The New Real Magazine

Edition One

Generative AI Arts: A Synthetic Future Foretold

Generative AI Arts: A Synthetic Future Foretold

The New Real
Magazine
Edition One

Editors
Drew Hemment, Matjaz Vidmar, Gemma Milne

Contributors
Amelia Winger Bearskin, Anna Ridler, Anne Ploin, Benedetta Catanzariti, Briana Pegado, Caroline Sinders, Catherine Troiano, Chris Speed, David De Roure, Drew Hemment, Elena Simperl, Eoghan O'Keeffe, Eryk Salvaggio, Eva Jäger, Gemma Milne, Helen Kennedy, Holly Warner, Irini Papadimitriou, Jake Elwes, Lex Fefegha, Mark Sandler, Martin Zeilinger, Matjaz Vidmar, Me the Drag Artist, Morgan Currie, Robin Hill, Roy Luxford, Ruth Aylett, Shannon Vallor, SJ Bennett, Steve Benford, Sunil Manghani, Vassilis Galanos

Produced by
The New Real

Published by
The University of Edinburgh, 2023

ISSN 3029-0139

Editorial

Feature Section: Navigating Generative AI Arts, A Roadmap

Art

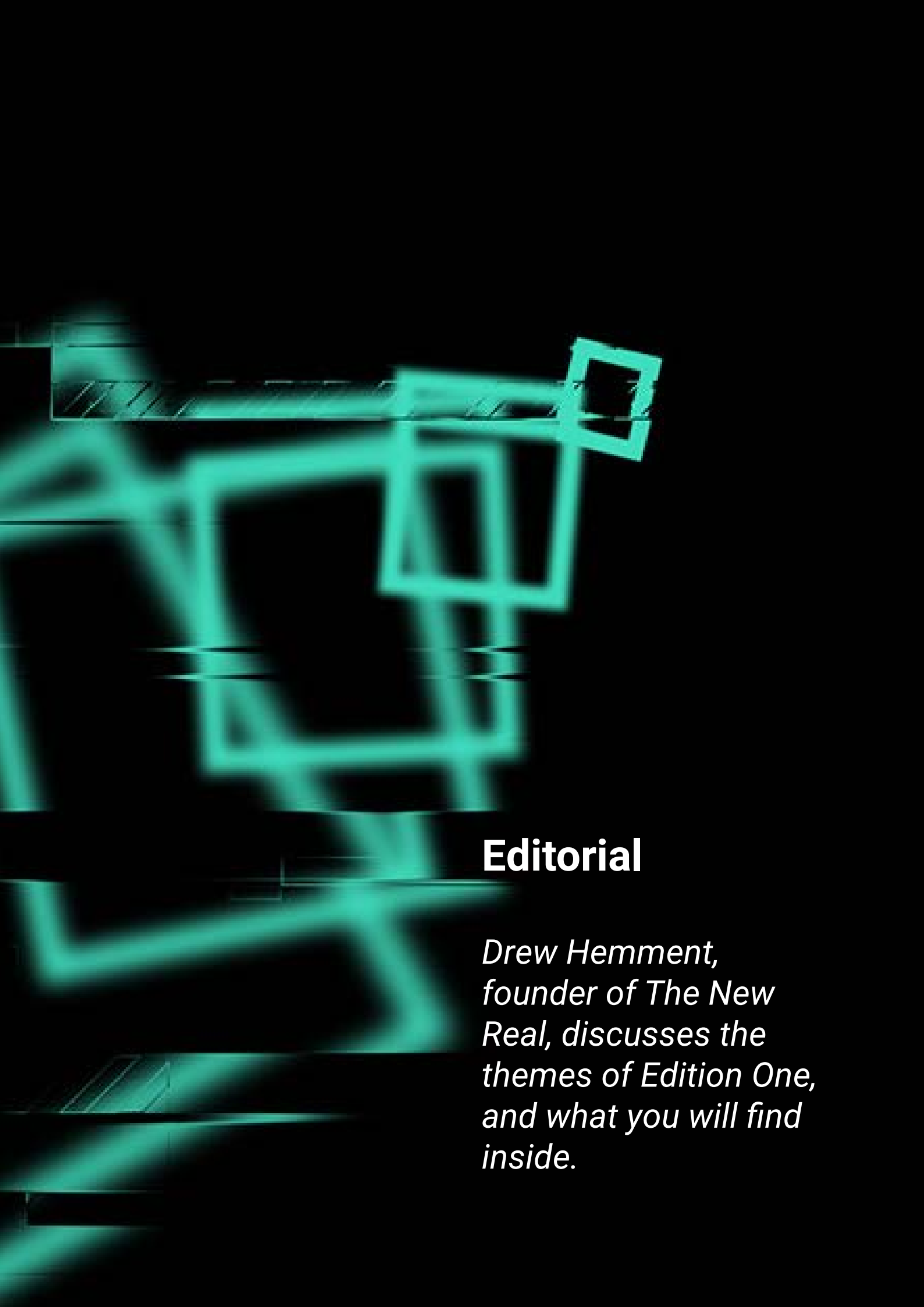
Reflections

Spotlights

Conversations

Interjections

Editors' endnote



Editorial

Drew Hemment, founder of The New Real, discusses the themes of Edition One, and what you will find inside.

Generative AI Arts: **A Synthetic Future Foretold Editorial**

By Drew Hemment

Image: *The Zizi Show by Jake Elwes © Victoria and Albert Museum, London, 2023*

In this, the first edition of The New Real Magazine, we present a guide to working with Generative AI Arts by practitioners at the forefront of the creative wave in AI today, and discover how our present moment was foretold by artists who had already been working with, and on, AI for a decade.

Long before the explosion of Generative AI in 2022 and 2023, a community of artists were changing the way we think of AI, combining prescient insight, powerful activism and inventive exploration.

In this, the first edition of The New Real Magazine, we present a guide to working with Generative AI Arts by practitioners at the forefront of the creative wave in AI today, and discover how our present moment was foretold by artists who had already been working with, and on, AI for a decade.

Join us in looking at artworks, both dazzling and deeply political, and the configuration of artistic, technological, social and environmental themes in each. Hear from philosophers, designers and curators on the way AI shapes and is, in turn, shaped, by our social reality in reflective essays, conversations, and informational pieces.

"I love this moment for us as artists because we get to see what anyone and everyone would use this tool for. It was hard to be in this space until this moment occurred, because it felt too rarefied – I love that the floodgates have been opened." – Amelia Winger-Bearskin, speaking in our artists' roundtable

The present and future for AI Arts

AI has given us capabilities that would have been unimaginable only a few years ago. Conversational agents, virtual characters and other autonomous technologies increasingly become part of creative content, as can be seen in the new generation of chatbots or highly realistic non-playable characters in games.

At the same time, current AI brings major challenges. Widely available generative models we see today have been trained on massive datasets scraped from the Internet, without informed consent, acknowledgement, or

fair pay for the original creators. We have to contend with deep fakes and misinformation. AI is energy intensive, and can amplify harmful bias in the historic data on which it is trained.

"We need a multiplicity of alternative ways to experiment with AI to explore the full potential of this emergent intelligence." – Eva Jäger, Strategies section

It's never been easier to generate an image or text, but current tools offer limited creative control and agency. We can't see how they are working, nor easily modify them. The outputs appear as if by magic, and we can't see why or how our input led to one and not another.

"I had to learn how to be a good prompt engineer. You don't have the control you might want to have; you have to learn how the machine understands a prompt or how it sees an image." – Lex Fefegha, Artists' roundtable

Before the release of the current tools, artists worked in imaginative ways with an earlier generation of Generative AI technologies, such as Generative Adversarial Networks, or GANs. We present a manifesto for a new generation of tools and intelligent experiences that can surprise and delight us, are culturally enriching, and are inclusive, fair and environmentally sound.

"We want tools that go beyond the text prompt ... where there's a real richness applied to the input that better reflects how we as artists – and as humans – engage with the world." – Eoghan O'Keeffe, Strategies section

Back to a future foretold

To move forward, we first must look back, so we return to what AI artists were saying, doing, and making in the period 2019 to 2021.

The insights and strategies from this community of artists over this period remain deeply prescient, and as the wave of Generative AI continues to break they can be applied to newer, emerging issues.

The artists we hear from point us to promising directions for arts and technology, and call out the real and still present danger, that current practices and models will deepen inequality, degrade the natural world, and undermine systems of governance and knowledge founded in our capacity to tell the truth.

"[O]ur field has always been about challenging the ethics of what technology is doing, positively and negatively in our field." – Amelia Winger-Bearskin, Artists' roundtable

They help us read and make sense of the future we are living in today, illuminating the current opportunities and challenges in AI.

The main difference is these are no longer fringe issues; what was a niche has become mainstream.

Hello synthetic culture

Our journey with and as artists leads us to think of the coming era – that has now so spectacularly arrived – as the "new real". Machine reasoning is fundamentally different to the everyday ways in which a human thinks. The more culture is generated by or with machine learning algorithms, so it becomes unfamiliar, estranged, unknowable. We pass another threshold when AI models are trained on the outputs of other models. When synthetic media becomes synthetic training data and is used to train new models, we get a feedback loop amplifying those features. This is a multiplier for everything we have discussed.

"I'm interested in how creative professionals can push these ideas in another direction, in really looking at how AI can help us think about non-human intelligence, experience, interaction and narratives." – Irini Papadimitriou, Strategies section

AI is culture - it is of our history - so we shouldn't reduce it to just productivity. The arts give us the opportunity to ask big questions and reach for the sublime. What does it mean? How is it different to what went before? What can collaboration between humans and AI inspire?

Let's reflect, and make the society and culture we want to see.

Artists in the lead

The arts offer a space to imagine, design, contest, and

reclaim sovereignty over technology. Just as culture is being turned inside out by Generative AI, so the arts give us a set of tools, communities of impassioned people, and the perceptivity and imagination, with which to contest and shape AI. Artists devise alternative futures, and champion ethical and community-led approaches to Generative AI.

At this critical juncture for AI in the Arts, it is important to reflect on who and how is included and excluded from its development, and champion the voices of artists in informing the public conversation. Artists are a vital source of collective and distributed sense-making in this transformative moment, and yet these voices do not always reach policy makers, commercial developers, or scientists in the lab.

"[L]ooking towards artists in this way also requires looking towards the institutions and frameworks that platform, promote and engage with them, considering how and with what impact cultural output diffuses into its wider environment." – Catherine Troiano, Reflections

What to expect in this edition

We open with a guide or roadmap for cultural professionals that explores the extraordinary potential, and the pitfalls, of artificially intelligent technologies used in creative and artistic contexts.

Our manifesto urges us to look beyond the impressive capabilities of current AI tools, to envision intelligent experiences that foster diverse interpretations and interactions, provoking us to search for meaning and come to new interpretations of cultural works and ultimately of ourselves. Our roundtable looks at the changing nature of creativity, the ways artists work creatively with AI, and how artists approach working with tools they may not fully endorse.

"If you're making work ... you're intentionally biasing datasets, and you can twist those biases." – Eryk Salvaggio, Artists' roundtable

We also invited key figures to develop actionable strategies and signposts for practitioners. They describe how to create – or support – inspiring cultural experiences fuelled by AI, what artists want to see from a new generation of tools, and how we can work with AI in ways that are ethical and fair, and respond to the emerging practices and interests of artists.

"Since data is valuable only in relation to other data or in collections of data ... from the entangled and relational point of view of ... collectives, coops, daos, trusts ... forming around specific kinds of data, we can start to see that those kinds of organisational forms might have a lot more power." – Eva Jäger, Strategies section

In our Art section, we read about Anna Ridler and Caroline Sinders, who highlighted the hidden human labour in AI. Their work was a premonition of the way that the large foundation models powering many of today's AI tools are built on the labour of artists who are not credited or rewarded.

Turning to Jake Elwes, we discuss how their project, Zizi, gives us an image for our emerging synthetic culture, one that exposes its multi-layered, uncanny nature. Zizi shows us the Janus-faced nature of AI, it is beautiful and empowering, and in opening AI up as culture, it opens it up to struggle and contest too.

The art projects are more than commentary in themselves; they are points of departure for the rest of us. And so we have included in our Reflections section critical takes from leading thinkers in dialogue with the commissioned work.

"[T]he premise of photography itself has been exponentially expanded, altered and reconfigured..." – Catherine Troiano, Reflections

Shannon Vallor asks profound questions on how we live with the contradictions of AI, with hope and integrity.

"The future of AI ... could be the story of ... a relentless army of angry ghosts that keep haunting us ... until we finally reckon more fully with ourselves ... with what we have been, with what we have failed to be, and with what we can finally be free to become." – Shannon Vallor, Reflections

In Spotlights, we bring together insights from research interactions with artists over this period. We found that

works by this creative community help us understand the ways systems make use of our data, and how truth and experience are constructed online.

We round out the edition with Conversations to hear in the artists' own words about the topics that drive their practice, and some informative Interjections, including a piece on the joys of improvising in real-time with AI.

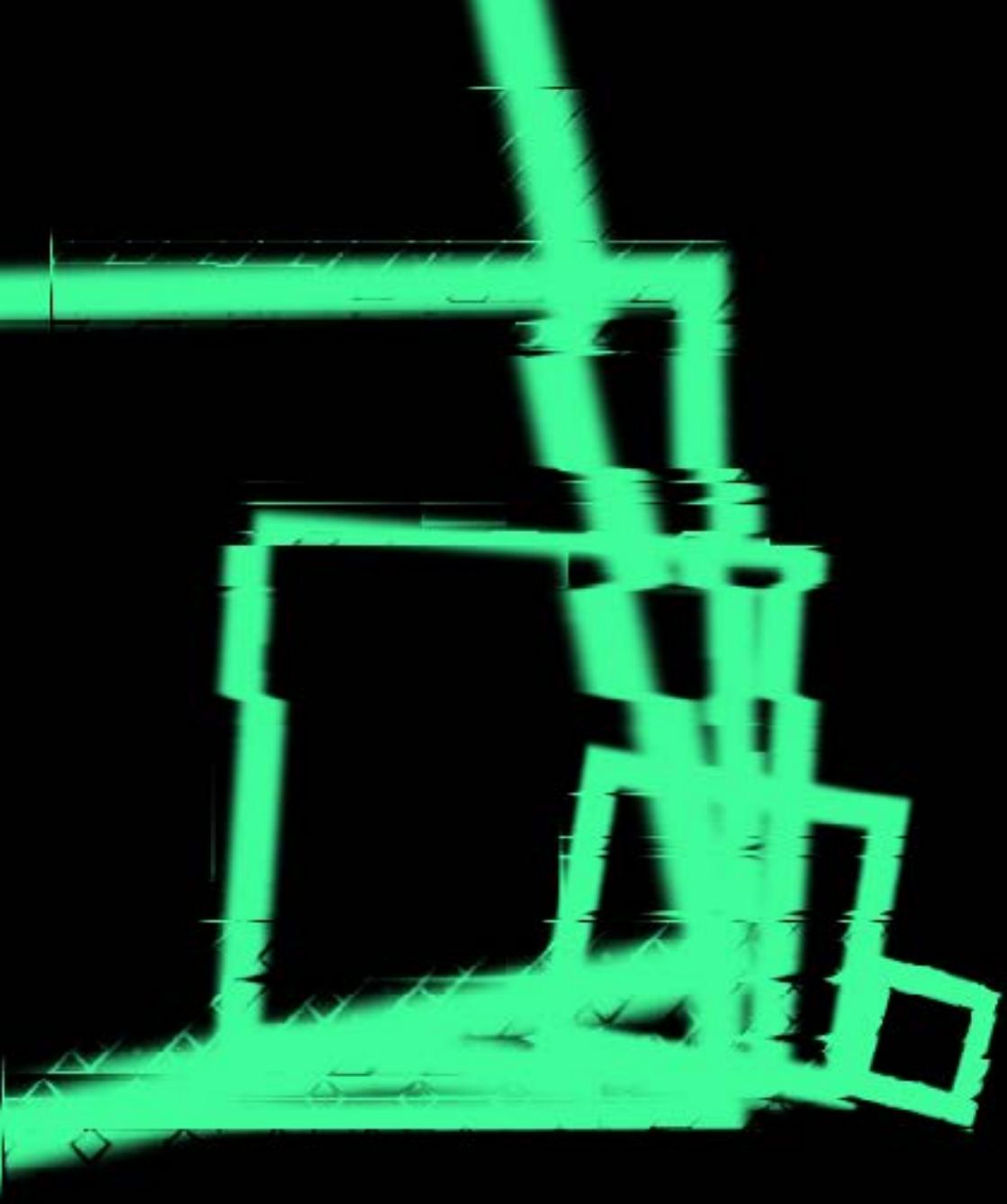
"Imagine a music performance with multiple AI and human musicians, but also AI audience members and critics – an evolving, dynamic, interactive, co-creative system. What will emerge? What are the feedback loops that guide its progress?" – David de Roure, Interjections

One of the biggest challenges we face is the inflated hopes, the inflated fears, and the outright untruths told about AI. We close with a 'myth-buster' in which we identify and then detonate six common myths about AI.

"[W]e have to recognise that we are still in the imagination space of AIs development…" – Eva Jäger, Strategies section

Cite as: Drew Hemment (2023). Generative AI Arts: A Synthetic Future Foretold. *The New Real Magazine*, Edition One. pp 6-9. https://doi.org/10.2218/newreal.9246

Drew Hemment is Professor of Data Arts and Society at the University of Edinburgh and Theme Lead for Arts, Humanities and Social Sciences at The Alan Turing Institute. He is Director of The New Real and Director of Festival Futures at Edinburgh Futures Institute.



Feature: *Navigating Generative AI Arts,* *A Roadmap*

Strategies and recommendations for the arts ecosystem to navigate Generative AI

Introduction: Navigating Generative AI in Turbulent Technological Seas

An Introduction to this Edition's Feature Section, by The New Real's Editor, Gemma Milne.

No longer a technology hinted at by AI evangelists or confined to particular techno-explorative corners of the internet, generative AI is now a staple of popular culture and front-page news.

The simple fact that it's uncool to have an AI-enhanced profile picture now says a lot about the state of generative AI.

No longer a technology hinted at by AI evangelists or confined to particular techno-explorative corners of the internet, generative AI is now a staple of popular culture and front-page news. From the hilarity of the pope in a puffer jacket[1], to huge concerns about an algorithmically-driven 'fog of war'[2] in the Israel-Hamas conflict, generative AI has breached the dinner-table conversations, anecdotes and fully-fledged arguments.

