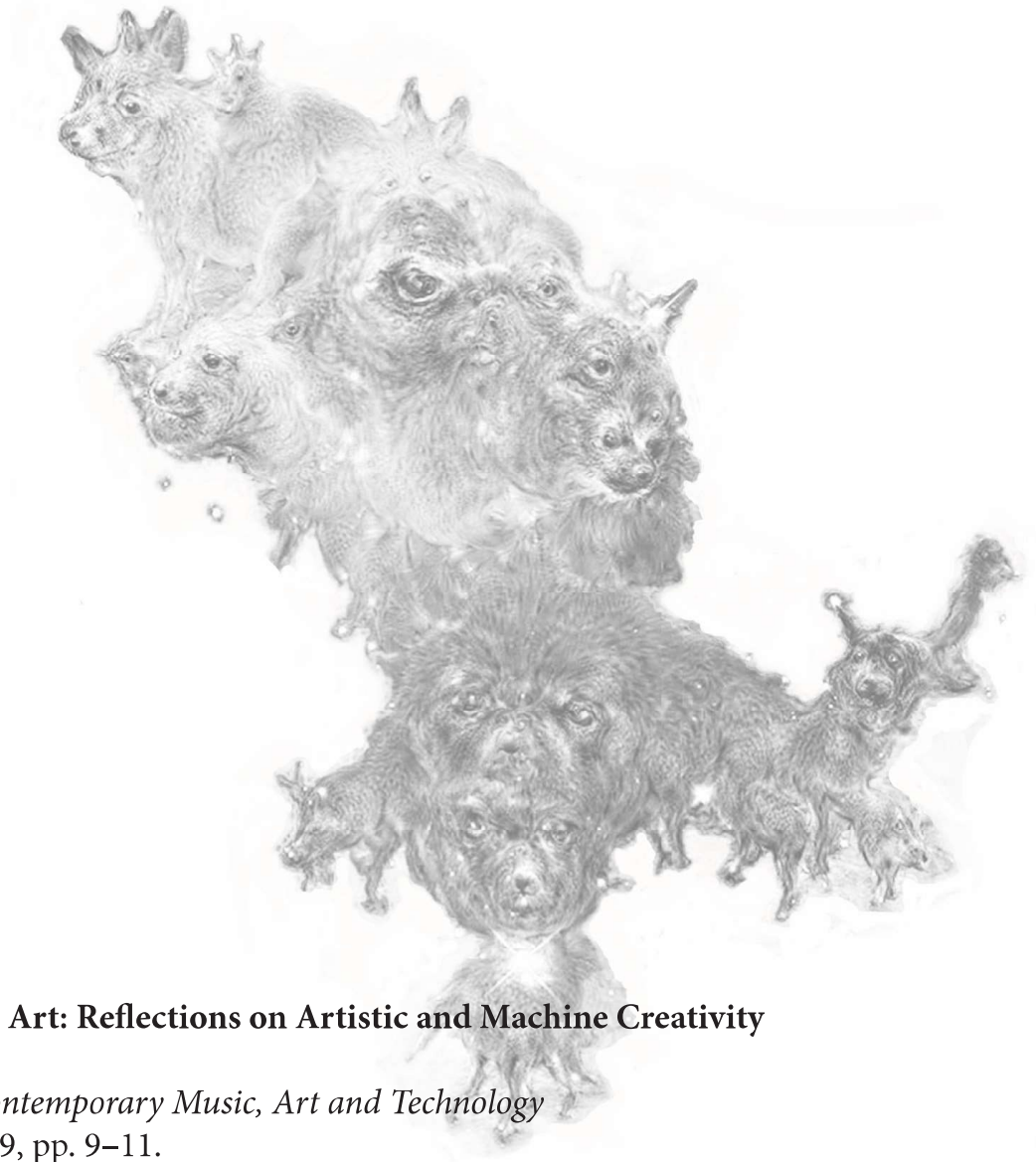


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JOURNAL OF CONTEMPORARY MUSIC, ART AND TECHNOLOGY



The New Wave of AI Art: Reflections on Artistic and Machine Creativity

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INSAM Journal of Contemporary Music, Art and Technology

No. 2, Vol. 1, July 2019, pp. 9–11.

