 audience members after each performance. We asked these participants for their thoughts on the performances and the intersection of art and technology. Our data from these focus groups consisted of a set of affinity groups.

The present work has both practical and theoretical implications. From a practical perspective, artists can use our findings to inform how they make and present their work. Understanding how subjective works are presented to and received by audiences can inform fields that apply art and technology, such as advertising. GenAI is already being used in marketing materials with mixed responses from consumers, as a recent Coca-Cola commercial illustrated [8]. From a theoretical perspective, our work serves as an application of the MAIN (Modality, Agency, Interactivity, and Navigability) model [23] which can be used to explain how people develop credibility judgments of technology.

2 Methods

We developed four technologically augmented dance performances in collaboration with a professional dancer. Figures 3 and 4 in Appendix A show artifacts from our development process. Our two independent variables aligned with our research questions: (RQ1) the time when we revealed how the performance was developed, and (RQ2) the type of technology used to develop the performance.

C&C '25, Virtual, United Kingdom

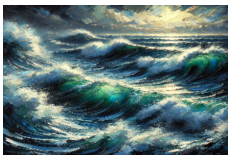
ACM ISBN 979-8-4007-1289-0/25/06
https://doi.org/10.1145/3698061.3734397

2.1 Participants

For the "Non-AI/Tell Before" and "Non-AI/Tell After" performances, we used technology to alter the visuals and a subset of the sound that accompanied the dancer; this technology did not include AI. Participants were told about the technology either before the performance started or after the performance and survey described in 2.2.3. Eight participants attended the Non-AI/Tell Before performance, (3 male, 5 female) with an average age of 23.75 (SD = 4.80). Ten participants attended the Non-AI/Tell After performance, (4 male, 6 female) with an average age of 25.30 (SD = 4.99).

In the "AI/Tell Before" and "AI/Tell After" performances, we also used technology to alter the visuals and sounds, but this technology included AI. Participants were told how the technology was used either before the performance started or after the performance and survey. Twelve participants attended the AI/Tell Before performance, (4 male, 8 female) with an average age of 29 (SD = 7.11). Nine participants attended the AI/Tell After performance, (2 male, 7 female) with an average age of 23.89 (SD = 3.89).

(a) AI Scene 1 imagery



(b) AI Scene 2 imagery

(c) AI Scene 3 imagery

Figure 1. Imagery for each scene of the AI performance version.

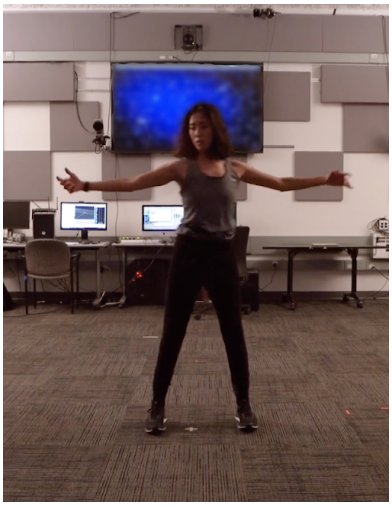


Figure 2. The dancer during the performance

2.2 Materials

Our materials included the two performance variations, a survey, and semi-structured focus groups.

In both performances, we used a respiratory belt and a 12-camera motion tracking system to obtain live data of the dancers' breathing and location throughout the performance. We used the Vernier Go Direct Respiration Belt and the Qualisys Track Manager (QTM) system with 12 Qualisys Oqus cameras positioned on the walls of the studio. The Qualisys infrared cameras detected the reflective markers we positioned on the dancers' ankles. Live data were used to dynamically change the visuals on a large, mounted television screen behind the dancer and create a sonification for scene 2 of the three four-minute scenes. We aligned our usage of technology with the dancer's vision for the performance.

Two versions of the performance were developed. The dancer's choreography and the performance's structure were kept the same. The performances differed in the use of technology as a creative collaborator. In the non-AI performances, the creative technological decisions were made by the technologist. In the AI performances, some of the creative portions of the technologist's work were made or supported by AI.

The two versions of the 12 minute performance included the following scenes:

Scene 1 - Flowers: Imagery of flower petals–petals drifted through the sky according to the dancer's respiratory rate. No sound was played. Figure 1.a depicts the imagery for this scene in the AI performance.