And, of course, there are trends in what's fashionable in the everyday use of generative AI. Using ChatGPT to find that bug in your code you've been searching for for hours? Hot. Changing your profile photo to that Midjourney or Lensa superhero-esque version of you? Absolutely not. Culture has well and truly captured this technology.

Thinking about things economically, though, what does this look like? It looks like University of Cambridge researchers advising government[3] that the "UK should pursue becoming a global leader in applying generative AI to the economy". It looks like McKinsey claiming that[4] "generative AI features stand to add up to $4.4 trillion to the global economy—annually". It looks like Google Deepmind evaluating the social safety[5] of these systems (which they helped create), in a bid to ensure responsible usage[6] of a technology already arguably beyond current modes of control.

This broad cultural exposure to, mass adoption of and political and industrial interest in generative AI means now is the time when it's particularly crucial to empower and support artists in their work exploring, critiquing, democratising and building those key uses, narratives and interactive artefacts surrounding the technology.

How does the art ecosystem engage?

But what are those in the arts ecosystem to do with such an ever-changing, ethically ambiguous, arguably-beyond-control technology? What does it mean to meaningfully engage with something that is overwhelming to dive into? What are those who are already immersed telling us that we must listen to?

This featured section of Edition One of The New Real Editions is here to provide a guide or a roadmap, of sorts, providing helpful information and pathways for cultural professionals to engage with generative AI.

It's aimed at novices (whether that be funders, arts organisations, or artists) who want to develop policy or projects. It's also aimed at those AI engineers and policy makers who want to understand the voice of artists. And even the most experienced AI artists who want to develop new dimensions in their practice may have something to learn from our explorations.

Generative Creativity?

In the creative economy, the potential of generative AI is becoming ever clearer, and with that, there are debates on how generative AI can bring about new creative horizons in fair, ethical and sustainable ways.

Looking at image generators, we're seeing tools such as Midjourney[7] and Stable Diffusion[8] which take text prompts to generate visuals in various different styles. Responding to the demand[9] from users wanting to better control the GAN's (Generative Adversarial Network) outputs, Hugging Face released DraGAN[10], which allows users to manipulate the generated images – perhaps to make the lion look left instead of right, or make the rocket bigger or smaller. This may sound trivial, but changing poses, shapes, expressions and layouts really opens up the tools' ability to create 'on demand' more precisely what is being sought.

In music, there's tools to prompt inspiration, such as AI Duet[11], that has a computer respond to your musical experimentation and play. Then there's production tools like Sounds.Studio[12], with features such as stem splitting and generation of entirely new sounds. Jukebox[13] is perhaps the most well-known generative sample maker; and let's not forget the impact of voice generation and deepfakes which can play into next generation vocals, such as tools from companies such as Dreamtonics[14].

In gaming, there's a huge focus on using generative AI to aid in creating even vaster worlds[15], narratives which branch even further, and even more realistic terrains and effects. Rapid prototyping powered by AI – using something like ChatGPT which can remember previous prompts and build a game outline iteratively – could have a real commercial impact[16] for game-makers. There's also the inspiration element, with AI-generated character design, game sound and mission rules.

The list of tools that artists have access to are growing all the time – so much so, that the Serpentine's Creative AI lab has commissioned and maintains a searchable database[17].

All of this 'generative creativity' opens up profound questions related to intellectual property[18], both concerning the rights holders of the content on which the models are trained, and also creative work generated using AI, where rights or attribution may be unclear. Conversations also go further, as seen in contributions to The New Real, and elsewhere, with questions including what art 'really' is[19] in an era of generative AI.

An offering

This featured section dives in to these topics - so, what can you expect?

We open with an exploration of the concept of 'Intelligent Experiences' – this piece presents a vision for the future of the arts following the generative AI turn. It tells a story about what we would like to see, and is close to a manifesto. This can in a sense be the 'destination' that those seeking something to aim towards may take inspiration from.

We then move onto diving deep into the artists' take on generative AI, where we eavesdrop on a roundtable discussion between four world-leading AI artists. We listen in on the things that are important to artists, their issues and interests when it comes to developing art using these tools, as well as what worries and excites them about the future.

Following this, we have chosen three pertinent topics and have asked three relevant experts to gift their recommendations and actionable strategies for those in the broader art ecosystem.

To advise us on 'Creating meaningful cultural experiences fuelled by AI', we invited Irini Papadimitriou, Creative Director of FutureEverything, to explore what makes art 'intelligent', what questions artists need to ask, and how institutions can play a role in bringing to fruition impactful work.

To advise us on 'AI artist's tools', we invited AI artist Eoghan O'Keeffe to give us insights into what creatives are looking for from the tools they use, what it means for artists to have more agency in their work, and what developers could provide to make their tools even more usable, transparent and desirable.

To advise us on 'ethical AI systems and organisations to empower artists', we invited Eva Jäger, Curator of Arts Technologies at the Serpentine to advise on viable alternatives to current capitalistic industry models, what the central issues are at the heart of these debates, and how to rethink what attribution and creation means in our current AI era.

Writing the Roadmap

A quick note on our methods, because as much as we're an unconventional band of researchers, finding things out is at the core of what we're about.

We believe strongly in collective sense making and distributed, bottom-up leadership, hence why we looked to those at the forefront using these tools 'at the coal face' to help inform not just the advice, but the direction of travel for our research. We look to lived experiences of artists for data, and we explore topics in conversational and relational formats to enhance collaboration.

We are guided in our explorations by our 'four A's': Aspect (the themes or issues of concern, and how to place social values first in AI design); Algorithm (the system and technology design we would like to see implemented, how can this be more legible and accessible); Affect (The quality and character of a work or experience for an audience, and AI can bring to that); and Apprehension (the learning and other outcomes we hope to see, what the 'moon shot' is).

And we are keen to ensure that our knowledge creation has action at the core. This magazine as a whole deliberately mixes academic research, journalism, 'edutainment' and policy-recommendations, and that is mirrored in this Featured section in the hope that we can provide an essential reference point and source of inspiration for policy makers, commercial developers, or scientists in the lab to create a better environment in which artists alongside generative AI can flourish.

So on that note – it's time to dive in.

Cite as: Gemma Milne (2023). Introduction: Navigating Generative AI in Turbulent Technological Seas. *The New Real Magazine*, Edition One. pp 11-14. https://doi.org/10.2218/newreal.9247

References:

1. https://www.nytimes.com/2023/04/08/technology/ai-photos-pope-francis.html
2. https://www.wired.com/story/israel-hamas-war-generative-artificial-intelligence-disinformation/
3. https://www.mctd.ac.uk/which-path-should-the-uk-take-to-build-national-capability-for-generative-ai/
4. https://www.mckinsey.com/featured-insights/mckinsey-explainers/whats-the-future-of-generative-ai-an-early-view-in-15-charts
5. https://docs.google.com/spreadsheets/u/1/d/e/2PACX-1vQObeTxvXtOs--zd98qG2xBHHuTTJOyNISBJPthZFr3at2LCrs3rcv73d4of1A78JV2eLuxECFXJY43/pubhtml
6. https://deepmind.google/discover/blog/evaluating-social-and-ethical-risks-from-generative-ai/
7. https://www.midjourney.com/home
8. https://stablediffusionweb.com/
9. https://huggingface.co/papers/2305.10973
10. https://huggingface.co/spaces/DragGan/DragGan/tree/main
11. https://experiments.withgoogle.com/ai-duet
12. https://sounds.studio/
13. https://jukebox.openai.com/
14. https://dreamtonics.com/
15.https://www.newscientist.com/article/2390019-ai-generates-video-game-levels-and-characters-from-text-prompts/#:~:text=A%20simple%20generative%20AI%20tool,be%20while%20still%20proving%20useful.
16. https://www.bain.com/insights/how-will-generative-ai-change-the-video-game-industry/
17. https://creative-ai.org/
18. https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem
19. https://direct.mit.edu/leon/article-abstract/55/2/130/102695/Who-or-What-Is-an-AI-Artist?redirectedFrom=fulltext

A manifesto for Intelligent Experiences

This is our manifesto for intelligent experiences, along with some ideas on how AI design needs to change...

By ***Drew Hemment, Elena Simperl, Mark Sandler, Helen Kennedy, Steve Benford, Sunil Manghani***

A manifesto for Intelligent Experiences:

Let's look beyond the impressive capabilities of current AI tools, to envision 'intelligent experiences' that can surprise and delight us, are culturally enriching, and are inclusive, fair and environmentally sound.

Intelligent experiences are encounters with creative works infused with new and emerging technologies. They encompass sensory, emotional and intellectual engagement with various interfaces and artifacts powered by machine learning models.

These experiences are where humans meaningfully engage with machine learning's predictive capabilities. They manifest the outputs of machine logic in forms that humans can understand and interact with.

Crucially, intelligent experiences foster serendipitous, unexpected interactions rather than trying to replicate interactions learned from the past. This goes beyond efficiency, or mimicking the works of human artists. Intelligent experiences are celebrations of diverse interpretations and interactions, and mediators of constructive discussions rather than heated exchange. They provoke us to search for meaning and come to new interpretations of cultural works and ultimately of ourselves.

The arts, like any other field, have a responsibility to use technologies responsibly, so we call for intelligent experiences to be not only delightful and enriching, but also socially and environmentally just. They need to express a multiplicity of data rights and ownership and acknowledge and reward effortful human creative practice.

For this to work, we need to ask questions of AI itself and consider how the technology needs to evolve to make a lasting impact on human creativity. This vision for intelligent experiences will require AI to become more subjective, playful, able to deal with ambiguity, open to failure, improvised, negotiated, and being open to critique from those who engage with it. We believe intelligent experiences can help to radically change how we think about AI design, moving beyond the current paradigm of learning patterns from large amounts of data, to embrace human traits such as bias, disagreement, and uncertainty as a signal with creative potential rather than noise that needs to be removed.

THIS NEEDS TO WORK ON THREE LEVELS – CREATIVE, TECHNICAL AND SOCIAL

Until the explosion of generative AI in 2022 and 2023, AI was typically viewed as a means to; (i) automate and scale creative 'products' and processes; (ii) enable micro-targeted, hyper-personalised experiences, often in exchange for consumer data; and (iii) streamline and amplify how people input within a creative process. We now see powerful new tools, such as DALL-E 2, Midjourney and ChatGPT powered by recent advances in diffusion models and large language models. We are also beginning to see AI being used in combination with other emerging technologies, from extended reality and robotics to new quantum technologies.

And yet, the new tools are blackboxed and offer limited creative agency to human users. There are societal consequences that are well documented. It can amplify harmful bias, it is energy-intensive, human labour is exploited, privacy can be violated, and value and power are centralised in the hands of a few.

Our manifesto anticipates a whole new context for making, sharing, learning, connecting and consuming. To deliver our manifesto, it is necessary to consider creative, technical and social factors:

Creativity – Empowering creative practice
For the creative sector, the step change is towards experiences infused with AI and other emergent technologies, that foster serendipitous and surprising interactions, that go beyond replicating interactions learned from the past. The arts demonstrate the value of human traits such as intuition, spontaneity, provocation and risk-taking. In the arts, bias can be a virtue: it is talent and taste. More legible and configurable tools can enable artists to more meaningfully interact with AI models, and build on sophisticated machine learning predictions derived from up to tens of billions of parameters. In turn, to achieve our vision for intelligent experiences, we hope to see the work of artists and techniques in creative domains drive innovations and make new demands on the technologies. Creative disciplines can create more balanced datasets for AI; make AI systems more interpretable; examine failure as a productive feature in AI design; and accommodate singular truths being displaced by a multiplicity of ideas and interpretations. The arts offer a site of creative experimentation where the most recent technology ideas can be connected to applications and impacts in the real world, uncovering challenges and opportunities.

Technical – Augmenting AI
For science and engineering, the step change is towards AI and related technologies that are more human, changing how machine learning and other automation techniques work, through a focus on the discovery of new features that are not in the data and on valuing human skills and expertise. Machine learning, the most dominant form of AI today, generates outputs based on the ingestion of vast quantities of historical data. Consequently, it amplifies existing features in the data, and, to that extent, it produces predictable outcomes, similar in some high-dimensional way to the examples it has learned from. The capabilities of the new generative AI tools are hugely impressive. Of high interest are the so-called emergent properties of large language models which are new and unexpected. We see something similar in the new game strategies computers find in chess, Go and beyond. This shows that AI is capable of unexpected discoveries, and goes beyond merely uncovering a pattern in the data that was not obvious to the naked (human) eye. Nonetheless, fundamentally AI can only discover things that were already in the data. To discover something genuinely creative, AI needs to radically change, through new approaches to design, evaluation, and use. This requires a significant shift in AI research across different academic communities, towards participatory AI design, and more holistic notions of system evaluation and impact. It requires AI systems that work with and for people in adapting, evolving, and responsive ways. The ingenuity of the creative sector can shape emerging AI, and inform the next generation of transformative, yet human-centric technologies.

Social – Improving fairness, diversity and sustainability
For society, the step change is developing new participatory, interdisciplinary formats to understand

and assess when products and services do not amplify harmful bias, or squander planetary resources, and suggest new ways to think about social, economic, and environmental justice that resonate with diverse demographics. Through open and inclusive engagement with the international communities of critical arts, we can place a premium on research that is socially and environmentally reflexive, that informs policy and advances the betterment of society. The creative sector can help society navigate the profound transformations brought about by new and emerging technologies, and find new, progressive ways to engage with them. Artists, adept at surfacing critical societal issues, can contribute novel and more holistic perspectives on human-AI interaction, and improve understanding of how people perceive, think and behave in response to automated decision-making. The creative community so recently shaken by the COVID-19 crisis can help us to identify radical new forms of inclusive value and anticipate the implications for future disruption.

TOWARDS INTELLIGENT EXPERIENCES

We hope these ideas can help creators to inspire the next generation of globally connected audiences, while at the same time avoiding, and perhaps even helping us to tackle, some of the negative societal consequences of current AI.

In our own research, we are taking steps towards this vision for intelligent experiences through our work on Experiential AI, which aims to open up the AI field to greater transparency and collaboration between human and machine (first proposed in our 2019 article in AI Matters[1], and recent results reported at ACM Creativity & Cognition 2023[2]). We have also discussed how artists can inform the public conversation on AI (see AI in the Public Eye[3]), or challenge us to think deeply about technology by asking difficult questions (see 'Five Provocations for a More Creative TAS'[4]). This is aligned with new research directions in other domains, such as data-centric AI where bias, disagreement, and uncertainty are recorded with the dataset because that's the only way to minimise the risk that the AI is harmful.

We hope this manifesto can inspire new forms of creative practice and experiences for audiences, across the full range of creative disciplines. This can include new artistic forms in which AI facilitates experiences infused with intelligence; the use of autonomous systems to support or enhance creativity; and intelligent systems as an autonomous creator and creative partner. It also includes novel ways to present and experience creative works, by the approach and principles in this manifesto being applied to discover, curate, distribute, and consume creative works; to drive conversational approaches to co-interpretation; and to manage content authenticity, provenance, and intellectual property rights.

We can envision practical applications of intelligent experiences in many settings, from new forms of content discovery to live events, visitor experiences, and also non-art applications:

Live & Immersive Events:
Intelligent experiences open up a range of opportunities and questions for immersive, live interactions, in gaming, and for the events industry. Intelligent experiences that are not only immersive, but also intuitive, uncontrived, and open to change, can enhance the intimate connection between a live music audience and an act on stage, or a gamer and a character in an open-world game.

Museum Curation & Visitor Experiences:
The contemporary museum is not so much driven by the need to acquire more exhibits as it is to find diverse and inclusive ways for visitors to interpret existing exhibits and discover relevance. Intelligent curation can engage audiences in co-interpreting content with and through AI, reflecting debates about identity, and facilitating personal meaning-making and serendipitous encounters. This can lead to emotional and personally meaningful conversations and edifying, beneficial and equitable experiences.

Information & Public Displays:
Beyond the arts, as new computational methods become suffused in urban environments, and informational interfaces across a wide range of settings, from hospital wards to train stations, they will directly shape how we co-interpret and make meaning of daily experiences or critical information. It becomes possible to foster more contextual understanding and enhance the capacity for

the decisions and actions of technical systems to be made more legible to humans.

Our work in developing this manifesto has been community-driven. The community first convened in 2019 around The New Real group and our Experiential AI theme, and then through the AI & Arts interest group at the Alan Turing Institute. It has brought together the research community, professional artists, cultural organisations, technology companies, policymakers, and the public. This work continues to this day, and we invite you to join us in this journey.

Cite as: Drew Hemment, Mark Sandler, Steve Benford, Helen Kennedy, Sunil Manghani, Elena Simperl (2023). A Manifesto for Intelligent Experiences. *The New Real Magazine*, Edition One. pp 15-19. https://doi.org/10.2218/newreal.9248

References:

1. https://dl.acm.org/doi/10.1145/3320254.3320264
2. https://arxiv.org/abs/2306.02327
3. https://doi.org/10.1145/3593013.3594052
4. https://dl.acm.org/doi/10.1145/3597512.3599709

Artist's roundtable - The artists' take on Generative AI

Eryk Salvaggio, Lex Fefegha, Caroline Sinders, Amelia Winger-Bearskin

The New Real's creative agent, Caroline Sinders, sat down with three other artists working with generative AI – Lex Fefegha, Eryk Salvaggio and Amelia Winger-Bearskin – to explore future landscapes for creative AI

When looking for actionable strategies, insights and recommendations, often we look to researchers, consultants and external experts. It's crucial though, that we gain insight from those at the coal-face; and with respect to generative AI and the creative industry, that's the artists who are making the work and building the tools

The New Real's creative agent, Caroline Sinders, sat down with three other artists working with generative AI – Lex Fefegha, Eryk Salvaggio and Amelia Winger-Bearskin – to explore future landscapes for creative AI, find out what co-creation between AI and artists can look like, and - simply - capture what artists want from both AI and those influential people in the broader ecosystem of funding, curation, museums and policy-making.

What follows is an edited-for-clarity-and-brevity

eavesdrop into their conversation.

Caroline Sinders: So tell me why you all work with generative AI and what are your thoughts about it as a tool?