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THE NEW WAVE OF AI ART: REFLECTIONS ON ARTISTIC AND MACHINE CREATIVITY

Starting with the appearance of DeepDream's hallucinogenic aesthetic in 2015, the recent wave of art made with AI has been steadily gathering momentum. Initially an outlet for experimentation based on the latest technical developments unveiled by the AI research community, the AI art movement grew, becoming an art world trend with multiple museum exhibitions, gallery shows and media art festivals dedicated to the topic worldwide. Additionally, it had some commercial success with the memorable sale of Obvious' AI-generated artwork for \$432,500 at Christie's auction.

Can machines be creative? Even though the general public may be curious to hear answers to this question, many in the AI art community are less interested



in contributing to the discussions about computational creativity, preferring instead to devote their time to exploring the applications of these AI tools across domains and datasets. Nevertheless, some of the recent technological advances such as DeepDream and Generative Adversarial Networks (GANs) do support the

idea of machines being creative. Invented by the Google engineer Alex Mordvintsev in 2015, DeepDream is an algorithm that finds and emphasizes features in an image, coming out with extreme colors and puppy, slug and pagoda shapes. In this instance, you could say that the algorithm imagines new structures, colors, and creatures where they are not present in an ordinary image, and is therefore being creative. Meanwhile, GANs, particularly in their earlier years, have been creative in a different way. Tasked with generating images resembling a particular dataset, one neural network generates new images and the other determines which images are generated (fake) and which ones come from the original dataset (real). This dynamic between the two enables each neural network to improve at its individual task and the resulting images are therefore of higher quality. Back when GANs were first invented by Ian Goodfellow in 2014 and in the years shortly after, there were frequent problems with structure (human forms may have limbs at odd angles) and with counting (animals may have multiple eyes or feet). These specifics of earlier GAN models may have been considered ‘problems’ by the technical community – the algorithms were not perfect at completing their task of creating high-quality images resembling the original dataset, but they could be regarded as an example of algorithms being creative, precisely because they produced images that interpreted the human or animal form in ways that were different from reality.



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The above examples showcase the creativity within some of the typical machine learning algorithms used in artistic practice today. However, what ultimately makes an artwork compelling is not just its aesthetics, but also the storytelling, the intent and the critical perspective that the artist contributes to the piece regardless of the medium involved. In the case of art made with AI, there is also substantial human input and decision-making involved that may not be immediately obvious: first the artist decides to incorporate AI into their work, then they pick the dataset, choose the algorithm, tweak its parameters and curate the resulting output to achieve their desired outcome. These steps are highly influential in the creation of the final artwork and leave scope for the artist’s own creativity to shine through, the AI machine merely a tool.

Regardless of how you look at AI and creativity, it is clear that the arts are learning and benefiting from working in a new AI-based world. The popularity

of AI across the business world and ongoing interest from the mainstream have attracted a number of artists from diverse backgrounds to work with AI, ranging from AI-researchers with an artistic streak (Mike Tyka, Alex Mordvintsev) to recent art school graduates (Jake Elwes, Anna Ridler) and established contemporary artists (Pierre Huyghe, Hito Steyerl). The engagement of all these artists with vastly different technical skills, artistic styles, conceptual ideas and social concerns have enabled many AI techniques to be tested and pushed to their limits in an artistic context. This usage of AI in art highlights not only the limitations of individual techniques and their implications for society, but also the necessity for artists to acquire basic technical skills, the need to build datasets to generate the desired images as well as the importance of individuality and artistic intent.

This new wave of AI has encouraged the art world to once again face the idea and implications of an endless art-generation machine, though this time, thanks to the ease of generating multiple variations on a theme and the high quality of the output, there have been increased concerns regarding creativity and originality. Ultimately though, what the current stage of AI art demonstrates is that the involvement of the human artist is crucial for giving meaning and context to the AI-generated or processed imagery. As our AI systems become more advanced and move towards general artificial intelligence, there may be a higher level of creativity and intent delivered by the algorithm alone. Until then, the artist is still king in AI art.

Article received: June 17, 2019

Article accepted: June 20, 2019