Creative AI Futures: Theory and practice

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This paper analyses creative activity enabled by ML and recognised under the banner of ‘AI art’ or ‘creative AI’. The theoretical discussion is anchored in the critical reflection on the activities in which the authors have been involved as part of the Creative AI Lab, which is a collaboration between the R&D Platform at Serpentine Galleries and King’s College London’s Department of Digital Humanities. The paper proposes a 5C model (‘Creative – Critical – Constructive – Collaborative – Computational’), which brings together technical research and conceptual inquiry into AI art, while shifting focus from artefacts to their wider contexts, processes and infrastructures. It also outlines directions for future research.

AI. Artistic collaboration. Back-end environments. Co-creation. Creative AI Lab. Creativity. Critical theory. Future of art.

1. INTRODUCTION

Artists working in different media have been exploring AI’s potential as a creative instrument, nonhuman collaborator and subject of social critique. In what follows, we want to stage a theoretical and practical discussion of the problem of artistic practice as enabled by AI and ML, while outlining new directions for future research. This discussion, we suggest, needs to consider a number of conceptual questions:

- To what extent does the current use of AI technologies in art making raise bigger questions about the very nature of artistic production and research?
- How is the role and agency of ‘the artist’ altered at a time when many artistic productions are the result of human-machine collaboration, with the creative output not being subject to human control but rather to the uncertain logic of a deep-learning algorithm?
- Does AI create new audiences for art – and does it require new skills from those audiences?
- Do we need new capabilities from our arts institutions in order to support and develop AI-driven art practices, and to enable its exhibition?
- What role can AI art practice play in exploring alternative versions of AI and in fostering its public understanding?

Importantly, for us a theoretical discussion of these questions is anchored in the critical reflection on the practical activities in which we have been involved as part of the Creative AI Lab (Serpentine 2020). Building on the Lab’s existing collaborations, we want to propose a ‘5C’ model for Creative AI practice and research as a more enabling approach to working at the cross-discipline of ‘creative AI’. Mobilising critical inquiry with creative production and technical expertise, this model entails developing horizontal, non-competitive networks of alliances between academic and cultural institutions dealing with creativity, AI and ML.

2. AI ART NOW

The term ‘Creative AI’ comes from the technical community, which uses it to refer to the application of machine learning (ML) and other forms of AI for artistic purposes. The art world, in turn, prefers terms such as ‘AI art’ (Zylinska 2020) and, less frequently, ‘ML art’, ‘computer art’ or simply ‘media art’, while cognitive scientists talk about ‘computational creativity’ (Ploin et al. 2022, pp.10-11). Our own adoption of ‘Creative AI’ as a label for the work of our Lab, and for the proposal entailed in this paper, aims to foreground the technical and processual aspects of creative activity involving the widely conceived AI technology, while also signalling that, as part of our project, we are examining more than just artefacts.

Despite its relative novelty, AI art has already stabilised into a substantial subfield populated by practitioners who break down traditional disciplinary boundaries. This subfield is a ‘loosely defined … movement’ that is related to ‘previous computational
artistic practices such as cybernetics art, artificial life art, and evolutionary art’ (Audry 2021, p.21) – as well as data visualisation practices in design. Given the high level of expertise required of both artists and audiences in producing and accessing at least some of the artistic outputs produced in this vein, AI art has led to a further destabilisation of ecosystem roles such as artist, curator, technologist (engineer/programmer), theorist and producer.

Within the current AI art practice two dominant yet overlapping sub-strands can be identified: a visual one and a conceptual (or, better, integrative) one. As part of the first sub-strand, artists such as Memo Atken, Mario Klingemann, Anna Ridler and Refik Anadol are interrogating the new aesthetic possibilities of dreamlike generative worlds, as well as data visualisations which scrutinise widespread algorithmic tendencies and AI tools. Within the second strand artists and collectives such as Orphan Drift and Etic Lab, Forensic Architecture or Danielle Brathwaite-Shirley are more intent on expanding the role of data or algorithms for art practice, with machine learning tools being integrated into broader artistic systems. These artists, while working directly with AI tools, are often less likely to position themselves as ‘AI artists’ first and foremost. The embedding of AI and ML within sensory apparatuses, video games and countersurveillance systems mirrors the technology’s wider societal deployment, with a view to enacting Marshall McLuhan’s dictum about art being ‘an early distant warning system’ (McLuhan 1964). While public and curatorial attention was initially captured by those generative practices and their bold visual aesthetics, with the rise in institutional expertise this subsequent class of ‘integrative’ works has now started receiving more critical attention.