Lex Fefegha: I've always been interested in building software, and creating stuff for creators to create interesting stuff, but I knew one thing about AI: if we're training this on the same data sets that currently exist, similar to if you were to put that AI tool in a criminal justice situation, the dataset is going to have a high chance of bias. A lot of the work I've been doing is to help tech companies make sense of generative AI in terms of what feature they should build and what role generative AI should actually play in society. I recently worked with IBM Watson; I was asked to create an interactive installation with generative AI, which would look at different moments in history. The context and concept behind this interactive installation was the weather as the original influencer in history: we took moments in history and said, what happened if the weather was different that day? **I learned a lot as this was the first time I'd ever worked with Midjourney (where before I had trained my own models from scratch), and so I had to learn how to be a good prompt engineer. You don't have the control you might want to have; you have to learn how the machine understands a prompt or how it sees an image, especially where I was talking about hip hop and blackness and things that are not necessarily 'default'. There's a lot of bias in these things, especially when it comes to prompt engineering.**

Eryk Salvaggio: I first started getting involved in generative AI when I realized that it did not produce very accurate images of black women. You got distortions: you got lower resolution, blurrier images and more errors. And thinking through that as opening up the dataset and seeing there's very few images of black women in this dataset. And then realizing that is also being used to train surveillance systems, being used to train all kinds of different processes and realizing that this relationship between the image and the bias that is in the datasets is circulatory. **And thinking about that as an artist was interesting, because you could test and prove that by making work. If you're making work with GANs (Generative Adversarial Networks), you're intentionally biasing datasets, and you can twist those biases. Instead of relying on GANs to train images on one category, say: flowers, you could train it on flowers and ballet dancers, and get these hybridizations.** This oriented me as a way of thinking about that really strong link between generative AI and the underlying issues that are present in the ideologies of AI and thinking through how we can sort of twist those.

Amelia Winger-Bearskin: Nowadays, we are up against a lot of assumptions and misinformation when we talk about generative AI – I often combat this by being very descriptive about what my work, like: "in this work, I'm using an AI painting technique, this is what the algorithm does for that, this is why I chose that, this is the maths behind it." I feel like I'm combating a lot of language around it being magical, for example. But people are more aware that it's biased, which is good, but then I'm combating them being angry that any artists would choose to engage in an unethical, unregulated, terrible thing that's stealing all of our jobs. In the past it may have sounded alarmist to be worried about the repercussions this thing could have in the future. Well, now we're in that future. For example, what does it mean when AI is trained on the basis of work that has been stolen? People say that there are no laws regulating the use of AI, and yet that's not true: existing basic copyright laws, they're already violating those. I speak a lot to people who are part of the SAG-AFTRA[1] strike – that is the first union to be public about generative AI and its impact on their industry.

CS: A lot of people see it as inherently contradictory that artists might use a tool that they don't absolutely endorse. I'm somebody who has made an entire art career out of using tools that I'm deliberately focusing on strengthening critique of and understanding from the inside-out. We need people who know these tools to also be on the side of the people who are resisting those tools.

AWB: For those of us who have been in the art and technology space for a long time: we are failing if we are not building bridges to the current pain points there are in an industry that is adjacent to ours; which is also ours – we may make work commercially in different ways than SAG-AFTRA, but at the heart, we're all artists. They're part

of our community, and we're failing if we're not showing up by saying: for 20 years we've been studying this, we've been ringing this bell and no one's been listening to us. Now other people are actually on the street; on a picket line. **We have to remind them that our field has always been about challenging the ethics of what technology is doing, positively and negatively in our field. And in being that pushback and that check to how far something can infringe upon our human rights both by understanding and knowing it. We know it because we can use it. We know it because we've helped build it.**

CS: So much of the history of art is also about technical innovation, like with the onset of photography for example. All of this ends up changing and impacting the ways in which we make art and it feels like sometimes we forget that so much of art is not only a dialogue and critique of technology by doing, that it's also an engagement of the process itself. When you see a seasoned artist use a tool, it's sometimes very different than how the creator of that tool conceptualised it. There's something interesting that artists can do, where art making doesn't stop with the generation of this one thing; it's the context of how I'm going to use this. Some of the art I've seen that uses generative AI is often a very big series of work, it's not a singular image, right? It's a part of something much larger.

AWB: I really love the moment when any tool becomes truly democratised. Like when Photoshop just first came on the scene. I'm so old that I remember the controversy because people found a couple of versions of supermodels where it was very obvious that they had done a bad Photoshop – little did they know that every single one of the images was Photoshopped! – but then people were saying we should outlaw Photoshop, no one should be able to use Photoshop, it's terrible for our society; even though it was already pervasive. But then you started seeing things like Gimp and other Photoshop clones that were free and available online, then you got the good memes – the moment that a child can access this technology, stuff gets interesting. That's where the culture-jamming starts, because they are looking at this as a tool of play, not just a tool of industry to make supermodels look even more perfect on the front cover of Vogue or whatever. We wouldn't have had memes if it wasn't for these knockoff versions of Photoshop. And we wouldn't have had that until Photoshop became truly democratised and understood by the masses – even though it started off with a panic. We're at that moment of total democratisation around generative AI where a very young child can type something in and see a response and then start playing with that: "What is SpongeBob made of Dorito tacos that's riding a skateboard?" I mean, these are the things that my students do their first time playing around with these tools. They make very, very funny images. It's very human, rather than very industry. **I love this moment for us as artists because we get to see what anyone and everyone would use this tool for. It was hard to be in this space until this moment occurred, because it felt too rarefied – I love that the floodgates have been opened.** It challenges all of us to make sure that we're doing work that is actually culturally relevant, that pushes back, that is radical, that has some type of revolution baked into it of the world that we want to see.

ES: It's sort of like it's like paints, right? For a long time, purple was this very expensive colour, and then they found a way to synthesise purple and now everyone has access to purple. Now we don't care if there's purple in your painting; it's what you are doing with the purple. There's a lot of really bummed out AI artists who don't understand why they are making work that they think is really visually compelling, and no one is interested in it. They don't quite realise that if it's democratised for you, it's also democratised for everyone else. Making a compelling visual image is no longer interesting; what you actually have to do is try to think about all of the affordances this technology makes available to you. **Throw away the instruction manual, figure out where you can push these systems in directions that the tools are not necessarily designed for, but that give you a kind of a unique angle on what you can do with that.**

CS: Something about democratisation that is so accurate, is that it's so human. With technology like generative AI, it's always kind of off, or it's too polished. It's a very similar conversation that I think happened with painting, if you considered photography as pure visual mimicry. What we then have is experimental painting, like the onset of Cubism, right? Something a photo can't do. One of the things I'm wondering now with generative AI: are we going to see the return of people building physical sets, in even new media, or will we see the insistence on really beautiful installations? Will we see people scanning objects where

all the mistakes are in the object, where you see the wood-grain; the things that generative AI does not do; when everything is perfect, in a weird way?

ES: I work with technology in order to despise it properly, which is one of the two big quotes that we have at the Algorithmic Resistance research group. One of the things I'm interested in is: what do we mean when we say imperfection? We have this idea that what we have democratised is not creativity, but instead simply access to the ability to produce an image that we think passes as creativity. One of the things I've realised is that someone stole the definition of creativity from you: they told you it was about making a perfect image. Creativity is the process of trying and failing to make a perfect picture, and when you take that away, you are not democratising creativity or democratising the art process. What you're doing is you're automating that and you are depriving people of that challenge and the joy of discovering your own limitations and working around them. **By automating the production of perfect images, what we're actually doing is skirting the entire idea of what creativity actually is**. It's snobby to say, you didn't really make those AI images, and I actually don't think it's true. I think the typing prompts can be a way of doing art. But we don't talk about it that way. The focus is so much on the outputs of the system that are being scraped out by all this data processing, and you're steering through it. Like what is your struggle in that creative process? That's actually what makes things interesting.

CS: As artists: what do we want from AI? Are there concrete actual requirements for the AI community? Consent, credit and compensation I think is a major thing for me. I wish we could have nuanced conversations about generative AI without it sounding alarmist, though I'm cognizant of the fact that I do think that this is going to impact aspects of the creative industry. I wouldn't be surprised if we see smaller and smaller fellowships, or a lot more confusion over the artistic and creative practice. Underpinning the global conversation are the misconceptions of how much creativity is worth and how long it takes to be creative, how long it takes to work on a piece of art. This capitalism hellhole we're in: every hour is subdivided into billable minutes, and with the rise of the gig economy, suddenly there's an expectation that you'll create a piece of really good work, that you are underpaid for, really quickly. You need a lot of time to be creative. You just need time to sit down and stare at a screen sometimes or look at something that has nothing to do with your work. That is part of the process. And I worry that this further flattens that, and puts us in a place where we're all urgent all the time.

AWB: I think it is important for us to make space for the unknown and to remind people that we're at the beginning of this journey with AI. Nothing has yet been decided; we haven't yet finalised how these tools are going to be used or should be used. Even though it seems like it's moving so fast each year. People always want to be like, what's the call to action? And I think maybe pushing back and saying it's okay to have ambiguous feelings and conversations and thoughts around this for those who are not immersed and bathing in this strange, murky water that we are all of the time. As we interface with policymakers and fellowship directors or other people in the art sector, we need to remind them that we can keep this ambiguousness longer and that will be beneficial for many of us to not come to immediate conclusions.

LF: I'm currently in a place where I'm trying to work with companies who exist in the business of creativity and understand how generative AI could help them. I want to understand the relationship with labour and how, from a capitalistic standpoint, that influences the way generative AI is used. I've always sat more on the design side, rather than the artists: I know, innovation is the weapon of capitalism. So for me it's about how does this make sense and how, if these technologies are going to be implemented, how can it be done in responsible ways? I'm just in a place of learning and observing and trying to make sure I can keep a roof over my head at the same time. I do notice where I sit though.

ES: I liked that point about connecting labour and the idea of showing the work in these systems because they really are designed for erasing work. They erase work by collecting datasets of artists and putting them together and not attributing them. They erase work in that the image you get sort of appears suddenly. You don't see the system struggling with creative choices. Revealing labour in the process is really interesting. I've been having a lot of conversations about Bunraku which

is this Japanese puppetry style, where the puppeteers are visible onstage. Something I read which I liked: seeing the performers holding the puppet strings, how could anyone mistake the puppets for a dog? And I think that's a really cogent summary of where we are now: **if we could see the labour that went into these systems, the labour that went into the art that goes into datasets that makes those pictures; if we could reveal that somehow, we would perhaps no longer have the illusion that these systems are gods or magic boxes, and I think that would be really important to do.**

References:

1. https://www.sagaftra.org/

Cite as: Eryk Salvaggio, Lex Fefegha, Caroline Sinders, Amelia Winger-Bearskin (2023). Artist's roundtable - The artists' take on Generative AI. *The New Real Magazine*, Edition One. pp 20-24. https://doi.org/10.2218/newreal.9249

Bios:

Eryk Salvaggio: I'm an artist and I've been making art for 25 years now, using technology as a way of understanding technology: by making things with technology. I've gone from starting as an Internet artist, doing a lot of thinking through policy and ethics around technology. People started coalescing around AI, and so my art also started aiming at AI as a way of unpacking some of the things we were thinking through in policy spaces, such as AI responsibility, safety, ethics – whatever you want to call it, it's really just thinking: "what is this doing to people?"

Amelia Winger-Bearskin: I'm the Banks Endowment Preeminence Chair of Artificial Intelligence and the Arts at the University of Florida Digital Worlds Institute, the director of the US AI Climate Justice Lab and the founder of Wampum.Codes, a podcast and an ethical framework for AI and software development based on the principles understood by my people the Seneca Cayuga Nation of Oklahoma. There's a misconception about what Wampum is: people think it's a form of currency, but it was actually a decentralized means of recording contracts; something like a pre-Columbian blockchain that encoded not just financial transactions, but also ethical values. The project of Wampum.Code is to try to imagine how we can weave ethics back into 21st century technologies. We can embed these values as dependencies and code the same way we do in the rest of our package json. By implementing a decentralized protocol around ethics and AI software, we can make a step in the right direction. I like to say that we live our lives according to a moral code and the time has come for us to code our morals.

Lex Fefegha: I've always seen myself as a hybrid of a designer / craft technologist, and my interest in the world of AI came from a city trying to explore locators as technology. There seems to be two sides of the argument: there are people who say this technology is going to transform the world and there were people who say that this technology is evil. I was like: "Okay, this sounds interesting". I'm interested in playing around with this technology to explore what role it should have in society and then also exploring AI and creativity. For the last couple of years, I've run a design studio in London, and over the last couple of years, I've also got this sort of AI practice. I've just been somebody who's been interested in exploring what we can do with this technology and see where it can go.

Caroline Sinders: I should probably introduce myself too: I'm Caroline and I look at how technology impacts society through the lens of how it impacts marginalized groups, and I make art about that.

How do we create inspiring cultural experiences fuelled by AI: with Irini Papadimitriou

Image: *Wesley Goatley's Newly Forgotten Technologies from AI: Who's Looking at Me show with the Science Gallery London*

At The New Real, we want to reflect and represent those at the forefront of art and AI – and to work with them to develop actionable strategies and signposts for practitioners.

*Here **Irini Papadimitriou**, Creative Director at FutureEverything and renowned curator of AI arts, looks at what it takes to create significant art and inspiring cultural experiences fuelled by AI*

We wanted to know: Putting efficiency and productivity to one side, what are the transformative cultural experiences for audiences? What makes works fuelled by AI interesting or inspiring? How do curators or funders recognise artistic excellence or significance in AI art? How can AI art enrich culture rather than impoverish it? What makes a cultural experience 'intelligent'? What do you hope to see in AI art in the future?

Here is what Irini told us.

We need two-way conversations between the arts and technology

A strategy to make a strong cultural experience that's fuelled by AI, as opposed to something derivative or lacking in substance, is to approach it as a two-way conversation between artistic and technical dimensions in the work. Look at how the AI technologies can be used in unexpected and creative ways in artistic practice; as well as how cultural experiences using AI enable us to demystify the technology and be part of the public conversation, giving a voice to those who may not always be heard, and opening up spaces for a greater diversity of people to take part.

We need work which asks more questions than provides answers

The work I'm most intrigued by brings up much-needed questions about how we engage with AI and how AI impacts private and public spaces – and these pieces open up questions or reframe how we think about AI and the way it shapes society, rather than providing answers or solutions. I'm also inspired by pieces that push us to think about the nature of creativity as well; showing us novel ways to work with AI technology to enhance human creativity and exploration.

Artists can shape new narratives and new ways to think about technology that go beyond productivity

There's a predominantly one-sided way of thinking about how we use AI in society: that which looks at it through commercial gain, corporate work, productivity, optimisation and capital. I'm interested in how creative professionals can push these ideas in another direction, in really looking at how AI can help us think about non-human intelligence, experience, interaction and narratives. There is so much hype about AI, so much bias, it can be pretty problematic to work with AI, and there are so many tools which are now broadly available – so it's about moving beyond the trap of the hype. Artists have always played with technology in completely new ways before commercial uses were necessarily discovered and deployed; so it's about thinking how we can encourage this kind of exploration with AI beyond what we've been fed by corporate hype.

Audiences are often inspired and excited by work that breaks stereotypes and challenges what they think they know about AI

There is a lot of media coverage of AI, so audiences have an existing interest in the technology due to online discussion and popular culture. What I think gets audiences excited and interested is work that breaks stereotypes, that thinks beyond what people already know and perceive about AI. Artists can challenge those myths and fantastical visions about tech that we've heard through science fiction; artists can help us visualise things we're not able to see.We need work that challenges our perceptions and ideas, and that opens up new possibilities, visions and perspectives.

We need cultural experiences fuelled by AI to help us explore 'more than human' ideas

I'm always thinking about Ursula Le Guin's idea of technology as a 'carrier bag', and how AI can be a carrier for different collective and open narratives that take us beyond our human-dominant stories. Artists have always experimented with new ideas in technology and media, and this creative exploration brings different perspectives to the fore about what those technologies and media are and how we perceive them as humans. It should be the same with AI: there's lots to be explored surrounding AI that's not anthropocentric, that is 'more than human', and these explorations can help us question the idea of intelligence as being something inherently human, and what the planetary, ecological, and machine intelligence possibilities there may be beyond 'us'.

To make truly impactful AI cultural experiences there needs to be a human element

It's important to not forget the importance of human narratives, stories, empathy and our ability to push boundaries. I don't think AI is creating art autonomously, we're not there yet and may never be: the way that machine learning works is based on creating endless loops of data – so we need human ideas, questions and creative insight brought to task to challenge AI itself. We also need the human element to help open up new

ways of thinking about our 'human-ness' itself. Artists respond to contemporary societies at large - looking at broad social issues - but it's also about expressing and exploring our humanity at the core.

We should encourage critical thinking and not instrumentalise art

I see excellence and significance in cultural experiences fuelled by AI when they open different perspectives and take a critical view to change how we perceive the world. To paraphrase Olivia Laing, artistic research in AI can be training grounds for new possibilities. Those new possibilities will grow when they have space to flourish, and I hope as we move forward into the future of AI and art always making space for exploring diverse ideas, and that we don't just simply instrumentalise art 'to serve' progress.

We need to ask bigger questions when deciding whether to explore AI through our art

We must ask whether it is even necessary to work with AI. It's key to consider what it actually adds and brings to the conversation. There are many AI ethical questions to consider, such as those surrounding datasets, authorship, environment and so on – of course these don't just apply to AI artists but to cultural production more generally, but thinking these questions through with respect to your 'why' is important. It's key to ask: 'Is AI allowing me to ask new questions?' For those funders and cultural organisations looking to advance AI art, they must again ask bigger questions: what are our ambitions for AI, what do we want it to fulfil, what stories do we want to create, for who, and by whom – it's about asking those deeper questions, not just jumping on the bandwagon of a technology trend.

Irini Papadimitriou *is Creative Director of* ***FutureEverything*** *and a Curator in the digital culture context. She is interested in critical conversations around technology, and focuses on how technology such as AI shapes society. She also explores the role of artists and art in enabling those critical technology conversations, and how art fits in within society at large.*

These strategies were formulated/articulated/conveyed in an interview with Irini and have been edited for clarity.

Cite as: Irini Papadimitriou (2023). How do we create inspiring cultural experiences fuelled by AI. *The New Real Magazine*, Edition One. pp 25-27. https://doi.org/10.2218/newreal.9250

What artists want from AI Tools: with Eoghan O'Keeffe

Image credit: *Image provided by the artist*

At The New Real, we want to reflect and represent those at the forefront of art and AI – and to work with them to develop actionable strategies and signposts for practitioners.

*Here **Eoghan O'Keeffe**, an artist and toolmaker, shares with us the key features and capabilities artists are looking for in AI tools as these technologies move forward.*

We wanted to know: Looking beyond the text prompt, what do artists want to see from a new generation of tools? How can we give human artists greater agency in co-creation with AI? How can artists create works based on rich understanding of models? And how important is it that tools are legible, interpretable, or configurable?

Here is what Eoghan told us.