Scene 2 - Waves: Imagery of waves–waves moved according to the dancer's location. Sonification of the dancer's position was projected by a speaker. Figure 1.b depicts the imagery for this scene in the AI performance.

Scene 3 - Stars: Imagery of stars in a night sky–the stars brightened and multiplied or dimmed and faded in accordance with the dancer's breathing patterns. Figure 1.c depicts the imagery for this scene in the AI performance. Music chosen by the dancer was played during this scene.

2.2.1 Human Technologist+Dancer Performance Design. In this performance, all decisions on how to map data streams to produce imagery and sonification were made by the technologist.

The technologist sourced imagery from human-produced paintings and photographs. This imagery was then made to dynamically change with the live data by layering multiple images on top of one another and altering them conditionally according to data mappings designed by the technologist.

The data mapping for the petals in scene 1 increased the distance the petals moved from their last position and brightened the sky in the background when the dancer's breathing rate increased, and decreased the distance and darkened the sky when the dancer's breathing rate decreased. The mapping for the waves in scene 2 moved the waves left and right, up and down, and forward and backward in accordance with the dancer's position in the room along the x, y, and z axes respectively. Finally, the mapping for the stars in scene 3 increased and decreased the brightness of the stars as the dancer's breathing rate increased and decreased. Figure 2 shows the dancer during the performance.

The data mapping for the sonification was facilitated by segmenting the stage into five equal sections along each of the three axes (x, y, and z). Each of these axes was mapped to a different musical scale. At any location where the dancer was, the audience would hear three notes (one note from each of the three axis scales) played in unison in accordance with the three segments (one segment per axis) of the stage.

2.2.2 AI in the Loop Performance Design. In this performance version, the technologist delegated the imagery and data mapping designs to AI (ChatGPT) [19]. Rather than tracking the dancer's position directly in scene 2, a neural network model was built using three dance subroutines used in scene 2. The neural network then

provided probabilities of each of these dance subroutines currently happening during the live performance.

When asking the AI for ideas, it produced many options. The technologist consulted the dancer to decide which ideas should be used. Our prompts to ChatGPT and the responses we used are in the Appendix B.1.

2.2.3 Survey. The survey collected audience's feedback across three dimensions: 1) Creative value of technological components, 2) Technological components' influence on the coherency of the performance, and 3) Observation of changes in the performance produced by technology.

Our survey is in the Appendix B.2. The survey consisted of 29 five point Likert scale questions for the two "Tell Before" performance audiences. For the two "Tell After" performance audiences, we added six additional Likert scale questions; at the end of this survey we gave the participants the opportunity to write any connections they may have noticed between the dancer and the sonification in scene 2. We allocated 10 minutes for the survey.

To analyze our Likert scale survey data, we performed Mann-Whitney tests on the non-parametric data. We compared the following audience sets: 1) AI/Tell Before vs. Non-AI/Tell Before, 2) Non-AI/Tell Before vs. Non-AI/Tell After, 3) AI/Tell Before vs. AI/Tell After, and 4) AI/Tell After vs. Non-AI/Tell After.

Because we added six additional Likert scale questions to the surveys in the "Tell After" conditions, we only included the 29 baseline questions in our Mann Whitney tests for all but the last comparative case (AI, Tell After vs. Non-AI, Tell After). In the last case, both groups experienced the "Tell After" condition, so we were able to include the six additional Likert questions as dependent variables in our Mann Whitney test.

2.2.4 Focus Group. We conducted a 3-7 person focus group after every performance. Interview questions varied slightly based on the conditions the audience experienced. Our focus group outline is in the Appendix B.3.

2.3 Procedure

The research materials and design was approved by our institution's IRB. The procedure across all four performances was the same except for the time we informed participants of technology. For the performances assigned the "Tell Before" condition, we informed participants before the performance started. For the "Tell After" performances, we informed them after they had taken the survey.

Audience members were led into the studio where they sat around the stage. For five minutes, audience members of the "Tell Before" performances heard an explanation of technology's role in what they would see. The performance then began and lasted for 15 minutes. After the performance, informed consent documents for the study were distributed; interested individuals who verbally consented to the researcher were then given a QR code to the survey, which took approximately 10 minutes. After the survey, audience members of the "Tell After" performances heard an explanation of how technology was used. Interested audience members were invited to also participate in a small focus group. This semi-structured focus group took an additional 20 minutes, and was audio recorded for later transcription and analysis. Consent for this focus group was implied by the participant joining in the activity.

