
Combating the "Sameness" in AI Art: Reflections on the Interactive AI Installation *Fencing Hallucination*

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Abstract

The article summarizes three types of "sameness" issues in Artificial Intelligence(AI) art, each occurring at different stages of development in AI image creation tools. Through the Fencing Hallucination project, the article reflects on the design of AI art production in alleviating the sense of uniformity, maintaining the uniqueness of images from an AI image synthesizer, and enhancing the connection between the artworks and the audience. This paper endeavors to stimulate the creation of distinctive AI art by recounting the efforts and insights derived from the Fencing Hallucination project, all dedicated to addressing the issue of "sameness".

1 "Sameness" in AI Art

The "Sameness" in AI art refers to a recurring phenomenon in the field of AI-generated art, wherein artworks exhibit a pronounced uniformity or lack of distinctiveness. This uniformity may manifest as the repetition of established artistic styles, a deficiency in original creative expression, superficial imitation of artistic features without genuine understanding, or a limited range of variation in generated artworks. The concept underscores the challenge of achieving uniqueness in AI-generated art, prompting efforts to diversify such creations from established artistic conventions.

Three types of "sameness" issues have emerged along with the ongoing development of AI art tools. The first is caused by the lack of novel dataset. It started with experiments on the visual imitation of established artworks [1][2][3]. Except for a few cases[19], creating an original personalized image dataset for AI training has been beyond an individual's effort, most users of AI creation tools use off-the-shelf general-purposed datasets, consequently resulting in similar aesthetics of different AI artworks. [see sup. material]

The second type of "sameness" is a result of the lack of control in the creation process. Because replicating the style in the image dataset provides little visual novelty, other creative minds have chosen to break away from this practice. Through methods such as mixing different images in the training[17], latent sampling[7], and under-training, they have created images of visual indeterminacy[4]. These images consist of broken, chaotic, checker-like patterns and unnamed forms, which would be frowned on by the tool's creator but exploited by artists as an expressive space. Opposed to the designed function of the generative AI models, this method has provided users little control in the creation process, limiting range of the variations. [see sup. material]

With diffusion models[5] being the latest breakthrough in AI image synthesis, artists can easily create various high-fidelity images[see sup. material]. The lowered technological barrier of these new tools greatly expands the users beyond creative programmers and AI researchers to everyone who wants to

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create. AI's incredible replicating capability has become the new normal, driving audiences to seek connection and depth in these AI artworks. With the text prompt being the artist's only input to the software, the audience has too limited information to understand the artist's decision-making and production process, stopping the aesthetic experience from extending beyond the superficial level. This reduces the perceived uniqueness of the produced art. Therefore, many artists have criticized these AI tools for showing "banal overall "sameness" across generated art." [6]

2 Fencing Hallucination

Fencing Hallucination is a Human-AI Interactive Installation[16] that emulates chronophotography using motion capture, motion synthesis, and pose-conditioned AI image synthesis [see sup. material]. The installation consists of two large displays for real-time interaction and final images, set up back-to-back. An audience starts by moving their body to interact with a virtual AI Fencer on the screen. As the audience moves actively, they get exciting responses from the AI fencer and trigger strobe flashes. At each flash, the other screen refreshed to a new chronophotograph updated by the fencing poses, making the final image increasingly complex as the audience extends their interaction time.

According to their feedback, audiences perceived the images from Fencing Hallucination more as real photographs taken during a unique in-person experience rather than images indifferently created by AI. People also showed a solid connection to the result images; they downloaded them on their phones to share with others later. Some people appreciated the photo so much that they returned to the installation to produce a more exciting picture. This observation indicates that Fencing Hallucination made progress in combating the "sameness" in AI art.

3 Reflections

The evaluation of the design of Fencing Hallucination to combat AI "sameness" is four-fold:

1. *Customized thematic dataset:* Fencing Hallucination trained specialized motion and image synthesis models using carefully collected datasets of fencing content.[see sup. material] This offered a thematic consistency throughout the experience, which presented AI beyond its generic capabilities.
2. *Integrating full-body interactivity:* Unlike other diffusion-based AI artworks using text as the only input, Fencing Hallucination integrated body poses as the other predominant condition for its outcome. The poses-to-image translation[18] enabled full-body interactivity to enhance user engagement, strengthening the connection between the audience and the produced art.
3. *Increased control of visual aesthetics by modular design:* Fencing Hallucination revived chronophotography, necessitating precise controls in the creative process. These controls were enabled by a modular workflow, with individual modules in charge of sub-tasks, including motion synthesis, pose-to-image translation, and post-processing for multi-exposure styles, each contributing to different aspects of the final image.
4. *Chose themes and narratives thoughtfully to stimulate tech-related philosophical reflections:* The choice to resurrect chronophotography aimed to challenge the assumption about AI art in its narrow search for unseen styles[8]. It also connects two technologies spanning 140 years, photography and AI image synthesis, which transformed visual art's realm. Through juxtaposing authentic photographic mimicry with the lack of camera usage, Fencing Hallucination prompts the audiences' reflections on technological evolution. By realizing human-AI co-creation of visual art, this work also dispels the tense, adversarial point of view on AI and alleviates the human-replacement concern on AIs.

4 Ethical Implication

This paper described strategies for addressing the issue of sameness in AI art. One involves resurrecting an existing visual style, challenging the prevailing practice of using AI solely to seek entirely new visual styles. While this particular mimicry is rooted in a deep understanding of photographic culture and technology, it must be performed cautiously to avoid appearing as encouraging the mere superficial copying of established artists' works. Additionally, while the training data in this article was collected ethically from fencing game videos using motion estimation methods without copyright

infringement concerns, the video scraping process may have inadvertently included non-public footage. Ensuring the anonymity and security of the data is a vital consideration for all artists using self-collected datasets.

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5 Supplementary Material



A



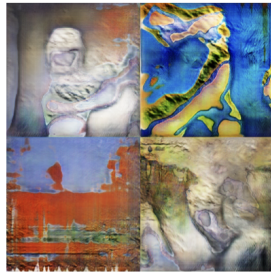
B



C



D



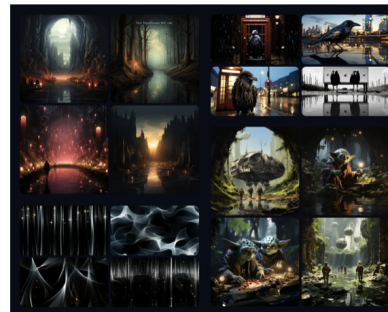
E



F



G



H

Figure 1: Pairs of AI-generated images of "sameness" from different artists. A & B: GAN-generated nude photos by Robbie Barrat[9] and Mario Klingemann[10]. C & D: GAN-generated landscape images by Memo Atken[11] and Refik Anadol[12]. E & F: GAN-generated abstract art by CAN[3] and [13]. G & H: Award-winning Midjourney image [14] and the community artworks[15].

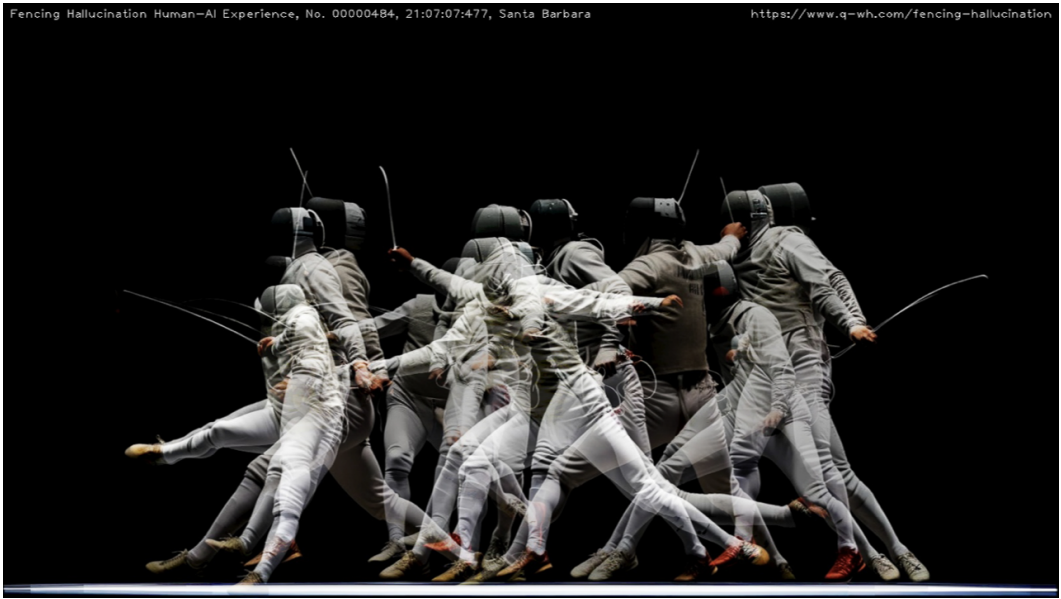


Figure 2: Chronophotograph created by generative AI in Fencing Hallucination.