These varied practices have provoked an extensive theoretical and art-historical discussion (Zylinska 2020; Audry 2021; Zeilinger 2021). Starting from attempts to conceptualise the operations of those creative, curatorial and technical practices facilitated by AI, it has also expanded to extant philosophical debates around authorship, agency and creativity. Theoretical work taking place in this field has impact beyond the specific subject matter of art practice, with adjacent scholars commonly working on the epistemology (Bunz 2019; Parisi 2019; Weatherby & Justice 2022), ontology (Fazi 2020; Amaro 2022), aesthetics (Manovich 2018) and ethics (Dubber, Pasquale & Das 2020) of machine learning.

The relatively new subfield of AI art is itself constantly evolving, in line with ongoing technical developments and societal issues. Most recently, it has been transformed by adjacent technologies (e.g. blockchain), which have had cultural impact on artists working with AI. Tracking, understanding and, at times, enacting these changes is part of Creative AI Lab’s agenda.

3. CREATIVE AI LAB

Founded by Bunz and Jäger in 2019, the Creative AI Lab is a collaboration between the R&D Platform at Serpentine and King’s College London’s Department of Digital Humanities. The Lab serves as a site of inquiry into how best to facilitate, theorise and historicise ML practices, taking artistic research seriously as a contribution to knowledge creation and technical development. Conceived as a “space of action” (Crease 1993, p.106; quoted in: Spatz 2020, p.26) the Lab is thus both a research unit and an active site of curatorial experimentation. This approach acknowledges and enacts the necessity of theorising art practice not only as they are received at the front-end of artistic production by its audience, but also during the processes of research and development. In this way, the Lab aims to go beyond the study of artefacts to focus on the ‘back-end’ environments that have enabled their production.

The Lab’s primary focus is on the ways in which artists are adapting and remaking AI processes, building their own datasets and reaching into the ‘grey box’ of AI technologies. These technical activities engage closely and critically with the technology itself, testing new approaches and challenging assumptions about the labour processes involved in, for example, labelling data or programming new tools. The Lab not only studies such work but also facilitates it through providing curatorial and technical production support to artists. With a focus on building the curatorial infrastructure within Serpentine, it works with artists on both the conceptual and technical side of R&D processes (Brouwer 2005; Ivanova & Vickers 2020). The aim is to enable the production of new prototypes for technical processes and an overview of tools (Arrigoni 2016), which could contribute to the creation of artworks as well as being deployed in other institutional contexts.

The Lab’s mission is also to develop a critical literacy that can help art institutions approach AI technologies as advanced and multi-layered media. While reliant on the theoretical work needed to untangle issues such as the ‘distributed authorship’ (Ascott 2005) involved in artistic research, it also aims to communicate complex technical and philosophical ideas to audiences, ideas that are often left unaddressed in the prevailing curatorial approaches to ML/AI. At the same time, the Lab does not shy away from discussing the wider technical and socio-cultural issues that provide a context for AI art. Such critical pedagogic activities can have concrete outcomes, e.g. training audiences and institutions in how AI works, how
loured in AI-driven practice can be credited more fairly, but also foregrounding the processes, interfaces and the R&D work involved in the production of AI – activities that typically remain hidden or are given less valence. From the perspective of the Lab, art has a special role to play with regard to AI, as AI artworks ‘train us in algorithmic understanding’, as Nora Khan put it in her forthcoming book (Khan, forthcoming). To this end the Lab’s goal is also to lobby for a shift towards a production and exhibition model that acknowledges collaborative effort in arts technology, and especially in AI art making – one that extends creative attribution to technical roles.

We are now at a stage when we are ready to launch a new phase of the Lab’s work and outline some broader directions for research into creative AI.