3 Results

There was statistical significance (confidence interval = 95%) for a selection of questions after conducting Mann-Whitney tests for the four performance sets where one independent variable was held constant; these are shown in Table 1.

Focus group data were audio recorded and transcribed. Quotes from each focus group were made into affinity diagrams. An affinity diagram was produced for each of the four performances. The groups in each affinity diagram were named and are displayed in Table 2.

4 Discussion and Limitations

For those that experienced the Non-AI condition but were told about technology at different times, the audience told before rated higher on survey questions pertaining to finding and thinking about patterns in the visuals during the performance. This audience group also thought the visuals were more distracting than the audience told after. These results were in line with work on the effects of learned value on attentional capture [1]. Once the audience was made aware of the value of the visuals, the visuals became more salient to them.

For audiences that experienced the AI condition and were told how the performance was built at different times, those told after the survey ended rated significantly higher on survey questions pertaining to the artistic merit of the visuals. The audience told before the performance rated significantly higher on the survey question: "The projected visuals appeared random." These results reflect similar findings to those presented in [17], in which participants who were told how an artwork was created were more likely to consider a human creator of the work an artist than they would consider a robot to be. Our study differed in that we temporarily obscured information about the production of art. In doing so, we could further isolate the biases observed by [17]. Even when both performances used artistic decisions made by AI, participants told after taking the survey rated the performance significantly higher on questions pertaining to artistic merit. Our results suggest that viewers' awareness of how a creative work is produced influences their perception of the work's artistic value; the AI/Tell After audience gave significantly higher scores on survey questions related to the artistic merit of the work, while the AI/Tell Before group scored significantly higher on questions related to the work appearing "random."

When comparing the results for the "Tell After" audiences, those who experienced the AI performance rated significantly higher on survey questions related to their curiosity. Audience members who experienced the Non-AI performance rated higher on survey questions pertaining to the complementary nature of the sound.

These results align with research on the behavior of GenAI and art interpretation. GenAI is known to make mistakes [13, 21] and prompters lack fine-grained control in driving the output [15, 20]. Those lacking context when viewing art can perceive any product made by an artist as intentional [2]. Thus, there is potential for an audience to attribute meaning to artistic products of GenAI