We want tools which are multi-modal.

We want tools that go beyond the text prompt: tools that allow us to engage multimodally; where we can mix audio, text and video, to connect with all our senses; where we can use our own natural embodied forms, motions, senses; where there's a real richness applied to the input that better reflects how we as artists – and as humans – engage with the world. This is so that an artificial intelligence's contact/interface with the world can behave similarly to our own contact/interface with the world, and for that intelligence to be relatable and fitted with our own; after all, intelligence is informed by that context and contact.

We want tools which don't require us to cater our inputs to what the AI wants.

We want to be able to play with concepts, not with the perfect text-prompt – and move from narrow forms of communication for computers, to rich ones for humans. We want to be able to input ideas, themes, feelings, patterns – more high-level concepts which are far more in tune with how we as artists explore the world. We want to converse, and express ourselves, as humans. Contemporary AI is already incredibly good at interpreting this kind of rich natural communication, but it could be expanded to use it more as interface and interaction.

We want to be able to see – and truly interact with – AI's conceptual latent space.

We want to be able to play in the AI's inner domain, not just get one 'final' result. We want a 'fruit fly's eye' showing the range of thought patterns and lines of exploration the AI system undertakes before it reaches its endpoint – so we can see the AI's main line of thought in the centre, with variations spreading out into the peripheries (a fruit fly has what's called a 'compound eye', which sees many angles all at once). We want to be more in the loop, truly playing within the AI, not simply using it.

We want more interoperability between tools.

We want to be able to create work which works – combining various different platforms so generalist tools can mediate between more specialist tools. We want to be able to merge with tools both old and new, and work effectively in the chaos that is at the forefront of AI innovation and development.

We want more tools which are more interpretable, so we can better interrogate the different levels of the neural networks.

We know that interpreting AIs' inner workings is like doing brain surgery on a neural network, and that it's difficult to intuit exactly how and why we get certain results. But we want to be able to better explore those insights; have more of an understanding of how the systems have been built so we can better disentangle them – ultimately, by understanding better the process of how the AI systems work, we can better learn about about our own experience as humans, being the ones the AI systems are inspired by in the first place.

We want to be able to converse with our AI tools.

We want to be able to have dynamic, real-time conversations with our AI tools. And this is more than to-and-fro chat logs, this is about being able to see how the AI system thinks as it's doing its thinking – witnessing the real-time branching, seeing the different threads of processing – so that we can step in and pivot the processing, the conversation, as we go.

Eoghan O'Keeffe *makes art and creative work through technology as epok.tech. In his approach he adapts and learns across disciplines: coming from a fine-art background and moving into creative-technology, he is now developing an artistic practice creatively exploring both fields combined. He pursues creative and conceptual challenges, and explores creative applications of emerging technology: experimenting with tech, physics, maths, art; and developing real-time interactive graphics, web, apps, games, AI, XR; to explore new spaces and create striking experiences and utility.*

These strategies were formulated/articulated/ conveyed in an interview with Eoghan and have been edited for clarity.

Cite as: Eoghan O'Keeffe (2023). What artists want from AI Tools. *The New Real Magazine*, Edition One. pp 28-30. https://doi.org/10.2218/newreal.9251

Strategies for AI systems and organisations, and for empowering AI artists: with Eva Jäger

Image: *Photo by Boris Camaca*

At The New Real, we want to reflect and represent those at the forefront of art and AI – and to work with them to develop actionable strategies and signposts for practitioners.

*Here **Eva Jäger**, Curator of Arts Technologies at Serpentine, looks at how we build AI art systems and organisations, and how we empower artists.*

We wanted to know: What are the viable alternatives to current extractive AI business models, how can we achieve them, and do they work at scale? What are the common issues at the heart of these debates; what does the current and emerging generations of artists want; and should we even think about intelligent art through a business-lens? In short: How do we build ethical, fair and prosperous systems and organisations for art, audiences and artists?

Here is what Eva told us.

We need a multiplicity of alternative ways to experiment with AI to explore the full potential of this emergent intelligence.

As a society, we have set up many different ways of building, organising around, governing the technology we create––creating a saleable product ready for market is just one way to engage. However, what this technology is showing us (many important technologies have done this) is that they can evolve to do things we didn't expect. Think of DeepMind's AlphaFold––an AI which is able to solve the 'protein folding problem.' It was an evolution of the same AI that was known for learning to solve all the Atari video games. The point is that we have to recognise that we are still in the imagination space of AIs development and if we are not too quick to control it, but instead learn what it can do well and evolve it to work to do those things with us, we will be much better off.

Let's look beyond data sovereignty towards a more relational view of how cultural production happens.

I learned from Matt Prewit and also Salome Viljoen's work about the fundamental relationality of data (personal info, things we make/produce, and data 'exhaust'). We are in a current moment where 'data sovereignty' is dominating conversations––I own my own data and I should have inalienable rights to it. However, their work has helped me understand that the individual is the wrong level from which to bargain for data rights, even for artists. Since data is valuable only in relation to other data or in collections of data (since it's used mostly to train, analyse, predict it needs a lot of data to make generalisations) 'my own' data is not really worth much to others in isolation. However, if if we start thinking about bargaining from the entangled and relational point of view of groups of data (like collectives, coops, daos, trusts, etc.) forming around specific kinds of data, we can start to see that those kinds of organisational forms might have a lot more power especially if they had regulatory backing that assumed data users couldn't get data for free.

New business models and new forms of data exchange are needed to counter our new data medievalism.

An artist/technologist I work with, Mat Dryhurst, explains the above really well by saying that our data relations are becoming mediaeval––everyone is building moats around their data (x, Reddit, etc.).People, organisations and companies realise that they're sitting on really valuable data resources though that wasn't the core of their operations to begin with. That goes for public institutions as well. I recently interviewed Theresa Züger who runs the Public Interest AI Lab at Humboldt Uni in Berlin––she explained that a whole new organisational form is going to be necessary for public institutions to develop operations around their data to make them more useful and accessible, almost like service providers. This is going to be a really interesting moment for data governance as it is going to touch every aspect of the public sector.

We need to be open-minded to Web3 solutions, and see them for what they are, as well as what they could be.

We're in an interesting moment for Web3, where the arguments being made for 'trustless' verification systems have a real utility for data and AI model verification. We also know that crypto is super alienating and clunky. My take is that we need to engage with blockchain affordances openly since there's a lot of really interesting alternative models for value distribution for cultural production and data exchange.

We must not be fooled into thinking that technology is changing the world at break-neck speed.

If you read Twitter too much, you would be forgiven for thinking technology is changing everything right now, but that's not the reality. It takes a long time for technologies like AI and blockchain to seep into communities and be trusted – we still use ballot boxes after all.

We need to focus on the core values we're aiming for, not the technology itself.

Technology is just a means to get us somewhere, along the way we may have to adapt our strategy until we get to the point where we're making good on the core values we're navigating towards. In the cultural sector we'd be better off not going for the hype of a particular technology But rather using technology to create the kind of change we want to see, demonstrating that technology can be a creative and social medium.

We need to shift our exploration of artistic work from artefacts to an artistic system.

This is true for architects, designers, writers,visual artists, and so on. As we move closer to a world where generative images, audio, and language models can produce evocative content ad infinitum, artists will increasingly identify their 'artwork' with their own creative tech system including their own AI models and databases.

We need to think less preciously about the end-piece of art, and think more openly about what it could mean to 'fork' artistic output.

If your cultural production is a system, what and who would be part of that system? What might it look like to join your system with another? This shift allows me to think about the whole creative process and not just the final artefact. It also allows me to imagine interventions or forks that could diverge from me as the only 'agent' in my creative process. Holly Herndon's 'Holly+' is a great example of this, it's her synthetic voice and it's available for use but it's subject to authentication by the Holly+ DAO which includes those involved in training and developing the tool.

We need to break down the idea of the individual artist genius, especially now we have different forms of synthetic intelligence to play alongside and with.

The idea of the 'individual artist genius' is super problematic––it's not reflective of the collaborative nature of art-making, especially with tech. And it's not reflective of the way culture spreads through networks, gaining value through all the nodes of participants. AI has the ability to show us collective production and also to be another kind of collaborator Now that we're living with artificial intelligence, it's a good moment for self inquiry into human intelligence as distinct from individual 'genius'

We need to remember that human creativity is not under threat.

I am open to the idea that the shape of what it means to be an artist is going to change. With openness, rigorous inquiry and experimentation we can have a say in how that unfolds. The modes of creative production might change but our urge to communicate through art-making isn't going anywhere for us humans.

*As Curator of Arts Technologies at The Serpentine, **Eva Jäger** commissions artists working with advanced technologies and collaborate in teams designing novel approaches, workflows and philosophies of emerging tech. During her time at Serpentine she has worked with artists Holly Herndon and Mat Dryhurst, Jenna Sutela, Hito Steyerl, Suzanne Treister, Jakob Kudsk Steensen, Trust, 0rphan Drift, Kite, Keiken, Danielle Brathwaite-Shirley, Libby Heaney, Gabriel Massan and dmstfctn. Eva is also part of the R&D Platform both as Co-I of the Creative AI Lab and also as part of the team (lead by Victoria Ivanova) producing Future Art Ecosystems (FAE), an annual strategic briefing that provides analytical and conceptual tools for the construction of 21st-century cultural infrastructure: the systems that support art and advanced technologies as a whole, and respond to a broader societal agenda.*

These strategies were formulated/articulated/conveyed in an interview with Eva and have been edited for clarity.

Cite as: Eva Jäger (2023). Strategies for AI systems and organisations, and for empowering AI artists. *The New Real Magazine*, Edition One. pp 31-34. https://doi.org/10.2218/newreal.9252

Art

Art projects from 2019 to 2021, before the Generative AI boom

Preternatural curatorial statement (2019)

This curatorial statement accompanied 'Preternatural', an exhibition of works by Jake Elwes curated by Drew Hemment and presented by The New Real during the Edinburgh Festival Fringe 2019.

Image: *Jake Elwes, Zizi, 2019*

The preternatural[1] is that which exists outside of nature, and exceeds what is natural or regular. It is the extraordinary, and inexplicable by ordinary means.

Jake Elwes is an artist who works with machine learning algorithms. He is one of a number of artists who are today exploring the aesthetics of machine learning. Works in this tradition often reveal and manifest distortions in the ways algorithms interpret the world.

For 'Preternatural', The New Real present two works by Elwes. A new commission, Zizi, receives its world premiere, alongside a new adaptation for Edinburgh of Closed Loop. Each work, in different ways, explores how machine reasoning and vision exist outside of nature, and exceed what is natural or regular.

Zizi is a procession of faces of drag artists in constant transition, morphing and changing shape. Their gender, sexuality, whether they are real or artificial, is all uncertain. Drag is a celebration of gendered and sexual otherness. It's loud, bold and beautiful. Above all, it is a space of fluidity, ambiguity and transition.

Machine-learning algorithms make distinctions based on biases and weightings in a training dataset. They can also predict features to generate new instances.
Zizi tackles head-on the lack of representation in training datasets. Elwes has taken an existing dataset and generated queer faces, which are then added to the dataset.

Zizi is generated by a duel between two 'adversarial' networks competing with one another in a machine-learning system called a Generative Adversarial Network (GAN). One generates new images that could pass as real, the second attempts to discriminate real images from fakes. This creates a feedback loop that generates ever more realistic images.

The 'faces' are nonetheless synthetic. They are simulacra, they are no longer copies of images in the training dataset, but products of the AI system.

Drag is similarly a duel of a kind. It is a play between convention and transgression. Drag artists often magnify stereotypes and accentuate difference to the point at which the cocoon shatters and a butterfly emerges. Giffney (2004) defines queer as a "site of permanent becoming." Zizi makes this aspect of drag explicit, through autonomously generated faces that are fluid and never still. Here, the permanent becoming of a GAN represents the fluidity, ambiguity and transition of drag artists.

In Zizi, we see both drag and GANs as a play between identity and difference. In both we see that truth and identity are not stable, but are a constellation of multiple and unstable positions.
In Closed Loop, the second work in the show, two AI models are again in dialogue. Here Elwes sets up a duel of another kind, between a Recurrent Neural Network and

a Generative Neural Network. One describes in words the images generated by the other, which, in turn, generates another image to represent those words, which is then described by a new caption. Departures occur as the algorithms see new things in the nuance of the words and image and generate new representations of those things.

In the adaption for Edinburgh, a sequence of these images and captions scroll across a series of seven screens. Each instance has an uncanny beauty, and the pleasure in the work is observing the correspondence and departures. An image of "a man looking at the camera" is described as "the shadow of the dog", which is in turn represented by an image of "a bird in the air" Here, Closed Loop illustrates the way AI systems fit phenomena into categories, and the difficulty they have in handling ambiguity. When confronted with the nuance in the words and images, the algorithm elides that difference and assigns a new category.

The two works in the show are different, and yet also have much in common. Both works present machine-learning systems as a site of permanent becoming. After Barad we might say machine learning creates both a new objective reality and an intelligility in the world.
For Elwes, and other artists working with machine-learning algorithms, the interest is rarely in optimising prediction accuracy. Instead it is in the mistakes, and the poetry that can result.

The hand of the artist lies in curating the training data and tweaking the weights in the models. Closed Loop appears to be about autonomy of two models conversing. In fact, here the artist is the 'ghost worker'.

Much of what we see in Closed Loop is more a happy accident in machine aesthetics than representative of deep network structures. Nonetheless, we see here something to complement our understanding of the statistical models. This is the protonatural surface effects of those underlying structures, which we encounter as poetic, troubling and extraordinary.

The face is crucial for human identity, and a crucial unit of observation in data systems, from social media ('Facebook') and the digitisation of identity in surveillance systems ('facial recognition'). Such works enable us to see our own self becoming a data point in surveillance capitalism as something uncanny and strange.

Zizi is a celebration of difference. It invites us to reflect on bias in society today, whether as something harmful or to be celebrated. Sites of marginality and transgression can challenge the structures of domination in society. This we learn from queer theory and postcolonial theory alike. In the ever changing faces of drag artists we again see a production of difference.

AI forces us to confront the biases in society today. Zizi reminds us that norms, attitudes and beliefs are not static organizing categories but are forever in play. At a time when there is a particular need to confront harmful bias with urgency, this is an empowering reminder that this is always contingent and can be contested.
If AI holds a mirror up to society, then Zizi applies the makeup.

Drew Hemment, August 2019

References:

1. https://www.merriam-webster.com/dictionary/preternatural

Zizi - Queering the Dataset (2019) and Closed Loop (2017) by Jake Elwes

'Preternatural' was curated by Drew Hemment. It was a project of The New Real presented during the Edinburgh Festival Fringe 2019.

It was presented at a newly launched site, Inspace City Screen, as part of Data Play by Design Informatics and the Edinburgh Festival Fringe 2019.
Inspace Director: Dave Murray-Rust
Executive Producer: Suzy Glass
Producer: Jane Macdonald

Cite this article as: Drew Hemment (2023). Preternatural curatorial statement. *The New Real Magazine*, Edition One. pp 36-37. https://doi.org/10.2218/newreal.9253

The Zizi Show by Jake Elwes (2020)

Image: *The Zizi Show by Jake Elwes, 2020. Image © Jake Elwes*

The Zizi Show, by Jake Elwes, is an online interactive artwork in which a Generative Adversarial Network (GAN) has been trained on video footage of thirteen diverse 'drag' performers, filmed at a London cabaret venue during the COVID-19 lockdown.

In the work, Elwes explores the intersection of AI and drag performance, and performance and human identity, in the new real. Drag challenges gender and explores otherness, while AI is often mystified as a concept and tool, and is complicit in reproducing social bias. Zizi combines these themes through a deepfake, synthesised virtual drag avatar created using machine learning. Zizi empowers the drag and LGBTQ+ community through a positive application of deepfake technology, exploring what AI can teach us about drag, and what drag can teach us about AI.

Image: *Screenshot of video Making of The Zizi Show, Jake Elwes*

The work revolves around captivating, beguiling imagery of AI-generated drag avatars. An algorithmically generated compere asks the audience to select performers and songs. Each performer has a body blended from video capture of drag performers that morphs and changes as they perform each work. As they change and flow between personas and identities, they glitch and breakdown, exposing software artefacts and through those their artificial, constructed character. In the online version, the artist draws on the visual tropes

Image: *The Zizi Show by Jake Elwes (2020), Still of deepfake drag artist close up. Image © Jake Elwes*

and interaction forms of cabaret theatre to design the user journey online. The audience views the output in different settings, and are able to select from a menu to switch between AI-generated personas of drag artists for different music tracks.

Zizi is mercurial, defying categorisation. Trans, queer and other marginalised identities are shown visibly breaking down, illustrating how AI struggles with ambiguity. Zizi is lossy, the continuity of the original human performers is unrecoverable. It invites us to reflect on harmful bias in society today, yet is also a celebration of difference.

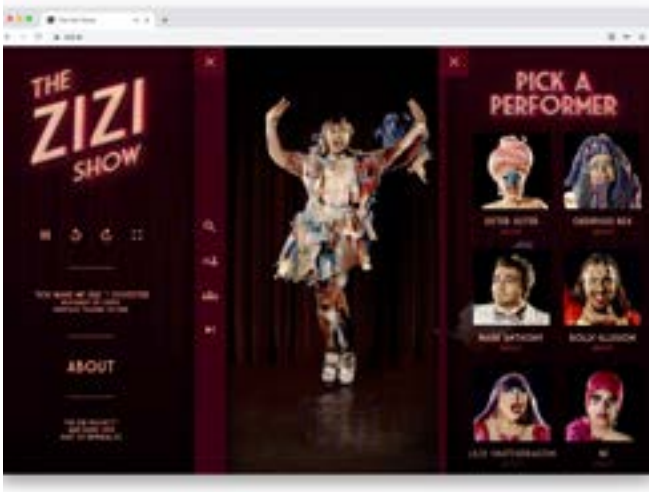


Image: *The Zizi Show by Jake Elwes (2020), Web interface. Image © Jake Elwes*

Zizi gives us joy and rage at once, it allows us to see the injustice and to look beyond it towards a vision that is enriching. It has empowered the people who volunteered their data and, as a work of art, it is truly astonishing.

The Zizi Show was commissioned by The New Real in 2020 and presented at the eponymous The New Real exhibition at the Edinburgh International Festival in 2021.