4. WHITHER CREATIVE AI?

Drawing on the nexus of disciplines and fields of expertise – from art and design through to art history, cultural theory, philosophy, cognitive science, computer science, and, last but not least, engineering, in both the conceptual and practical aspects of its agenda creative AI needs to explicitly embrace and articulate the open-ended orientation that characterises art practice. Given that art (and, indeed, any other cultural practice) is not produced in a vacuum, there is a need to balance technical expertise with socio-cultural engagement in any project whose aim is not just to research but also map out creative AI futures. With this, we are mindful of the poignant question raised by Saifian Audry: ‘How can [artists] work creatively and independently with a technology that has been aggressively privatised and is increasingly reliant on an industrial complex based on social media and advertising?’ (Audry 2001, p.44). Such technology is not just used in advertising and entertainment industries; it also frequently serves as a technology of war: be it on the information front, as part of surveillance operations or as deployed in the construction of actual war machines, from drones through to planes and tanks.

Avoiding any simple binarisms evident in the moralistic-sounding ‘AI for good’, and any naive attempts to merely overcome a technological bias, we want to put an engaged critical reflection on the AI/ML technologies and their socio-cultural underpinnings as part of Creative AI’s agenda. It is only through this approach that a more responsible position on designing the future of creative AI can be developed, we argue. This approach also involves building resources for artists who are curious to work with AI but who are yet to develop the skill set needed as well as for institutions interested in building the infrastructures that can support the production of creative AI works. The focus on the ‘back-end’ of AI art, pioneered by the Creative AI Lab, needs to be extended to the study of both technical and social environments. Repurposing the original 4C of the ‘Command – Control – Communication – Computer’, with its orientation towards mission accomplishment based on the cybernetic logic and its original military associations, we propose to adopt a 5C model for Creative AI that stands for ‘Creative – Critical – Constructive – Collaborative – Computational’.

Drawing on the existing practices in collaborative art, open source and knowledge exchange, the 5C model supports an ethics of collaboration that involves building horizontal non-competitive alliances of institutions and stakeholders interested in creative AI: museums and galleries, universities and art schools, technology companies. The increasingly fragile funding landscape for the arts in many parts of the globe, whereby technology companies are the new art patrons, means that those companies are increasingly involved in setting the agenda for the creative field (Serpentine R&D 2020). This state of events, coupled with the requirement for extensive technological support and innovation, means that no single artist or institution can ‘win’ at creative AI. Like many other similar organisations, our Lab therefore has to negotiate how to work directly with industry in the new landscape of public-private partnerships in the name of ‘innovation’.

With the 5C model we want to propose a move beyond any single-goal mode of thinking to support a sustainable alternative for an open-ended creative AI as a practice, a network of research and development spaces, and a set of concepts. In a recurrent manner adopted in the second-order cybernetics, this 5C model can itself in time become part of the practice of creative AI, seen as an attempt to build not just new artefacts or new technologies that support them, but also new ways of working, thinking and making AI, and making things with AI, collectively and collaboratively. While this proposal may sound utopian to some, the current global situation where the fragility of life – as evident in the climate crisis, the Covid pandemic or the reawakened threat of the nuclear war – has been put on display surely needs to remain open to any creative attempts to seek alternative models of making, working and living.

As part of this model, where the ‘back-end’ gets more attention than the artefact, a transformation of the idea of ‘the artist’ as a stand-alone genius, standing above, or aside from, the world, can (and perhaps should) be enacted. Today’s artist, as argued by Tereza Stejskalová, needs to understand that ‘she is not anyone special nor is she doing anything special but is, in principle, like any other social network user who makes manifest the (crisis
of) emotions, relations and labour which sustain life itself' (Stejskalová 2021, p.101). This recognition can shift the attention of creative AI work from individual accomplishments and solutions to the collaborative search for actions. In this respect, artistic research projects can offer blueprints for different configurations of aggregated human-machine intelligence, beyond the ‘optimal’ models which remain the goal of the technology industry (Vallor 2021). Art practice can thus serve as a space for the working out of alternative ethical metrics and values, beyond optimisation, efficiency or profit.