Performance Comparison	Statistically Significant Survey Response Differences
Both told before, comparing technology type	• The projected visuals enhanced the performance (Z = -2.667, p = .008, the Non-AI performance rated higher, [AI version: M = 2.00, SD = .739; Non-AI version: M = 3.25, SD = .886]). • The projected visuals were distracting (Z = -2.025, p = .043, the Non-AI performance rated higher, [AI version: M = 2.00, SD = 1.348; Non-AI version: M = 3.13, SD = .991]). • The projected visuals appeared random (Z = -2.130, p = .033, the AI performance rated higher, [AI version: M = 3.67, SD = 1.073; Non-AI version: M = 2.62, SD = .916]).
Both Non-AI, comparing time told	• The projected visuals were distracting (Z = -3.333, p = <.001, the "Tell Before" performance rated higher, [Tell before: M = 3.13, SD = .991; Tell after: M = 1.30, SD = .483]). • I tried to see if there was a pattern in the visuals (Z = -2.789, p = .005, the "Tell Before" performance rated higher, [Tell before: M = 4.88, SD = .354; Tell after: M = 3.60, SD = 1.075]). • I thought about how the visuals were created. (Z = -3.180, p = .001, the "Tell Before" performance rated higher, [Tell before: M = 4.50, SD = .756; Tell after: M = 2.30, SD = 1.160]). •]). I tried to make a connection between what the dancer was doing and the visuals. (Z = -2.049, p = .040, the "Tell Before" performance rated higher, [Tell before: M = 4.88, SD = .354; Tell after: M = 3.90, SD = 1.370]).
Both AI, comparing time told	• The projected visuals complemented the performance (Z = -2.411, p = .016, the "Tell After" performance rated higher, [Tell before: M = 2.33, SD = .778; Tell after: M = 3.33, SD = 1.00]). • The projected visuals enhanced the performance (Z = -2.007, p = .045, the "Tell After" performance rated higher, [Tell before: M = 2.00, SD = .739; Tell after: M = 2.89, SD = 1.054]). • The projected visuals demonstrated artistic merit (Z = -2.501, p = .012, the "Tell After" performance rated higher, [Tell before: M = 2.83, SD = 1.030; Tell after: M = 4.11, SD = 1.054]). • Being informed about the production of a piece of art would impact its monetary valueThe projected visuals appeared random (Z = -2.698, p = .007, the "Tell Before" performance rated higher, [Tell before: M = 3.67, SD = 1.073; Tell after: M = 2.22, SD = .972]).
Both told after, comparing technology type	• The projected visuals were distracting (Z = -2.008, p = .045, the AI performance rated higher, [AI version: M = 2.56, SD = 1.509; Non-AI version: M = 1.30, SD = .483]). • I thought about how the visuals were created (Z = -2.795, p = .005, the AI performance rated higher, [AI version: M = 4.11, SD = 1.054; Non-AI version: M = 2.30, SD = 1.160]). • I wondered why the visuals were chosen (Z = -2.162, p = .031, the AI performance rated higher, [AI version: M = 4.44, SD = .726; Non-AI version: M = 3.50, SD = .972]). • The sound in part 2 complemented the performance (Z = -2.061, p = .039, the Non-AI performance rated higher, [AI version: M = 3.56, SD = .882; Non-AI version: M = 4.30, SD = .483]). • The sound in part 2 enhanced the performance (Z = -2.253, p = .024, the Non-AI performance rated higher, [AI version: M = 3.78, SD = .667; Non-AI version: M = 4.50, SD = .527]). • The sound in part 2 fit with the other sounds in the performance (Z = -1.973, p = .048, the Non-AI performance rated higher, [AI version: M = 2.44, SD = .882; Non-AI version: M = 3.50, SD = 1.269]). • I wondered what caused the visuals to change (Z = -2.201, p = .028, the AI performance rated higher, [AI version: M = 4.33, SD = .707; Non-AI version: M = 3.20, SD = 1.135]).

Table 1: Statistically significant survey responses rendered from MANOVAs

that were unintended by the prompter. [24] specifically examined the intentionality of art made by AI and argued for a shift in the placement of intentionality towards the final product.

Participants who experienced the AI/Tell Before performance were more curious as to why certain artistic decisions were made. These participants may have been searching for artistic intention in the AI performance which could have been more apparent in the non-AI performance. We see from the higher audience ratings on the complementary nature of the sound in the non-AI performance that participants could draw relational conclusions between the elements of the non-AI performance more easily than the AI performance. The MAIN model [23] explicates that two technologies can offer the same affordance (Modality, Agency, Interactivity, or Navigability), but cue different heuristics and ultimately lead to different value judgements. In our case, the technologies used in the two performances offered the interactivity affordance. Participants may have been cued by the visuals and sound of the non-AI performance to attribute the "Responsiveness" heuristic to that performance because the relationship between the dancer's actions and the system's reactions might have been clearer. The AI performance on the other hand might have cued the "Contingency" heuristic, which suggests a more subtle relationship between the performer and the technology. These heuristics could have ultimately led to different heuristic-based judgments on the creative merits of the performances.

Our focus groups yielded affinity diagrams for each audience. Three of four affinity diagrams included quotes related to using AI to further artists' goals; P3 qualified this by saying "the key with an