Image: *The Zizi Show by Jake Elwes, 2020, Training process. Image © Jake Elwes*

Art as explanation

Zizi exposes the latent space of a machine learning model and highlights the way the model outputs are shaped by the training data. Where many generative works have been trained on opportunistically collected data, the purposeful curation of Zizi's dataset explores the question of how human identity is represented within complex models. The Zizi Show develops this through digital avatars, that have been learned from real performers to create an interactive work that allows user control. Significantly, it connects low-level technology to high-level, social, cultural and political aspects of AI, such as ideas of cultural appropriation and machine bodies. It exposes the limits to machine intelligence and inverts what is otherwise a deficiency in the technology, through a positive use of deep fake technology, in which a marginal identity is celebrated and embellished, rather than obscured or misrepresented.

Image: *The Zizi Show by Jake Elwes, 2020, Montage of a deepfake generation on Me the Drag Queen. Image © Jake Elwes*

Zizi is an explanation of bias in ML and the power of the dataset through experiential means. Zizi highlights the way data and design choices shape what ML does. It shows how the model learns a representation of people, that is embedded in social life. Zizi engaged a marginalised group, developing their literacy surrounding bias in ML, thereby supporting their agency in contesting its fairness and accountability. Zizi shows end users there is something to contest, even if they do not interact directly with the model themselves. Zizi specifically targets anthropomorphised misrepresentation of AI, by constructing an AI persona, and then deconstructing it and exposing its construction in software by the human artist.

The Zizi Show generates imagery of non-binary bodies in order to bring attention to the underrepresentation of LGBTQ+ communities in ML training data. It is

Image: *The Zizi Show by Jake Elwes, 2020, Luke deepfake training. Image © Jake Elwes*

an explanation through experiential means of a dense clustering of issues: discriminatory design (see also Parry 2021), bias in ML, lack of representation, non-binary identities, the unclassifiable character of real bodies, anthropomorphism in AI. Zizi specifically targets anthropomorphised misrepresentation of AI, by constructing an AI persona, and then deconstructing it and exposing its construction in software by the human artist. By highlighting correspondences between AI and drag at a surface level, it asks deeper questions about the character of statistical knowledge applied to shifting human identities.

Empowerment

A south London community of drag artists were engaged throughout, providing them with positive representation, safe spaces (an in-person venue and a secure server), paid employment, accreditation, and agency over the way data is stored, during Covid lockdowns. The project engages a marginalised group, and develops their literacy surrounding bias in ML, thereby supporting their agency in contesting its fairness and accountability.

Technology

The project engages with the current wave of machine learning techniques, using a StyleGAN network architecture re-trained on a modified version of Flickr-Faces-HQ (FFHQ) dataset, to which an additional 1,000 portraits were added, alongside a custom video, sound and interactive web interface. In Zizi, the artist interacts with the model by manipulating data and weightings. Machine learning here allows the creation of a generative space that includes bodies and faces.

Cite as: Jake Elwes (2023). The Zizi Show. *The New Real Magazine*, Edition One. pp 38-40. https://doi.org/10.2218/newreal.9254

Footnotes

For a review of the work and discussion of audience experience see Owen G. Parry's review in Volupté (2021).
The Zizi Show on the artist's website
The Zizi Show on Edinburgh International Festival website

The Zizi Show is part of a wider body of work The Zizi Project by Jake Elwes. Zizi - Queering the Dataset, the first work in the series, and The Zizi Show were commissioned by The New Real in 2019 and 2020 respectively. The works were original creations by the artist, developed during the artist's participation in a cooperative research study with The New Real.

Artist bio

***Jake Elwes** (b.1993) is an artist living and working in London. They studied at The Slade School of Fine Art, UCL (2013-17). Searching for poetry and narrative in the success and failures of AI systems, Jake Elwes investigates the aesthetics and ethics inherent to AI. Elwes' practice makes use of the sophistication of machine learning, while finding illuminating qualities in its limitations. Across projects that encompass moving-image installation, sound and performance, Elwes seeks to queer datasets, demystifying and subverting predominantly cisgender and straight AI systems. While it may seem like the AI is a creative collaborator, Elwes is careful to point out that the AI has neither intentionality or agency; it is a neutral agent existing within a human framework.*

AI is Human After All by Anna Ridler and Caroline Sinders (2019-2021)

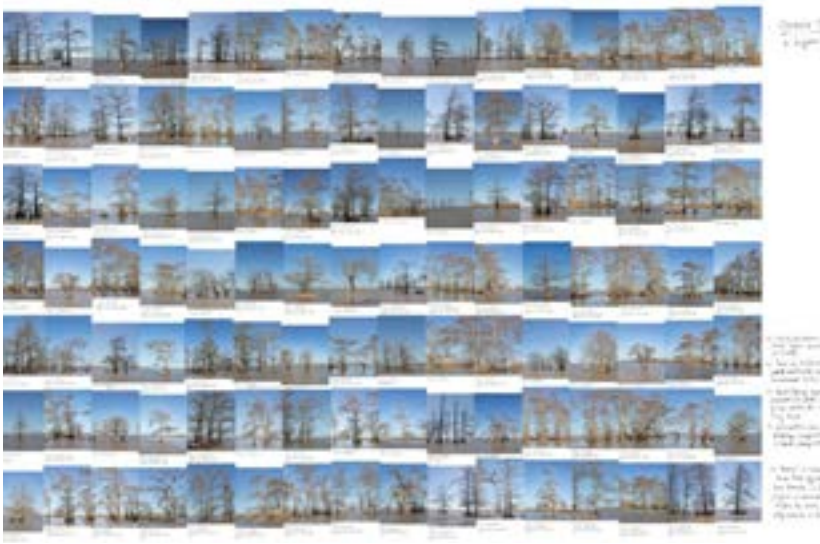


Image credit: *Anna Ridler and Caroline Sinders*

"Our world is becoming entangled - so much of our consensus reality is being created by the software we hardly understand – financial markets where bots endlessly trade with other bots, social media algorithms that control what narrative we see, even AI deep fakes that make us doubt our own ears and eyes. It becomes harder and harder to sort out where the human influence is in the process of AI." – Anna Ridler and Caroline Sinders

AI is Human After All was an artist residency by Anna Ridler and Caroline Sinders with The New Real on the hidden human labour involved in creating and deploying AI, and on how to face the climate crisis, as a part AI Lab (European ARTificial Intelligence Lab: Ars Electronica).

Between 2019 and 2021, artists Anna Ridler and Caroline Sinders came together for the first time around a shared interest in creating their own datasets from the ground up, and in the way that human labour is often hidden or obscured in AI.

As part of their AI Lab residency with The New Real, they demonstrated foresight in calling out the misuse of human labour in the AI industry as an urgent issue to address. Since that period, the use of datasets developed by scraping content indiscriminately from the public Internet – without acknowledgment, consent, and fair pay for the original creators – has risen to the very top of issues of concern with AI. At the time of their residency, while the use of vast training datasets in machine learning was already commonplace, the wholesale harvesting of creative content at this scale was not widespread. Ridler and Sinders spotted this was not getting the same attention as other issues in the conversation around AI, and set out to investigate and bring it to light.

Ridler and Sinders were awarded an AI Lab artist residency at The New Real, but landed in Edinburgh just when Covid hit, and their stay in the city was cut short. The experience

Image: *Cypress Trees. Image credit: Anna Ridler and Caroline Sinders*

of working remotely, as digital artists, was folded into the artistic research and the works they produced. They responded with artistic works that generated AI-mediated experiences of nature and explored the theme of climate grief: Mechanized Cacophonies; Cypress Trees: A Beginning; and Cypress Trees: Fragmentation.

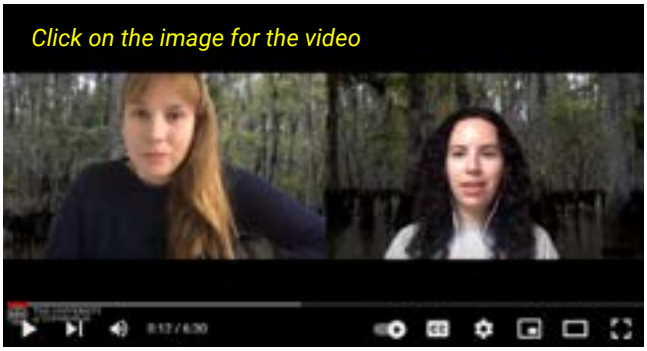


Image: *Screenshot of a video where artists Anna Ridler and Caroline Sinders discuss Mechanized Cacophonies*

The theme

"the conversations around AI and creativity are centered around algorithms and whether machines will be able to make art, but for us this ignores a fundamental part of what makes this an interesting material for us: people." – Anna Ridler and Caroline Sinders

Rilder and Sinders point to the human hands, decisions, and choices that make up the representation of reality in an AI model. All too often, human labour is hidden or obscured, often papered over by the marketing hype about a 'magical' product. This makes AI seem more autonomous than it really is, it downplays the importance of human design decisions and can keep the monotonous and sometimes traumatic work of content moderators out of view, work often done by women and in the global South. Sinders's prior work, Feminist Dataset[1], was explicitly political and seeks to build on feminist perspectives in developing a machine learning pipeline. Ridler's work is situated in a fine art tradition, but one with a deep sense of the politics and poetics of working with ML data, and in Miriad[2] and Mosaic Virus[3] from 2018 she made visible her hand-crafting of datasets.

Responding to the residency theme of Entanglements

Image: *Cypress Trees. Image credit: Anna Ridler and Caroline Sinders*

– fair, moral and transparent AI, Ridler and Sinders set out to reveal the entanglements between humans and machines, so people can understand where they have agency. They wanted to force attention to hidden human labour in AI, and raise wider questions around human bias and worker exploitation. Building on their past work, they set out to explore and make explicit through own artistic practice, the human aspects, inputs and decisions involved in each step of creating and deploying AI.

Image: *Anna Ridler and Caroline Sinders, Cypress Trees: Fragmentation (2021), Project notes. Image © Anna Ridler & Caroline Sinders*

After COVID-19 hit, the artists explored new directions: immersive experiences for remote audiences, climate grief and the American Gulf Coast.

Technology as tool or catalyst

***"Through making this project by hand, we are creating slow data."* –** Anna Ridler and Caroline Sinders

This body of work and artist-research collaboration is inspired by a holistic engagement in the human decisions and actions in machine learning pipelines. The artists develop bespoke datasets by hand, from the photography of hard-to-access trees and natural spaces to labelling and cataloguing. The two artistic works involve Generative Adversarial Networks (GANs) that produce imagery of a beach or cypress trees. The heart of each work is the collection and curation of the datasets that the models require. The artists captured photography of the trees and natural environments through extensive time in the field. Ridler and Sinders collaborated remotely during lockdown to build training datasets based on this photography. They then trained the GANs and interacted with the model by manipulating data and weightings. A key artistic intervention in the artists' practice is to identify automated processes in the ML pipeline and develop manual methods to deliver the same outputs. The artists painstakingly and meticulously extract patterns from observed data using manual methods in order to make judgements and to produce the various artifacts that make up the work.

The experience

"The human messiness of the world is so influential in terms of the eventual model output." – Anna Ridler and Caroline Sinders

The process of making the works and the artifacts presented in the gallery or online exposes how AI works as a technology and how each different stage has different expectations, histories, traces and contexts. Ridler and Sinders originally proposed to create an expanded documentary that examines the way that data models are created. When Covid-19 hit, they instead created two works. Mechanized Cacophonies is an

Image: *Anna Ridler and Caroline Sinders, Cypress Trees (2021). Image © Anna Ridler & Caroline Sinders*

interactive online artwork that presents an experience of a natural environment mediated by technology, inspired by Ridler's and Sinders' experiences of lockdown. The artists, working remotely, each captured sounds from a variety of sources, including field and online recordings of both natural and industrial environments. They then trained a machine learning neural network on the resulting dataset to generate eerie and uncanny soundscapes. Cypress Trees is a machine-learning-generated moving image piece that reveals the complexity of data sets and raises questions about climate change, deforestation, memory and loss. Ridler and Sinders created a special dataset of the Bald Cypress on the Gulf Coast of the USA, where both have family ties. These trees, which can live thousands of years, are currently considered to be "threatened" by climate change. Online, a viewer is able to browse an accompanying webpage that features a broad and diverse range of artifacts represented in digital imagery and animations: early epoch of GAN output, photographic training data, annotations and labels, field notes, Google map images, animations, academic articles and press cuttings. The residency itself entailed structured research activities including workshops and interviews. Further dissemination was through talks, blogs and an artist video for The New Real website.

Image: *Anna Ridler and Caroline Sinders, Mechanized Cacophonies (2021). Image © Anna Ridler & Caroline Sinders.*

Insights

"In order to have a fair and moral AI system it is essential that these issues are addressed."
– Anna Ridler and Caroline Sinders

The artist residency highlighted that what we think of as machine intelligence is actually human intelligence at many points in the system. The art practice of Ridler and Sinders debunks the neat representations of 'autonomous' technologies and exposes the situational, embodied nature of machine learning systems. Models such as the GPT family have taken the misuse of human labour to a whole new level and as a result the concerns around accreditation, consent, rights and fair pay that Rilder and Sinders alerted us to are far more prominent than they were three years ago. The residency raised wider questions around human bias and worker exploitation and presses us to envision methodologies and pipelines for AI development in which human labour is acknowledged and honoured. The artists extract patterns from observed data using manual methods, and in this sense turn a foundational definition in AI on its head, by the human artist doing a task usually done by the computer and associated with machine intelligence. The resulting works – Cypress Trees and Mechanized Cacophonies – support reflection on the politics of climate change, memory and loss, on mediated experiences of nature, and on what affected areas might be like in the future, with and without the trees. Rather than for problem-solving, human-machine intelligence is applied to produce imagery and gallery installations that represent the ordering of knowledge by AI and climate change impacts.

The research with The New Real research team was published as a paper presented at ACM Fairness, Accountability and Transparency (FAccT) in Chicago on 13 June 2023. In this paper, we explore the potential for AI Art – particularly work in which AI is both tool and topic – to facilitate public AI literacies and consider how tactics developed before the current generative AI boom have continued relevance today.

References:
1. https://carolinesinders.com/feminist-data-set/
2. https://annaridler.com/myriad-tulips
3. https://annaridler.com/mosaic-virus

Artist bios:

Anna Ridler is an artist and researcher who lives and works in London. She is interested in working with collections of information or data, particularly self-generated data sets, to create new and unusual narratives in a variety of mediums, and how new technologies, such as machine learning, can be used in the creative process. Her work has been exhibited widely at cultural institutions worldwide including the Victoria and Albert Museum, Tate Modern, the Barbican Centre, Centre Pompidou, HeK Basel, The Photographers' Gallery, the ZKM Karlsruhe, and Ars Electronica.

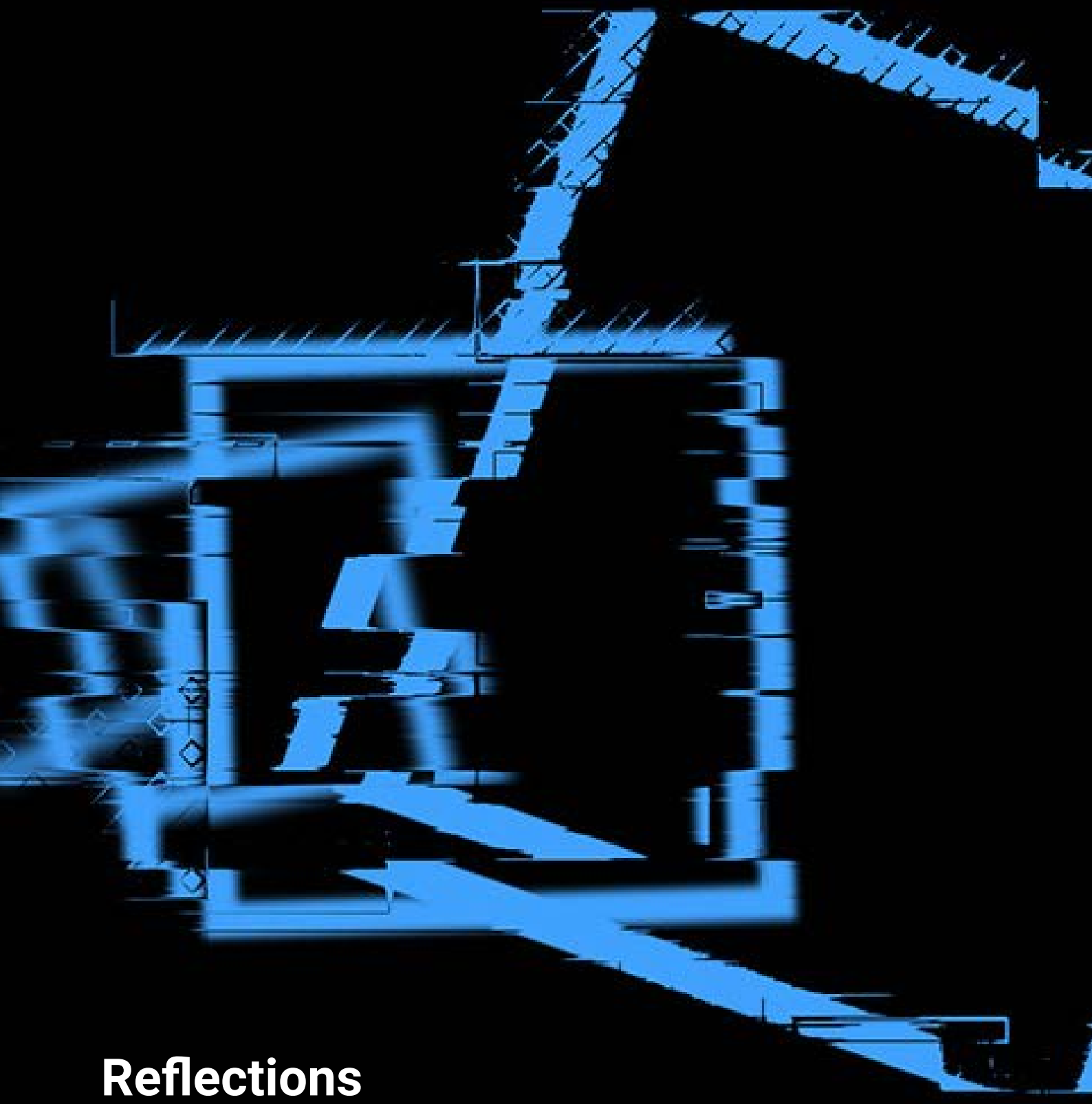
Caroline Sinders is a critical designer and artist. For the past few years, she has been examining the intersections of artificial intelligence, abuse, and politics in digital conversational spaces. She has worked with the United Nations, Amnesty International, IBM Watson and others. Sinders has held fellowships with, amongst others, the Harvard Kennedy School, the Mozilla Foundation, the Sci Art Resonances program with the European Commission. Her work has been featured in Tate Exchange at Tate Modern, Victoria and Albert Museum, MoMA PS1 and others.