Figure 3: Sampled results from Fencing Hallucination. These images consists of various shapes and patterns, determined by the audience's participation.



Figure 4: The installation of Fencing Hallucination. Left shows the screen of the real-time content. Right shows the final result of chronophotographs

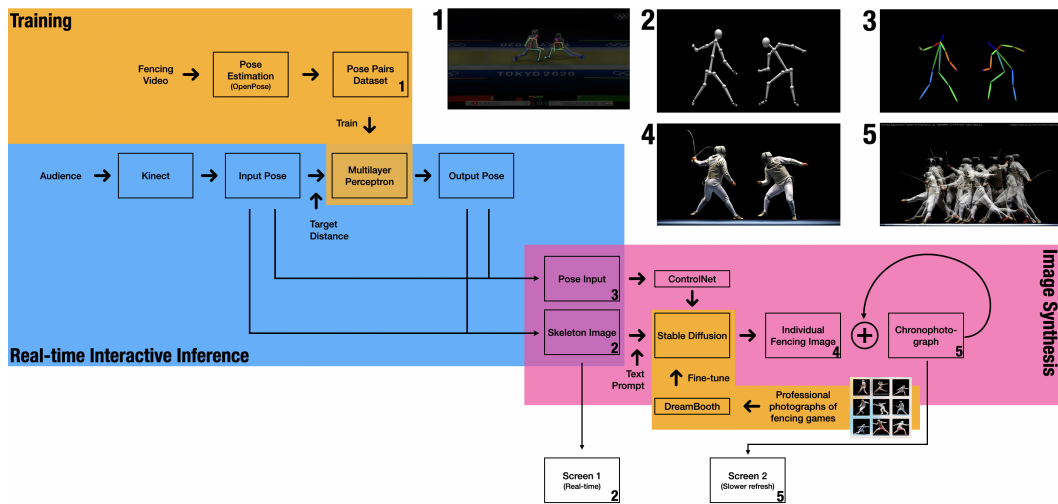


Figure 5: The system workflow description of Fencing Hallucination.

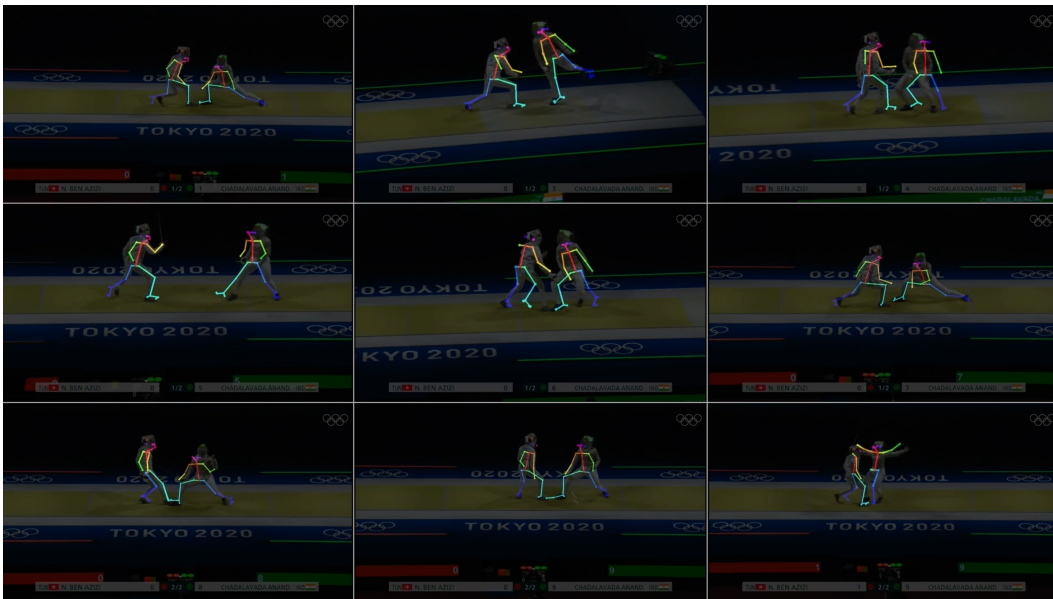


Figure 6: Samples of skeletal data extracted from online fencing videos. These data are collected specially for this project and used to train the real-time AI fencer.