Performance	Affinity Groups
Non-AI, Tell Audience Before	• Underlying meaning and dancer's aesthetic choices • Looking out for technical augmentations during the performance • Fluidity and responsiveness of technology's response to the performer's actions • The novelty of tech + art • GenAI as a tool to further artists' goals/Artist-centric collaboration with GenAI • People can find meaning in anything, and GenAI art is no exception • Ownership concerns in GenAI • Physical art is deemed to have higher intrinsic value
Non-AI, Tell Audience After	• The focus was on the dancer; audience ignored the screen • Preference to identify a "deeper meaning" in the work • GenAI as an artist-driven tool • Reflecting on the performance post-explanation • Forming questions and theories during the performance • Skills required to create art should influence its value • Purpose of the art determines its value • GenAI content sourcing concerns • Limitations in guiding GenAI as it creates limits its ability to produce quality art
AI, Tell Audience Before	• Using GenAI as a tool (to overcome deficits of skill, or provide uninhibited inspiration) • GenAI art can't meet the objectives of human-made art (e.g., political commentary, self-expression, the human experience) • Copyright and natural resource concerns of AI • Need to hear dancer's objectives to situate the whole performance and draw meaning • Visuals should not deter attention from the performer • Difficulty remembering or interpreting how the technology would behave • Sensitivity and responsiveness of technology should be more apparent to match the performer • Being informed about the production of a piece of art would impact its monetary value
AI, Tell Audience After	• The visuals were not as fluid as the performer; occasionally they lacked responsiveness • Expectations and trying to find patterns during the performance • Reinterpreting the performance with new information • Using technology subtly with the performer as the focal point • Art is art because the human creator brings meaning to it • AI can be used as a peripheral tool to support the artist • Concerns about AI with respect to consumption of natural resources, compensation of artists, and discouragement of the practice of thinking creatively

Table 2: Affinity groups developed from each performance focus group

artist is that they're able to consistently bring meaning to a design and other people are able to notice that... when an artist is able to use technology to bring more meaning... it could be very powerful." P10 spoke about how AI can be more uninhibited than humans: "It doesn't have human emotion, but I do like that it doesn't... stay to the laws or the rules that we have..."

We asked participants how something can be art. All groups responded with quotes tied to the meaning of the work. P14 shared that art is used "...to express human desires and emotions, and also to communicate messages to other people." P11 provided a more specific meaning to the purpose of art: "I think art making is inherently political." P3 shared the same sentiments, but took a more neutral stance on where meaning in art could come from: "...when I think about art, it's just something that people place meaning towards... and that could be generated by anybody..."

The emphasis on finding meaning was shared by participants in how they experienced our performances. Three of the four affinity groups included groups pertaining to the participants' desire to understand the dancer's objectives. P9 summarized the multiple quotes on this item nicely by saying, "if she [the dancer] were to just explain just a little bit... I think it would have definitely made the performance feel differently."

Though we took precautions in developing, conducting, and analyzing all materials for the present study, we acknowledge that there is always a possibility for bias. We did experience some technical issues while implementing the performance.

5 Conclusion

In the present study we collected feedback from audience members to understand how their impressions of an artistic work changed when we (RQ1) withheld information regarding how the artwork was created, and (RQ2) used different types of technology to create the work. Using audience surveys and focus groups, we found trends highlighting the consistent desire for audience members to understand the meaning of art to situate its value, and that

withholding information on how an artwork was produced can impact audience members' evaluation of the work.

References

[1] Brian A Anderson, Patryk A Laurent, and Steven Yantis. 2011. Learned value magnifies salience-based attentional capture. *PloS one* 6, 11 (2011), e27926.

[2] David Bayles and Ted Orland. 2023. *Art & fear: Observations on the perils (and rewards) of artmaking.* Souvenir Press.

[3] Z Epstein, A Hertzmann, L Herman, R Mahari, MR Frank, M Groh, H Schroeder, A Smith, M Akten, J Fjeld, et al. 2023. Art and the science of generative AI: A deeper dive (arXiv: 2306.04141). arXiv.

[4] Ziv Epstein, Aaron Hertzmann, the Investigators of Human Creativity, Memo Akten, Hany Farid, Jessica Fjeld, Morgan R. Frank, Matthew Groh, Laura Herman, Neil Leach, Robert Mahari, Alex "Sandy" Pentland, Olga Russakovsky, Hope Schroeder, and Amy Smith. 2023. Art and the science of generative AI. *Science* 380, 6650 (2023), 1110–1111. https://doi.org/10.1126/science.adh4451 arXiv:https://www.science.org/doi/pdf/10.1126/science.adh4451

[5] Stefan Feuerriegel, Jochen Hartmann, Christian Janiesch, and Patrick Zschech. 2024. Generative ai. *Business & Information Systems Engineering* 66, 1 (2024), 111–126.

[6] Fiona Fui-Hoon Nah, Ruilin Zheng, Jingyuan Cai, Keng Siau, and Langtao Chen. 2023. Generative AI and ChatGPT: Applications, challenges, and AI-human collaboration. , 277–304 pages.