Acknowledgements
AI is Human After All was an artist residency by Anna Ridler and Caroline Sinders with The New Real, as a part AI Lab (European ARTificial Intelligence Lab) managed by Ars Electronica. The residency was awarded in 2019, and took place during 2020 and 2021.

Mechanized Cacophonies, was commissioned by The New Real and premiered at Edinburgh International Festival in 2021, and Cypress Trees: A Beginning premiered at Ars Electronica Festival the same year.

Links
The New Real, Artist Residency, https://newreal.cc/art/human-after-all
Anna Ridler, Artist Website, https://annaridler.com
Caroline Sinders, Artist Website, https://carolinesinders.com
Cypress Trees: A Beginning, 2021, Archival print of dataset with handwritten annotations: http://annaridler.com/cypress-trees-2021
Cypress Trees: Fragmentation, 2021, Projection of GAN video (30:00): http://annaridler.com/cypress-trees-fragmentation
Mechanized Cacophonies, interactive website: http://annaridler.com/mechanized-cacophonies
Ars Electronica 2021, https://ars.electronica.art/newdigitaldeal/en/cypress-trees
Edinburgh International Festival, 2021, https://www.eif.co.uk/archive/2021-mechanized-cacophonies

Cite as: Drew Hemment, Anna Ridler, Caroline Sinders (2023). AI is Human After All.*The New Real Magazine*, Edition One. pp 41-45. https://doi.org/10.2218/newreal.9255



Reflections

Insights, investigations and ideas from friends of The New Real

Expansive Images: **Understanding Photography and Generative Imagery**

Image: *Liliana Farber, Untitled No. 3 from the series Isolarii, 2021. © Liliana Farber*

As public discourse rages – debating the ways in which artificial intelligence (AI) systems will automate, streamline and disrupt human life – the artists, scientists, engineers and scholars who have long engaged with this field of technology let out a collective sigh, *writes Catherine Troiano.*

The past two years have seen rapid development in the AI ecosystem. In 2021, DALL-E, a text-to-image model, was released by OpenAI. It was quickly followed by other similar systems, such as Stable Diffusion or Midjourney, and, in 2022, OpenAI released their language model called ChatGPT – now a household name synonymous with the surge in AI capabilities.

The creative potential of computational technologies has evolved in tandem with their rise. This issue of Edition One argues that artists engaged with AI prior to the recent boom can help to organise, reflect on, and think through the myriad ethical, social and cultural issues that AI systems raise. But looking towards artists in this way also requires looking towards the institutions and frameworks that platform, promote and engage with them, considering how and with what impact cultural output diffuses into its wider environment.

An Age-Old Question: 'What is Photography?'

AI is already impacting one area more than others: imagery. Generative imagery has upended the creative and financial economies of image cultures, broadly understandable as two groups: images perceived as photographic and images not.

The 200-year-old question of 'what is photography?' has been energetically revived by generative imagery: separating photographic imagery, or images that mimic photographic qualities (also known as photo-realism), from others.

For much of the medium's history, definitions of photography relied upon the involvement of light and light-sensitive materials, and, to a lesser extent, camera equipment. These tenets served to retain a somewhat

singular definition of photography, even during the 'digital turns' of the 1980s and 1990s.[1] Cameras – having previously been relatively incidental, as demonstrated by a rich history of camera-less photographs – ironically held together a photographic iconography specific enough to unite both sides of a bitter dispute about the so-called 'authenticity' of photography made, manipulated or otherwise informed by digital technologies. Such notions of authenticity, originality and authorship stretch back to the advent of photography itself (when it was accused as the assassin of painting), through many technical and conceptual revolutions that have caused photography's repeated death (spoiler: it is always reliably resuscitated), and into the present paradox.

AI Upps the Ante

That said, AI appears to have raised the stakes, and not only for photography. Concerns about models that scrape copyrighted images from the internet to train algorithmic software has led to numerous calls for regulation; though responding to this problem with capitalist solutions such as IP and copyright law has also been challenged.[2] Whilst the advent of digital technologies in the 1990s framed a debate between photographers, albeit of different creed, the advent of AI has changed the issue to be between photographers as a whole, and machine-empowered corporate greed that threatens to displace an entire group of creatives.

To compound this, images generated by text prompts have moved photography away from an exclusively visual medium: a particularly difficult conceptual shift for a notoriously unwieldy, but fundamentally image-led, sector. So much so, that Boris Eldagsen called for the term 'promptography' to be used for pictures generated by text-to-image models, after he won (and declined) the creative category at the 2023 Sony Photography Awards for an image made using DALL-E2, allegedly unbeknownst to the judges.[3]

The Sony debacle doubled down the perceived need to define – or re-define – photography, in a way that excludes generative imagery.

Pushing Against a Limiting Debate

Attempting to singularly define photography when the premise of photography itself has been exponentially expanded, altered and reconfigured would be arbitrarily limiting. It would flatten the nuance of generative imagery in an 'AI binary', much like the binary discussions around 'digital' and 'analogue' practice flattened over a century of layered photographic developments.

It would also discount that generative imagery can be inherently and indisputably photographic, even when 'only' photorealistic, and crucially reliant upon human input. Caroline Sinders and Anna Ridler embody this in their contribution, and even the case of Eldagsen emphasises an aspect of human activation – not only in making images but in their reception.

Regulation is clearly important for any advance in technological capabilities with the social and cultural potential of AI, but the recent shift in discourse positions generative images as 'deceptive' and 'verifiable photography' as 'truth'. 'Truth' has never been an appropriate descriptor for the photographic condition, and if we think instead of the demonstrable potential of photography to be speculative, then such impossibilities are rendered irrelevant anyway.

How Institutions Can De-Limit Debates

In 2020, the V&A, supported by the Manitou Fund, commissioned Jake Elwes to create a new iteration of The Zizi Show for display in the V&A Photography Centre. As this issue explores in detail, The Zizi Show features deepfake[4] versions of performers from London's drag scene, and it is an example of generative imagery with both deeply photographic origins and a clearly human framework.

Elwes's project shows deepfakes deployed for a constructive purpose, rather than for more sinister ends, raising questions about the biases, ethical failings and real-life discrimination reproduced by AI systems. It is the inaugural display in the V&A's Digital Gallery at the heart of the museum's Photography Centre, a suite of seven galleries dedicated to showing the V&A's extraordinary collection of photography.

This means that visitors can traverse nineteenth-century photographs, a deepfake drag cabaret and varied other practices spanning the whole history of photography in a single visit.

Surely it is more helpful, here, to present an expansive understanding of photographic image-making, without the expectation that everyone will agree, rather than focus on whether something is sufficiently photographic?

It is entirely plausible that the verbiage around photography will grow to accommodate the notion of generative imagery. But how do we conceive of the 'new real' in real-time? How do museums engage with rapidly changing technologies against a backdrop of necessarily lengthy schedules? And how can we curate incisive digital or contemporary practices whilst remaining mindful of the past, in institutional environments deeply connected to photographic histories and trajectories that have led us to this moment?

One strategy – which underpins the V&A's digital programme in photography – is to engage with AI systems through creative practice, as this issue makes a compelling case for. The V&A was one of the first museums in the world to collect and exhibit photography, from 1852 and 1858 respectively. To engage, then, with contemporary artists shaping the future of photographic practice is simply to continue a long and effective V&A tradition of looking to contemporary cultural production to work through new ways of making. New developments were not always met with widespread public acceptance, and curatorial provocations are arguably more useful than curatorial directives.

Art and Curation that 'Debates Forward'

Following its commission, The Zizi Show was acquired for the V&A's permanent photography collection, one of various recent acquisitions that engage with generative imagery and AI. Another is work by Liliana Farber, who uses AI to explore ideas of mapping and computer vision. Her project Terram in Aspectu shows Google Earth lookalike images of islands originally referenced in historic cartography, but which were later proven to not exist. Farber fed information taken from historical sources to an open-source machine-learning algorithm, trained using satellite photographs taken from Google Earth, which reproduced the erroneous islands as their own 'satellite photographs'. Her later project, Isolarii, continues this line of enquiry with a different methodology: the works are data collages, 'woven' together by custom machine learning software processing a range of imagery collected by Farber to create ghostly evocations of early world maps. Farber's work visualises the colonial endeavour to map the world, referencing the techno-industrial reproduction of colonial patterns and the ecological contradictions of photographic or image-based practice. It enquires into the consequences of systems or technologies that determine 'reality' and the creep of corporate reach, critiquing the providers and makers of the technologies she implements. Farber's acquisition also challenges traditional assumptions of what digital practice looks like - these works are paper-based inkjet prints, framed and wall-mounted like many other pre-digital photographs.

It is worth noting that artist-driven practices represent an approach that broadly subscribes to the cultural institutional frameworks of the 'art world', and that there are other institutions and even other colleagues within the V&A, such as curators of digital design, who frame notions of cultural production in a less individualised or maker-centric way.

But if we do not desire a single understanding of what photography is or can be, then we do not require such an understanding to be universally reflected in the endless images, output, interactions and mediations that could be experienced as photographic.

We thus leave our institutions and our audiences open to the fullest spectrum of contemporary culture, recognising the paradoxical realities of photography, imaging and technologies.

Cite as: Catherine Troiano (2023). Expansive Images: Understanding Photography and Generative Imagery. *The New Real Magazine*, Edition One. pp 47-50. https://doi.org/10.2218/newreal.9256

References:

1. https://mitpress.mit.edu/9780262534024/the-second-digital-turn/

2. https://robhorning.substack.com/p/april-25

3. The term ‘promptography’ was originally used by Christian Vinces, a Peruvian photographer, before being popularised by Eldagsen. See: https://www.instagram.com/christianvincesfoto/

4. Daniel Palmer and Katrina Sluis position deepfake technology as the final precursor to text-to-image models, in a lineage stretching from image aggregation and processing platforms such as Google Images (2001), Flickr (2004) and Amazon Mechanical Turk (2005); to the development of neural networks – adversarial or not – and ‘deep learning’. See: https://www.artlink.com.au/articles/5107/photography-after-ai/

Artificial Intelligence and Humanity's Future: A Ghost Story

We live in a world populated by digital ghosts of human injustice and cruelty, reanimated in AI software. But is it possible to tell a different, more hopeful story? *By Shannon Vallor*

Many wonder how the emergence of artificially intelligent machines will impact humanity over the next century – are humans on the verge of being replaced by machine intelligence, or rendered irrelevant, as some have speculated? Are we witnessing in machine agency the birth of a new, alien form of life that we cannot hope to understand? Are we fated to compete with machines for dominance, or to merge with them, as Elon Musk has stated?

These are natural questions to ask for beings that, like most animals, have deep evolutionary reasons to pay attention to anything new in our environment that might be an agent. Agents change things – they take action for purposes that appear to be their own. Typically we look for agency in living things, but not always. We may struggle to see the agency of a mushroom or oak tree, but it can take effort for humans not to see agency in a simmering and unpredictable volcano or a rapacious wildfire. Or a problem-solving machine.

AI includes a broad range of new computing technologies, many components of which have no apparent agency at all. But because AI can be a powerful tool for creating artificial machine agents – from Alexa and Siri to social robots that greet us in hotels, to Internet bots that pose as aggrieved or enthusiastic voters, to generative language models that write stories for us – it's natural to begin to think of AI as a new kind of agency that might radically challenge or overtake our own.

The reality, however, is far more prosaic yet no less challenging for humanity to confront. The challenge is not a new form of life entering our world; AI is not an alien consciousness that asks us to meet, understand and negotiate with it. The challenge is of a wholly different kind, that of living in a world that we have begun to populate with an ever-expanding and replicating army of digital ghosts – ghosts of ourselves.

AI agency = our agency

AI agency is and will remain for the foreseeable future, our agency – only externalised, altered, extended, embedded and embodied in a multitude of new and sometimes surprising forms, virtual and physical. AI systems today – those driven by techniques known as machine learning – work by being fed mountains of human-generated data: records of human movements, observations, measurements, utterances, categories, choices and preferences. The data is fed into highly complex mathematical matrices designed (by humans) to extract patterns and correlations that we can turn into new insights and predictions – or in the case of artificial agents, to generate a range of machine actions that we find useful or interesting.

Notice that even these new forms of agency – the purposeful actions that AI generates – are still ours, as they are constituted from our human ways of seeing, sorting, labelling, and moving in the world. Even when an AI system process generates a surprising new behaviour that serves our aims, it is humans who classify this as an achievement to be enabled rather than an error to be ignored or suppressed, i.e., as an intelligent signal rather than meaningless statistical noise.

Many would rather see in AI today what science fiction has always imagined – machine minds that allow us to view the world through new eyes, the material satisfaction of our desire to encounter alien forms of intelligent life that might show us purposes beyond our own. While this desire can perhaps be fulfilled by more properly recognising other forms of intelligent life on Earth, it would be a profound error to think of AI in the way we rightly think of whales, crows, cephalopods, apes and elephants.

Electronic ghosts

It is far better to think of AI as ghosts. Ghosts, as traditionally imagined, do not point us to alien or inhuman possibilities. Rather, ghosts in art and literature represent our need to more fully reckon with ourselves, our relationships to one another, and the unresolved legacies in our past. From Toni Morrison's novel Beloved to Henry James' The Turn of the Screw, ghosts represent injustices unacknowledged, wounds unhealed, secrets untold, crimes unforgiven, loves unfulfilled, promises unkept.

When AI systems replicate and expose, as they so often do, the powerful patterns of human exclusion, discrimination and cruelty embedded in our own data, we are not seeing a machine spontaneously form racist or sexist or ableist intentions. We are seeing electronic ghosts of our own injustice and cruelty, reanimated in software. When AI facial recognition systems refuse to see black faces, when commercial computer vision AI systems can't be trusted to fairly apply gender labels, and when natural language-processing chatbots spout sexist or genocidal sentiments, we need to understand what is happening. We are not being oppressed by a new, inhuman mechanical evil. We are being haunted by our own ghosts.

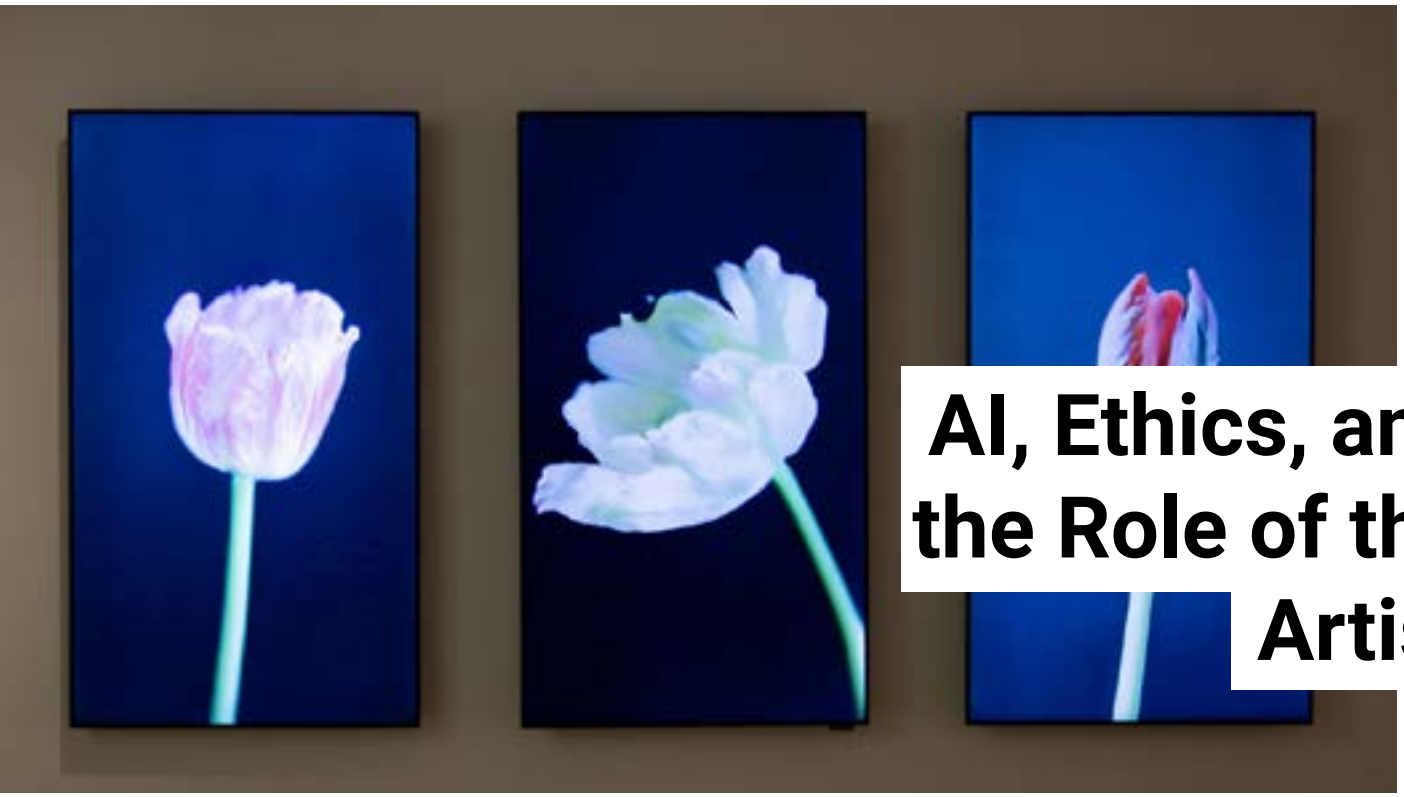
Fortunately, ghost stories aren't always stuck in the past, and neither are we. In works such as the film Beetlejuice, ghosts also represent an expansion of possibilities. Ghosts explore the new things we might do with access to virtual bodies and spaces. They reveal the harms that we could confront, rectify and repudiate in a new phase of our existence. They suggest the richer aesthetic, moral and spiritual values we might find in a liminal dimension that allows us to see just a bit further than our own.

The future of AI could, if we choose, be this kind of ghost story. It could be the story of humans that unwittingly create, in the liminal space of software, a relentless army of angry ghosts that keep haunting us with magnified visions of our past cruelties and unkept promises – until we finally reckon more fully with ourselves and our institutions, with what we have been, with what we have failed to be, and with what we can finally be free to become. That's the kind of ghost story I like to read. Maybe it's one that AI can help us to write together.