5. CONCLUSION: QUESTIONS FOR THE FUTURE

The 5C model for Creative AI that stands for ‘Creative – Critical – Constructive – Collaborative – Computational’ brings together technical research and conceptual inquiry, while shifting focus from artefacts to their wider contexts, processes and infrastructures. Encompassing an examination of creativity as a collaborative process between humans and machines, it also postulates the need for a culturally-driven reflection on the value of those collaborations and on their outcomes. Future areas for creative AI research emerging from this model include: (1) the reconfiguration of culture as a domain of not just human-made meanings but also machinic calculation; (2) challenges posed to computationalism by research on connectivist perspectives, including art’s ability to test embodied models of AI and ML; (3) a shift from machine vision to machine perception as a mode of sensing the world with images and data; (4) the emergence of artificial consciousness as a creative artefact. Creative AI can thus serve as a space for exploring new connections and new alliances — on both micro and macro, algorithmic and institutional level – but it can also, if need be, serve as a warning.

6. REFERENCES

Amaro, R. (2022) Machine Learning, Sociogeny, and the Substance of Race. Sternberg Press, Berlin.

Arrigoni, G. (2016) Epistemologies of prototyping: knowing in artistic research, Digital Creativity, 27(2), pp. 99–112.

Ascott, R. (2005) Distance Makes the Art Grow Further: Distributed Authorship and Telematic Textuality in La Plissure du Texte. In Chandler, A. and Neumark, N. (eds.). At a distance: precursors to art and activism on the Internet, The MIT Press (Leonardo), Cambridge, MA.

Audry, S. (2021) Art in the Age of Machine Learning. The MIT Press, Cambridge, MA.

Brouwer, J. (ed.) (2005) Art & D: Research and Development in Art. V2_NAIi Publ, Rotterdam.

Bunz, M. (2019) The calculation of meaning: on the misunderstanding of new artificial intelligence as culture. In Culture, Theory and Critique, 60(3–4), pp. 264–278.

Crease, R. (1993) The Play of Nature: Experimentation as Performance. Indiana University Press, Bloomington.

Dubber, M.D., Pasquale, F. and Das, S. (eds.) (2020) The Oxford Handbook of Ethics of AI. Oxford University Press, Oxford.

Fazi, M.B. (2020) Beyond Human: Deep Learning, Explainability and Representation. In Theory, Culture & Society 38(7–8), pp. 55–77.

Ivanova, V. and Vickers, B. (2020) Research & Development at the Art Institution, Serpentine Galleries. https://www.serpentinegalleries.org/art-and-ideas/research-development-at-the-art-institution/ (retrieved 13 September 2021).

Khan, N. (forthcoming) Art in the Age of Artificial Intelligence. Lund Humphries, London.

Manovich, L. (2018) AI Aesthetics. Strelka Press, Moscow.

Parisi, L. (2019) The alien subject of AI. In Subjectivity, 12(1), pp. 27–48.

Ploin, A. et al. (2022) How Machine Learning Is Changing Artistic Work. Oxford Internet Institute.

Serpentine R&D (2020) Creative AI Lab. https://www.serpentinegalleries.org/whats-on/creative-ai-lab/ (retrieved 2 March 2022).

Spatz, B. (2020) Making a Laboratory: Dynamic Configurations with Transversal Video. Punctum Books, Santa Barbara.

Stejskalová, T. (2021) Online Weak and Poor Images: On Contemporary Feminist Visual Politics. In Tomas Dvořák and Jussi Parikka, eds. Photography Off the Scale: Technologies and Theories of the Mass Image. Edinburgh University Press, Edinburgh.

Weatherby, L., and Justie, B. (2022) Indexical AI. In Critical Inquiry, 48(2), pp.381-415.

Vallor, S. (2021) Mobilising the intellectual resources of the arts and humanities, Ada Lovelace Institute. https://www.adalovelaceinstitute.org/blog/mobilising-intellectual-resources-arts-humanities/ (retrieved 20 July 2021).

Zeilinger, M. (2021) Tactical Entanglements: AI Art, Creative Agency, and the Limits of Intellectual Property. Meson Press.

Zylinska, J. (2020) AI Art: Machine Visions and Warped Dreams. Open Humanities Press.