[7] Danah Henriksen, Nicole Oster, Punya Mishra, and Lindsey McCaleb. 2024. Generative AI, Creativity, Culture, and the Future of Learning: a Conversation with Mairéad Pratschke. *TechTrends* (2024), 1–7.

[8] Bruna Horvath. [n. d.]. Coca-Cola causes controversy with AI-made ad. *NBC News* ([n. d.]). https://www.nbcnews.com/tech/innovation/coca-cola-causes-controversy-ai-made-ad-rcna180665

[9] IBM. [n. d.]. What is generative AI? https://www.ibm.com/think/topics/generative-ai. Accessed: 1-4-2025.

[10] Harry H. Jiang, Lauren Brown, Jessica Cheng, Mehtab Khan, Abhishek Gupta, Deja Workman, Alex Hanna, Johnathan Flowers, and Timnit Gebru. 2023. AI Art and its Impact on Artists. In *Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society* (Montréal, QC, Canada) *(AIES '23)*. Association for Computing Machinery, New York, NY, USA, 363–374. https://doi.org/10.1145/3600211.3604681

[11] Caroline A Jones, Huma Gupta, and Matthew Ritchie. 2024. Visual artists, technological shock, and generative AI. (2024).

[12] Kostas Karpouzis. 2024. Plato's Shadows in the Digital Cave: Controlling Cultural Bias in Generative AI. *Electronics* 13, 8 (2024), 1457.

[13] Jeong Hyun Kim, Jungkeun Kim, Jooyoung Park, Changju Kim, Jihoon Jhang, and Brian King. 2025. When ChatGPT gives incorrect answers: the impact of inaccurate information by generative AI on tourism decision-making. *Journal of Travel Research* 64, 1 (2025), 51–73.

[14] Rensis Likert. 1932. A technique for the measurement of attitudes. *Archives of Psychology* (1932).

[15] Vivian Liu and Lydia B Chilton. 2022. Design guidelines for prompt engineering text-to-image generative models. In *Proceedings of the 2022 CHI conference on human factors in computing systems*. 1–23.

[16] Henry B Mann and Donald R Whitney. 1947. On a test of whether one of two random variables is stochastically larger than the other. *The annals of mathematical statistics* (1947), 50–60.

[17] Elze Sigute Mikalonyte and Markus Kneer. 2022. Can Artificial Intelligence Make Art?: Folk Intuitions as to whether AI-driven Robots Can Be Viewed as Artists and Produce Art. *J. Hum.-Robot Interact.* 11, 4, Article 43 (Sept. 2022), 19 pages. https://doi.org/10.1145/3530875

[18] L Mineo. 2023. If it wasn't created by a human artist, is it still art. *The Harvard Gazette. Artikkeli. Luettavissa: https://news. harvard. edu/gazette/story/2023/08/is-art-generated-byartificial-intelligence-real-art* (2023).

[19] OpenAI. 2024. ChatGPT (May 13 version) [Large language model]. https://chat.openai.com. Accessed: 2025-05-07.

[20] Jonas Oppenlaender, Rhema Linder, and Johanna Silvennoinen. 2024. Prompting AI art: An investigation into the creative skill of prompt engineering. *International Journal of Human–Computer Interaction* (2024), 1–23.

[21] James Prather, Brent N Reeves, Juho Leinonen, Stephen MacNeil, Arisoa S Randrianasolo, Brett A Becker, Bailey Kimmel, Jared Wright, and Ben Briggs. 2024. The widening gap: The benefits and harms of generative ai for novice programmers. In *Proceedings of the 2024 ACM Conference on International Computing Education Research-Volume 1*. 469–486.

[22] Dirk HR Spennemann. 2024. Generative artificial intelligence, human agency and the future of cultural heritage. *Heritage* 7, 7 (2024), 3597.

[23] SS Sundar. 2008. The MAIN model: A heuristic approach to understanding technology effects on credibility. *Digital Media, Youth, and Credibility/MIT Press* (2008).

[24] Kostas Terzidis, Filippo Fabrocini, and Hyejin Lee. 2023. Unintentional intentionality: art and design in the age of artificial intelligence. *AI & SOCIETY* 38, 4 (2023), 1715–1724.

[25] Frank Wilcoxon. 1992. Individual comparisons by ranking methods. In *Breakthroughs in statistics: Methodology and distribution*. Springer, 196–202.