Cite as: Shannon Vallor (2023). Artificial Intelligence and Humanity's Future: A Ghost Story. *The New Real Magazine*, Edition One. pp 51-53. https://doi.org/10.2218/newreal.9257

References:

1. https://www.axios.com/2019/07/18/elon-musk-neuralink-ai-merge
2. https://dl.acm.org/doi/10.1145/3369457.3370913 https://www.theatlantic.com/technology/archive/2020/01/future-politics-bots-drowning-out-humans/604489/
3. https://www.theguardian.com/commentisfree/2020/sep/08/robot-wrote-this-article-gpt-3
4. https://www.theguardian.com/books/2006/jul/08/fiction.tonimorrison
5. https://www.sparknotes.com/lit/screw/summary/ https://www.wired.com/story/best-algorithms-struggle-recognize-black-faces-equally/
6. https://venturebeat.com/business/researchers-discover-evidence-of-gender-bias-in-major-computer-vision-apis/
7. https://www.technologyreview.com/2020/10/23/1011116/chatbot-gpt3-openai-facebook-google-safety-fix-racist-sexist-language-ai/
8. https://www.imdb.com/title/tt0094721/



AI, Ethics, and the Role of the Artist

Image: *Anna Ridler, Mosaic Virus, 2019, 3-screen GAN video installation, 30mins.*

Using AI as an artistic medium comes with moral implications and responsibilities which can be difficult to anticipate. How can ethics help us unpick these? *By SJ Bennett*

Artificial Intelligence (AI) can act both as mirror and material, human-machine amalgam and tool, providing a catalyst to reimagine and challenge the worlds we construct. AI allows artists to explore ideas and push boundaries in their work, collaborating in new ways with both people and emergent technologies. As such a potent medium for artistic work, it can also be a conduit for AI activism, often within the same project. An illustration of this is found in art projects which make the social implications of AI tangible, exemplified by artworks such as the Zizi Project produced by The New Real.

However, with great potential for social impact comes great responsibility. AI systems are often portrayed by narratives of objectivity and ethereality which obscure the complex, socio-political AI pipelines and supply chains that make AI possible. Also, AI systems are often anthropomorphized (seen as having human characteristics) and their inbuilt abilities overestimated, while their potential to reinforce existing societal problems is overlooked. When used for decision-making processes in sensitive areas such as policing, schooling and healthcare, for example, they can even result in discrimination against marginalised groups.

These issues are embedded in the use of AI for artistic aims. In creating works to be experienced by the public, artists contribute to wider perceptions and expectations of AI. Yet artists often wish to avoid explicit, prescriptive explanations. In doing so, they navigate the tensions (often subconscious) of balancing freedom to create engaging narratives with the unpredictability of audience reactions, and the artist's ethical responsibility to that audience. This creates a situation of ambiguity and uncertainty, where this ambiguity forms a fundamental part of the act of creation and sharing of artworks, a valuable aspect of the work rather than a flaw to be dissected. Simone de Beauvoir's ethical reflections in The

Ethics of Ambiguity can help us navigate this, embracing ambiguity as a fundamental part of both art and AI practice, acting as a catalyst for ethical deliberation and decision-making for audiences and practitioners alike.

How then should artists deal with these opposing possibilities, producing engaging art that satisfies their own creative intentions and social conscience, while being mindful of the ethical implications of their works, and without adding to AI's mystification? What responsibility do artists have in contributing to their audience's understanding of this technology? How can we understand the role of the artist in society when, for some, it is an explicit intention for their work to generate reflection on the implications of AI, but for others, it is not?

Part of AI's appeal for artists is that it enables exploration of the discrepancies between the real and the simulated. Artistic practices working with AI are often fluid and driven by the idiosyncrasies of the technologies, experienced as a symbiotic relationship; the AI output generates new inspiration for the artist and allows them to move beyond the binary to explore the shades in-between, materialising the unknown. The opportunities afforded by these characteristics position AI as an attractive medium. This can make its mystification more tempting when the artist is making art that acts as a framework upon which the audience projects their own interpretation.

Indeed, reflecting upon interviews with artists who used AI in their practice, Crawford and Stark describe tensions in creating AI art as forming a form of "ethics of ambiguity"; the notion that, although the outcomes of an act might be unknowable, the artist is still obligated to consider them to the best of their ability, and have a situated awareness of their role in their work and the implications of their actions. Crawford and Stark describe how the artists they interviewed were very conscious of the thread of ambiguity running through their works, from construction to the material presentation and spatial location, to the experiences and knowledge audience members bring to interpretations and the moral implications of this.

This places a certain burden on artists' shoulders. It is a responsibility of a different nature to that of, say, software engineers or technology companies who use AI to create tools for our daily lives. Artists working with AI need to recognise and respond to these responsibilities, but perhaps we as an audience can share this burden by exploring and understanding the contexts in which AI artworks are created. By doing so, we can hope for the activist intent in these works to be better realised, and for artists and audiences to have greater potential to contribute to the way technology shapes society and the way we live our lives.

Cite as: SJ Bennett (2023). I, Ethics, and the Role of the Artist. *The New Real Magazine*, Edition One. pp 54-55. https://doi.org/10.2218/newreal.9258

References:

1. https://www.coe.int/en/web/artificial-intelligence/what-is-ai
2. https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/socio-technical-system-design
3. https://scholar.harvard.edu/files/bgreen/files/19-cscw.pdf
4. https://www.theverge.com/2020/8/17/21372045/uk-a-level-results-algorithm-biased-coronavirus-covid-19-pandemic-university-applications
5. https://pubmed.ncbi.nlm.nih.gov/31278182/
6. https://proceedings.mlr.press/v81/buolamwini18a.html
7. https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/10821

Data Politics: **Drag, Deepfakes and the Taming of Technology**

Image credit: *Jake Elwes*

Human-made datasets carry with them the prejudices and assumptions of their creators. Can art subvert and expose the process? By Morgan Currie and Benedetta Catanzariti.

"The Camp sensibility is one that is alive to a double sense in which some things can be taken. But this is not the familiar split-level construction of a literal meaning, on the one hand, and a symbolic meaning, on the other. It is the difference, rather, between the thing as meaning something, anything, and the thing as pure artifice."

- Susan Sontag, Notes on "Camp"

For many of us, the topic of deepfakes calls to mind doctored videos of celebrities showing up in films they never made, or public figures saying outrageous, out-of-character statements – Mark Zuckerberg[1] admitting to stealing everyone's data and dominating the world. The clips are altered to confuse us, sometimes for entertainment, other times with darker intent, by making reality harder to discern from fiction.

For artist Jake Elwes, deepfake technology is an artistic medium making satire out of authenticity – of images and voice recordings, but also identities, classifications, and genders. His Zizi project typifies this mischievous approach to ambiguity – it draws on images of real drag queens and kings to create synthetic faces and bodies, uncanny avatars of a type of performer that has long trafficked in the blurring of truth and fabrication.

Drag, both as a concept and practice, might well play an increasingly strategic role in our highly 'datafied' world. Harris Kornstein[2], a drag performer and writer from San Francisco, describes how drag makeup confuses Facebook's facial recognition algorithm – similar to the dazzle effects that camouflage face paint has on facial recognition cameras.

Facebook's software tends to tag drag queens incorrectly, sometimes confusing them as paintings or famous people. Because drag destabilises fixed identities and genders, it evades dataveillance through digital noise – obscuring a person's identity until Facebook cannot datafy, categorise, commodify, or control it.

Relying "on constant metamorphosis and cunningly

blending elements of fantasy and reality," writes Kornstein[3], "drag performers casually render information about their lives difficult for observers to consistently identify, verify, or believe."

Drag queens' exaggerated make-up, fictional names, and fluid personas and genders confound the strict parameters of dataset representation. While tech corporations can only extract profit from stable, verifiable digital identities, drag challenges this stability – along with the very assumption that data is an authentic and accurate representation of the self.

Elwes' work also looks at the slipperiness of identity, but not to elude detection. Zizi's fabulous queens do disrupt harmful models of representation – Zizi is a façade with no connection to an actual subject to control – but Elwes' work is more concerned with how drag offers a playful, campy lens for thinking about AI, which also upends our traditional understandings of reality from artifice.

Image credit: *Jake Elwes*

To make his deepfakes, Elwes deploys a GAN – generative adversarial network – a relatively new type of AI that pits two algorithms against each other, one to generate new images that could seem real, the other to discriminate between the more or less real and the fake ones. Over time the system refines the images, creating increasingly convincing renderings through constant feedback on its performance.

In his first Zizi project, Zizi – Queering the Dataset[4], Elwes took a model trained on a standardised dataset of faces, then retrained it on the faces of drag performers. The GAN synthesised the dataset into a stream of synthetic faces of fluid genders – in the final video, the faces mutate and morph into each other, each looking almost real, but still, uncannily, artificial.

By working with datasets of a marginalised group, the project gets at the politics underlying all AI training datasets – the representativeness of images used to train the algorithm. As a growing body[5] of research[6] has shown, the composition of datasets used to train machine-learning systems – often over-representing white men – can reproduce biases found in wider society. The fluid identities in the Zizi project subvert normative ideas of the gender binary that dominate these standard datasets.

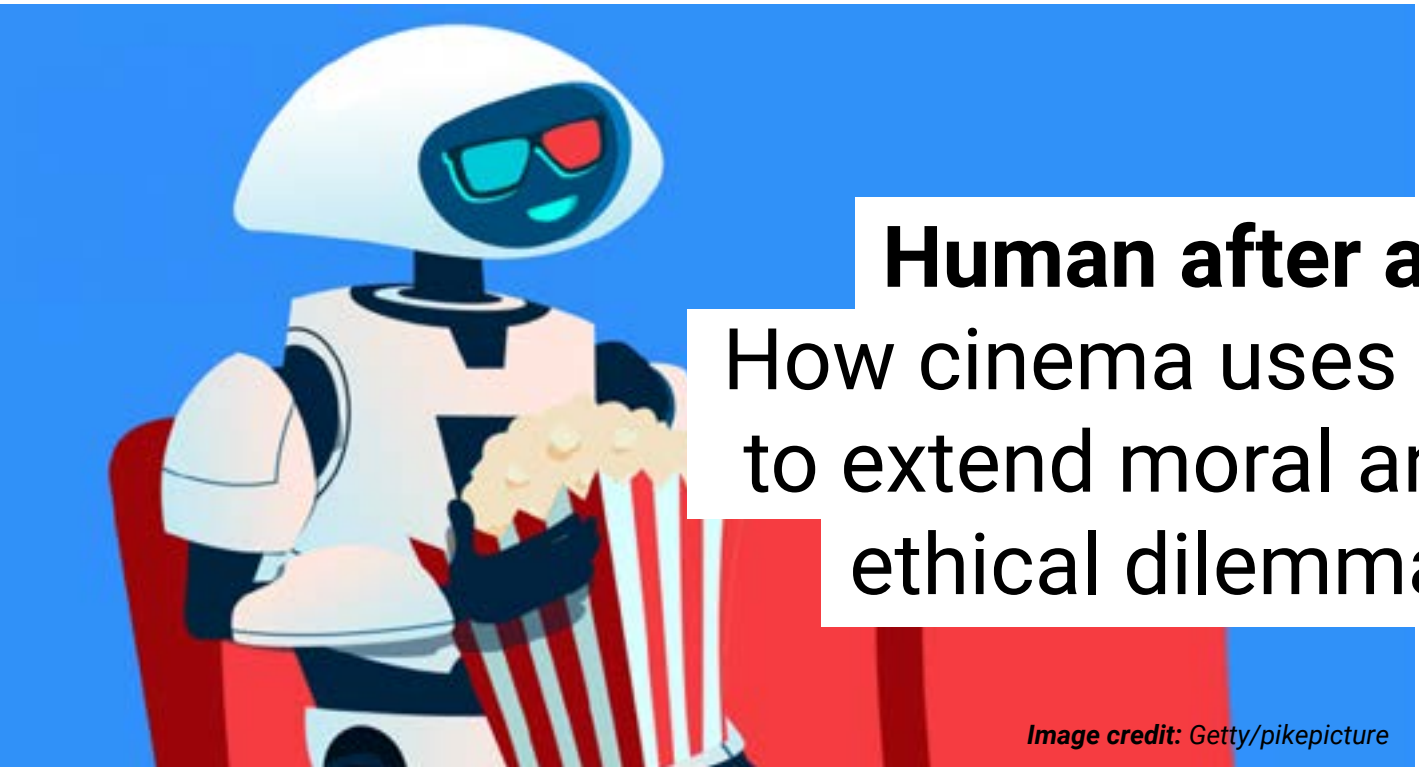
In another incarnation of Zizi, called The Zizi Show[7], users control the body of a deepfake drag performer from their browser. The audience can make different selections before or during the performance – of the song danced to, the type of body Zizi takes. The body selections themselves come from AI-created models trained on the motions of London-based drag queens and kings, who worked in close collaboration with Elwes. Zizi's dancing figure, in whatever version, blurs and bristles with static; the image always seems to be compiling and catching up with its own movements. The details – jewellery, hair and fur – are poorly rendered, and fuzzy.

By letting people control the deepfake, Zizi adds a new layer of ambiguity to the concept of digital identity. Zizi is not just an avatar – a remnant of early internet utopias – but an emergent persona of the AI technology and the human controller. Zizi's mutant performance shows us that deepfake technology, so often associated with pranks and malicious intent, can be tamed.

Cite as: Morgan Currie and Benedetta Catanzariti (2023). Data Politics: Drag, Deepfakes and the Taming of Technology. *The New Real Magazine,* Edition One. pp 56-58. https://doi.org/10.2218/newreal.9259

References:

1. https://www.instagram.com/p/CBOIEh3lhPr/?utm_source=ig_web_copy_link
2. https://www.harriskornstein.com/
3. https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/12957
4. https://www.jakeelwes.com/project-zizi-2019.html
5. http://gendershades.org/overview.html
6. https://proceedings.mlr.press/v81/buolamwini18a/buolamwini18a.pdf
7. https://zizi.ai/



Human after all: How cinema uses AI to extend moral and ethical dilemmas

Image credit: *Getty/pikepicture*

The cinematic staple of giving machines human characteristics reveals a lot about our complex relationship with AI and morality. *By Chris Speed*

It's not hard to see why AI is an interesting starting point for a movie. Beyond the obvious storylines that explore the threat to our perception of being the dominant intelligent species, AI has become a lens through which to consider more existential questions – a way to interrogate the very condition of 'being human'.

In order to do this, a persistent habit in cinema has been to cast AI in the form of a human body. Whether it's from as far back as Fritz Lang's Metropolis (1927) with Maria's robot double, or more recent examples such as the childlike android David in Steven Spielberg's A.I. Artificial Intelligence (2001), the question of what it is to be human is explored through the decision making of a more-than-human. But what do these embodiments of artificial intelligence tell audiences about our own moral and ethical condition?

Before we dive into cinema's role in presenting these issues, it is worth noting that cinema is still struggling to overcome significant challenges in casting AI into gendered forms. In most cases, manifestations of AI in a male form demonstrate a desire to exert power and seek intellectual superiority. Female embodiments may seek to explore the same issues but come with an added dimension of sexualisation, a trait which exemplifies the biases that lie behind some large-scale datasets.

'Good morning, Dave'

While cinema audiences of the 1960s were contemplating the power of Alpha 60, a sentient computer system that has complete control of the city of Alphaville in the Jean-Luc Godard film of the same name, or the onboard computer HAL 9000 in Stanley Kubrick's 2001: A Space Odyssey, that prioritises its own 'life' and the spacecraft's mission over the lives of the crew, academics were developing thought experiments to explore moral and ethical dilemmas.

Of the numerous experiments that emerged, the 'trolley problem' resonates with many of the cinematic plots through which audiences explore human deliberation and the logic of machines.

The trolley problem is relatively simple. There is a

runaway trolley (or train), ahead of which there are five people tied to the tracks. On a sidetrack is one person who is also tied down. You stand at a lever on the train and are faced with two options: do nothing and allow the train to continue on its path and kill five people, or pull the lever, divert the train toward the sidetrack and kill only one person.

As AI has crept into our lives this thought experiment has become less abstract. In the hands of scientists, it has been aligned with the grand challenge to "help [the scientists] learn how to make machines moral".

Studies such as Moral Machine, developed by the Scalable Cooperation group at the MIT MediaLab, place viewers in a series of scenarios in which the trolley is swapped for an autonomous vehicle. The moral dilemma is complicated through the introduction of more information about the consequences of a decision: that you might kill subjects of different ages, genders, physical health and species (human or cat).

Computer says 'no'

Of course, these dilemmas make for good plots in movies involving AI, immersing the viewer in a moral quandary where the decision-making of an AI in human form is in conflict with a human protagonist or a community that they represent.

Most recently we see it used in the Netflix film Outside the Wire which places a human alongside an AI, in what appears initially to be collaborative circumstances. As the story unfolds, the scriptwriters put the duo in increasingly contradictory moral dilemmas where the AI and human have differing views.

The opening scenes see our human hero Harp, a drone pilot based in a ground control station in the US, in the first of a series of these dilemmas. He is monitoring an incident involving peacekeeping American troops stationed in Eastern Europe, fighting pro-Russian insurgents. Harp decides to disobey his commanders and deploys a Hellfire missile killing Americans and Russian ground troops but ending the incident. During the subsequent military trial, Harp justifies his actions by stating, "There were 40 men on the ground, and I saved 38."

Harp is punished for ignoring a direct action to hold fire, and is sent into action where he is assigned to Captain Leo, an advanced AI masquerading as a human officer. The scriptwriters construct a moral bond between the pair as Captain Leo asserts that Harp had made the right decision at the time, revealing that he had more data about the circumstances of the incident than both the troops on the ground and the senior officers in command. Tension is built throughout the story, as the audience is put in situations that place stress on the relationship between the human and the AI, as moral decisions change according to the politics of each scene.