A Performance Development Photographs

Figure 3. Dancer rehearsing during an experiment of different projection strategies.

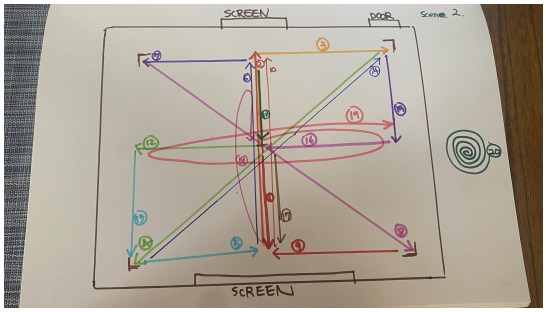


Figure 4. Outline of the choreography for Scene 2.

B Research Methods

B.1 ChatGPT Prompts and Used Responses

Prompt for Scene 1:

"If I had to make petals of a painting move according to the respiratory rate of a dancer how should I map this respiratory rate to the petals?"

Used Response for Scene 1:

"...the petals could gently rotate based on changes in the breathing depth and they could also rise and fall based on the breathing cycles."

Prompts for Scene 2:

- "If I had to make waves move according to a continuous stream of three probabilities representing how close a dancer's movements are to one of three movements, how should I map the three continuous probabilities to the wave movements?"
- "If I had to make melodious sound according to a continuous stream of three probabilities representing how close a dancer's movements are to one of three movements, how should I map the three continuous probabilities to sound? Please give me details on pitch and tempo."
- "What pentatonic, minor, and chromatic scales should I use?"
- "What octaves should I use for the C major pentatonic scale, the A minor scale, and the chromatic scale from D to A if I will be using them together? What instrument should I use to complement graceful dancing?"

Used Response for Scene 2:

"...assign each probability a scale or a set of pitches... Movement A can map to a pentatonic scale.. Movement B can use a minor scale, and Movement C can use a chromatic scale." ChatGPT further suggested we use a C major pentatonic scale, an A minor scale, and a chromatic scale from D to A for each movement respectively.

Prompt for Scene 3:

"If I had to make stars in a night sky change according to a continuous stream of data representing a dancer's respiratory rate how should I map this respiratory rate data stream to the stars?"

Used Responses for Scene 3:

- "...assign one probability [of a classified dance move currently happening] to control the height or amplitude of the waves... another probability could influence the wave's direction or angle."
- "...you could also experiment with the mappings to see what creates the most engaging visual experience." We took this liberty by mapping the third dance move's resemblance probability to the horizontal theta cosine offset of the wave.
- "...make the stars move more rapidly across the sky, suggesting heightened energy for a higher respiration rate. Their movement could be subtle or more dynamic, depending on how you want to emphasize the breathing. For a slower respiratory rate, the stars can move more slowly or remain still for a tranquil effect."

B.2 Audience Survey

All survey questions were asked of all audience groups unless otherwise noted. All questions were answered on a Likert scale from (1 - "Not at all" to 5 - "Absolutely") unless otherwise noted.

Performance Related Questions - Visuals *Throughout the performance, we projected various visuals as the dancer performed. Please answer the following questions based on the performance you just watched.*

- I paid attention to the visuals.
- The projected visuals were pleasing.
- The projected visuals complemented the performance.
- The projected visuals enhanced the performance.
- The projected visuals made sense in the context of the whole performance.
- The projected visuals demonstrated artistic merit.
- The projected visuals were creative.
- The projected visuals seemed meaningful.
- The projected visuals were distracting.
- The projected visuals appeared random.
- I think I would feel the same way about the performance if it didn't have visuals.
- I tried to see if there was a pattern in the visuals.
- I wondered what caused the visuals to change. AFTER
- Which of the following do you feel to be the most accurate representation of the performance? (Question asked only to those in the "Tell After" condition) (Likert scale ranged from: 1 - "The visuals mostly seemed to guide the dancer." to 5 - "The dancer mostly seemed to guide the visuals.")
- If I knew exactly what the visuals represented, I think I would enjoy the performance more. (Question asked only to those in the "Tell After" condition)
- I thought about how the visuals were created.
- I wondered why the visuals were chosen.
- I tried to make a connection between what the dancer was doing and the visuals.

Performance Related Questions - Sound *In part 2, when we showed the wave visuals, there were some sounds that you heard during the performance. Please answer the following questions about this audio you heard.*

- I didn't pay attention to the sound in part 2.
- The sound in part 2 was pleasant.
- The sound in part 2 complemented the performance.
- The sound in part 2 enhanced the performance.
- The sound in part 2 fit with the other sounds in the performance.
- The sound in part 2 demonstrated artistic merit.
- The sound in part 2 was creative.
- The sound in part 2 was meaningful.
- The sound in part 2 was distracting.
- The sound in part 2 seemed random.
- I think I would feel the same way about the performance if it didn't have sound in part 2.
- I tried to see if there was a pattern in sound in part 2.
- I was curious about why the sound in part 2 changed. (Question asked only to those in the "Tell After" condition)
- Which of the following do you believe to be the most accurate representation of part 2 of the performance specifically? (Question asked only to those in the "Tell After" condition) (Likert scale ranged from: 1 - "The sound mostly seemed to guide the dancer." to 5 - "The dancer mostly seemed to guide the sound.")
- If I knew exactly why the sounds were chosen, I think I would enjoy the performance more. (Question asked only to those in the "Tell After" condition)
- I thought about how the sound in part 2 was created.
- I wondered why the sound in part 2 was chosen.
- I tried to make a connection between what the dancer was doing and the sound in part 2.

- I noticed a mapping between the dancer's movements and the sound in part 2. (Question asked only to those in the "Tell After" condition) (Response choices were "Yes," "No," "I don't recall.")
- Can you briefly describe what you think the mapping between the dancer's movements and the sound in part 2 might be? (Question asked only to those in the "Tell After" condition) (Answers were written responses)

B.3 Focus Group

Questions related to impressions before the performance

[FOR THOSE WHO WERE TOLD ABOUT TECHNOLOGY AFTER THE PERFORMANCE]

- Before the performance started, what were you expecting the performance to be like considering it was advertised as a "technologically augmented dance performance?"
- How did you think technology would be included in the performance?

[FOR THOSE WHO WERE TOLD ABOUT TECHNOLOGY BEFORE THE PERFORMANCE]

- What were your expectations of the performance after we told you how technology was integrated?

Questions related to impressions during the performance

[FOR THOSE WHO WERE TOLD ABOUT TECHNOLOGY BEFORE THE PERFORMANCE]

- Were you watching out for the aspects of the performance we told you were going to be technologically augmented?
- What did you think about the projected visuals and sound during the performance?

[FOR ALL PARTICIPANTS]

- What did you think about the projected visuals and sound during the performance?

Questions related to impressions after the performance

[FOR THOSE WHO WERE TOLD ABOUT TECHNOLOGY BEFORE AND WERE IN THE AI VERSION AUDIENCE]

- Is there anything you expected to see when we told you we would use AI in the performance, but we didn't implement? What caused you to have that expectation?

[FOR THOSE WHO WERE TOLD ABOUT TECHNOLOGY AFTER THE PERFORMANCE]

- Did your impressions of the projected visuals and sound change after we explained how they were created?
- How did you feel about the entire performance after we explained that portions of the performance were created using [TECHNOLOGY]? Why did you feel this way?

[FOR THOSE WHO WERE TOLD ABOUT TECHNOLOGY BEFORE THE PERFORMANCE]

- Did the performance meet your expectations of a technologically augmented dance performance? Why or why not?

[FOR ALL PARTICIPANTS]

- How do you feel about technology in art?
- Have you heard about artificial intelligence (AI) before today? Did you know that AI can create images and music?
- Do you see any downsides or concerns about using AI in art in general?
- Do you think images and music made by AI can be considered art? Why?
- Do you think AI is different from other technologies people have been using to create art and music, like Photoshop, Procreate, or GarageBand? How so?
- Do you think art made without technology (i.e., physical painting on a canvas or playing a song on a traditional music instrument) differs in creative or monetary value from art created with traditional digital artmaking technologies like Photoshop, Procreate, or GarageBand? How so?
- What do you think the purpose of art is?
- Can AI-made art serve the same purpose as human-made art? Can you expand on that?
- Do you think AI-made art can hold the same monetary value as human-made art? Why do you think that?
- Do you have any suggestions on how we can make the performance better?