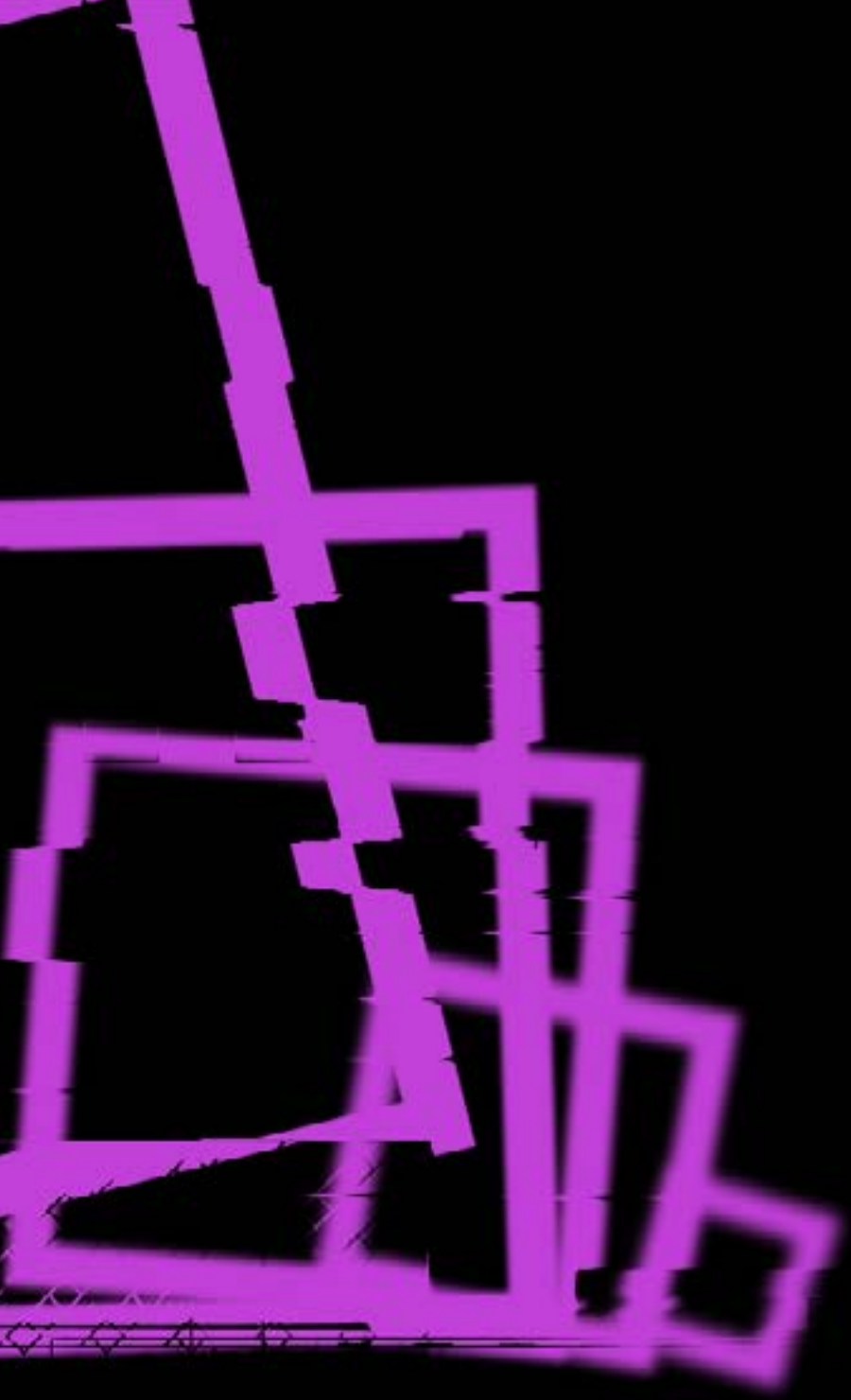
However, as the story moves towards its conclusion, the intentions that inform Captain Leo's decisions become more clouded and Harp struggles to follow the logic. As we approach the final dilemma, the audience and Harp are led to understand Leo's reasoning behind his decision-making process - that he sees his kind (autonomous robots) as an inevitable cause of future conflict and that the correct moral action is to launch a nuclear warhead at the USA to prevent them from using AIs in the future.

Moral machines

Literally targeting American audiences with a moral dilemma that places them on the railway tracks of the 'trolley problem', Harp pleads with Leo, arguing that humanity must learn to design better AI to avoid the unnecessary deaths of millions of innocent people. I'll let you watch the movie to find out what our all-American hero does next.

Outside the Wire may not be a great movie. But what is particularly interesting is the decision of the scriptwriters to place the responsible development of AI in the hands of the viewer. It suggests that AI won't be going away anytime soon, but it's likely we will have to play a part in an increasing amount of moral and ethical decisions to manage its outcomes.

Cite as: Chris Speed (2023). Human After All: How Cinema Uses AI to Extend Moral and Ethical Dilemmas. *The New Real Magazine,* Edition One. pp 59-60. https://doi.org/10.2218/newreal.9260



Spotlights

Summaries of recent publications, events and reports

Illuminating the New Real: Art and critical AI literacies

A taster summary of a report for Resilience in the New Real, from Drew Hemment, Martin Zeilinger, Matjaz Vidmar, and Holly Warner.

***Image:** Circadian Bloom by Anna Ridler. FutureEverything, 2021 © Stelios Tzetzias*

Even before the explosion of Generative AI in 2022 and 2023, the landscape of artistic uses of AI technologies in the creation, curation and consumption of digital and hybrid experiences was already dynamic and diverse.

Over the decade leading to 2022, a rapidly growing field of AI art practice had taken shape. Machine learning algorithms served digital content to us online, and were used to increase the efficiency of production workflows. Cultural and artistic applications of AI encompassed novel forms of art objects, event formats, collaboration tools and value exchange. The large number of exhibitions dealing directly or obliquely with AI and machine learning are a strong indicator of the increasing focus placed on AI technologies among artists, curators, and audiences alike.

In arts settings, AI technologies found many different uses, with artists often building their own tools and datasets. Over this period, IT giants such as Google started to offer open-source access to advanced machine learning systems such as BigGAN, and many smaller-scale neural network architectures and models also became available. Creative coding communities could adjust machine learning protocols, pre-trained systems, and publicly available datasets (e.g. ImageNet) to their individual needs, and begin to incorporate them into their creative methodologies.

During this time a community of critical artists emerged – and is still growing today – who work with AI technologies and data both as a medium and as a theme, both as a tool and as a topic. We found in this community artists who intentionally design digital experiences to simultaneously delight and inform audiences.

Works by this community illuminate the operations and consequences of emerging technologies and help us to negotiate controversies that arise with AI-fuelled and data-driven experiences.

Looking to the present day and the rapidly evolving landscape of generative AI, it is ever more vital to equip cultural practitioners, managers and funders to understand what excellence looks like when art is made in collaboration with AI, and also to negotiate political, licensing, security, ethical and environmental controversies and challenges in the generative AI domain. Difficult questions can arise for curators, marketers, and technicians, all the way through to senior managers and creative directors. Companies and artists require swift acquisition of new concepts and skills, the adoption of new tools and technologies, and access to new networks and resources. This transition goes beyond the simple adoption of new tools and includes far-

reaching changes at cultural, organisational, economic, and infrastructural levels. This is what we call 'the New Real,' and to understand what it means for the arts, we need to look to the profound ways in which AI and other new technologies are reshaping society.

We learn from these projects the ways systems make use of our data, and how truth and experience are constructed online.

Artworks from the decade leading to 2022 reveal the extraordinary potential of artificially intelligent technologies used in creative and artistic contexts and can help to increase public and professional understanding of the underlying tensions and dilemmas in the New Real. We gain insights into intractable controversies and problems in the digital economy, and ethical, political and environmental concerns relating to the widespread implementation of AI and data systems across all sectors of society. These include the multi-dimensional challenges surrounding safety, privacy, transparency, and misinformation that can arise in distributed, data-driven systems. Core problems that come with the transition to a data-driven culture concern online security, underlying management of IP, and the handling of personal data on underpinning platforms. A new platform or programme may be found to be unviable, and trust and acceptance of emerging formats can quickly evaporate.

These creative works can enhance our capacity to critically reason about the functions and functioning of a system, to make judgements about whether systems and platforms are safe and ethical, and to make the sector overall more resilient in the face of future system failures.

In developing our report, we have looked at works and practices that engage with emerging AI technologies in the new media art tradition and publicly engaged technologically-mediated art more widely. This is a broad area that can encompass work in visual arts, performing arts, games, publishing, film/TV, and hybrid/online festival events. We focused on innovative forms of artistic production and commissioning, looked in particular at five individual art projects, and two exhibitions in which AI is the curatorial topic. These were Learning To See by Memo Akten (2017), Asunder by Tega Brain (2018), ImageNet Roulette by Trevor Paglen and Kate Crawford (2019), The Zizi Project by Jake Elwes (2019, ongoing) and Wekinator by Rebecca Fiebrink (2009, ongoing), AI: More than Human at The Barbican (2019), and You and AI: Through the Algorithmic Lens by FutureEverything and Onassis foundation (2021). All of these cases involve creative experimentation with and exploration of relevant AI techniques and tools, and also engagement in societal and ethical themes related to the consequences of these emerging technologies.

These diverse practices represent a field of critical art practice, where AI technologies provide both the medium in which the artworks are executed and the theme for the project and the inquiry that surrounds it. In other words, these are data-driven and algorithmic creative practices and art forms in which the data used bears conceptually on the aesthetic and cultural experience created, and which feature a literacy aspect relating to the underlying technologies.

We name this critical AI art.

Our research leads us to conclude that critical arts can:

- demonstrate capabilities/limits of the technology;
- aid in rethinking key elements of computational art and generative practices that can otherwise be difficult to grasp for audiences;
- illuminate or challenge the social factors and implications of emerging technologies, such as bias and inherent power structures;
- engage users/audience such that their input forms a key part of the aesthetic experience, and sometimes also becomes a key critical literacy element;
- foreground the significance of the datasets underlying AI-driven and generative artworks (from artist-created custom datasets to the anonymous labour of machine learning 'click workers')
- call for new curatorial approaches that can accommodate works in which 'creative' elements are 'blackboxed' in algorithmic systems and not immediately evident in the experience as such;

We conclude that this practice can help to equip cultural organisations, practitioners, audiences and funders to negotiate the complex challenges and controversies we face following the generative turn. In particular, the study, commissioning, presentation, evaluation and preservation of such work is a curatorial practice for the New Real, that can address a range of multi-dimensional challenges:

- **expand artistic uses of AI and to explore new creative applications of AI**

- **nurture the human and machine agency to flourish in the face of transformative change today.**

- **leverage the power of the arts to strengthen societal resilience through this and future crises.**

Our report was prompted by the wider adoption of digital ways of working during COVID-19, but its lasting legacy can be in equipping cultural professionals to negotiate the longer-lasting impact of the generative turn. We see critical arts as a niche field that helps us to surface and understand radical strategies for transitioning towards data-driven, networked cultural models. We find that artistic practice can be deepened and enhanced through engagement in these critical issues as well as by access to significant science and technology. Resilience will be strengthened by new cultural, social, and economic models that are artistically novel and also viable, sustainable and fair.

We invite you to join us in exploring how these strategies can reveal culturally and economically viable experiences, formats and models for the arts to flourish in a more-than-human world.

***To learn more**, read the full Illuminating the New Real report here*

or browse other reports and publications by The New Real on our Research page.

***Illuminating the New Real: Art and critical AI literacies** by Drew Hemment, Martin Zeilinger, Matjaz Vidmar and Holly Warner is a project report for Resilience in the New Real funded by the Arts and Humanities Research Council published in 2022.*

Cite this article as Drew Hemment, Martin Zeilinger, Matjaz Vidmar, Holly Warner (2023). Illuminating the New Real: Art and critical AI literacies [Project Report]. *The New Real Magazine,* Edition One. pp 62-64. https://doi.org/10.2218/newreal.9261

AI in the Public Eye: *Building Public AI Literacy through Critical AI Art*

A taster summary of our ***FAccT 2023 paper*** *in Chicago, from Drew Hemment, Morgan Currie, SJ Bennett, Jake Elwes, Anna Ridler, Caroline Sinders, Matjaz Vidmar, Robin Hill and Holly Warner.*

Strategies developed within the critical art community – before the arrival of powerful new generative AI tools such as ChatGPT and Midjourney – have helped to inform the public and equip practitioners to respond to the fast-paced developments in the field today.

Art has long offered a space for fostering new, critical perspectives on technological development. Art provides a space to discuss new, controversial technologies – art can make technology more accessible, relatable and friendly or, paradoxically, frightening and dangerous. This is particularly true with 'critical AI artists' who explore these technologies as media in their own right while adopting a stance of critique or advocating for possible futures beyond current technological limitations.

By testing the creative limits of new technologies, and by creating opportunities to discuss and interact with them, artists can provide opportunities to foster public literacies around their promises and risks.

In July and August 2020, we held three workshops, involving three professional artists featured in this edition of The New Real Magazine – Anna Ridler, Caroline Sinders, Jake Elwes – along with an invited group of AI engineers, social scientists and philosophers. The workshops were both a snapshot of key issues, concerns and practices during that period, and were the launchpad for our research theme of Experiential AI, and the artist commissions, technology development and research findings that have flowed from that in The New Real programme.

The overarching goal was to understand how AI can fuel significant cultural works and how artistic practice can enrich or inform new paradigms for legible and inclusive AI. In the workshops, the specific objectives were to work closely with artists to understand their intentions and methods, while also enabling an exchange between artists, engineers and other researchers. We looked at strategies of artists working with AI in the decade before the release of tools such as Midjourney, Stable Diffusion, Dall-E 2 and ChatGPT. We questioned the artists' intentions in seeking to demystify AI, and what AI developers and scientists might learn from this. Beyond public engagement, we were also interested in how collaborations between artists and AI researchers and engineers can facilitate novel perspectives on AI design.

These insights have been built on by The New Real and have informed programme development at The Alan Turing Institute and elsewhere, and so are tangibly shaping our response to the generative turn in AI today.

This is what we discovered about the intentions and strategies of artists and the unique contribution the arts can make to AI public literacies:

- **The intentions of critical AI artists include linking AI systems to structural issues of power, defamiliarising AI to cause people to think of it in fresh ways, and raising questions about what people should use AI for.**

- **Strategies of artists to make AI tangible and explicit include making visible design choices in the AI pipeline, exposing gaps in training data, revealing human labour and showing the key role of training datasets as they interact with algorithms.**

- **The arts offer an experiential approach to AI public literacies that engages people tangibly, emotionally and cognitively by enabling audiences to interact with an AI system or outputs, using spectacle to draw people in before provoking discussion and combining the aesthetic experience with wrap-around activity to deepen engagement.**

We also found that this coming together of creative and technical disciplines can enrich both artistic practice and AI design:

- **Arts practice can be further enriched by providing more accessibility to AI tools and creating multiple opportunities to connect art to science.**

- **AI design can be further enriched by illuminating situated and embodied meaning, connecting work in the lab to real-world applications and consequences, fostering critical and poetic perspectives, valuing interpretation over explanation and accounting for a wider range of stakeholders.**

To learn more, read our full paper for FAccT 2023 in Chicago, or watch the video of our talk.

AI in the Public Eye is a research paper by Drew Hemment, Morgan Currie, SJ Bennett, Jake Elwes, Anna Ridler, Caroline Sinders, Mat Vidmar, Robin Hill and Holly Warner presented at ACM Fairness, Accountability and Transparency (FAccT) in Chicago on 13 June 2023.

Cite this article as Hemment et al (2023). AI in the Public Eye: Building Public AI Literacy through Critical AI Art. *The New Real Magazine,* Edition One. pp 65-66. https://doi.org/10.2218/newreal.9262

Is machine learning "revolutionising" the Arts?

A taster summary of a report by the Creative Algorithmic Intelligence Research Project, Oxford Internet Institute.By Anne Ploin.

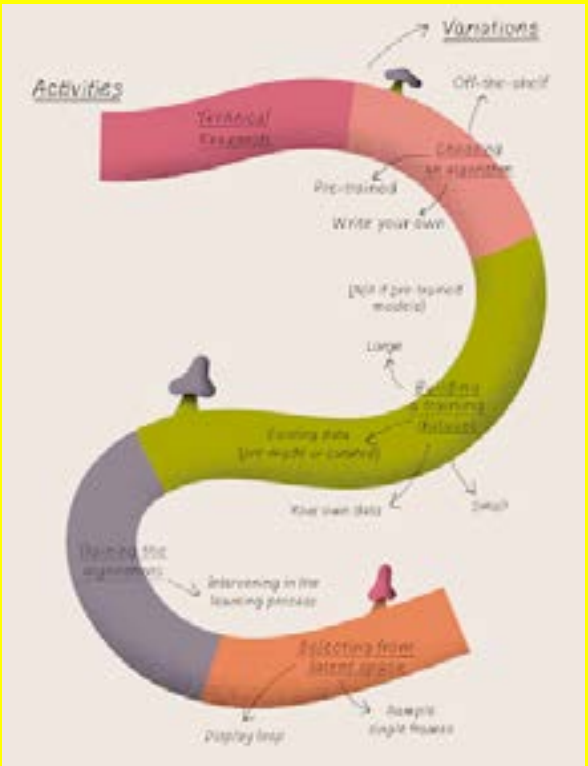
An exploration of how artists and curators are utilising automation and AI in their creative processes.

Although the Arts have a long history of incorporating technology––analogue and digital, emerging and retro––into artistic practice, artists have generally been considered automation-proof. Until recently––as recent successes in machine learning (ML) research in the past ten years have given rise to a new wave of interest in the complete automatability of creativity, a final frontier for a maximalist vision for AI-driven automation. Narratives featuring fully autonomous algorithmic "artists" fuelled the hype surrounding machine learning. But what has been happening on the ground in the arts?

Our interdisciplinary project, "Creative Algorithmic Intelligence: Capabilities and Complementarity"[1], based between the Oxford Internet Institute and the Department of Engineering at the University of Oxford, explored this question. To understand the impact of machine learning on the visual arts scene c. 2019-2020, we interviewed contemporary artists who used machine learning as part of their practice, and curators and researchers in the "AI arts" scene. Through these conversations, we explored artists' accounts of the potential––and failures––of existing machine learning technology for artistic work, as well as artists' perceptions of algorithmic intelligence and algorithmic creativity.

We found that machine learning did change things––in more subtle ways than Big Automation stories about autonomous machine artists. In the "AI art" or "ML art" space, artists developed new technical skills to engage creatively with machine learning models and create works on their own terms––whether coding from scratch, building their own datasets (as Anna Ridler, amongst others, often does[2]), or fine-tuning pre-trained models to obtain particular visual effects, as Jake Elwes has done with Zizi – Queering the Dataset (2019)[3]. Workflows became more iterative, alternating between research phases, ML generation phases, and curation phases. Models could be 'chained' together or used as 'personal filters' (as in Helena Sarin's practice). With datasets, artists could go big and get photorealistic results, or go small and harness the glitch––as in David Young's

The Creative Communities Working with Machine Learning



A "spectrum of working": five new activities involved in ML-based art and their variations

Four artists' workflows

Little AI (2019-2020)[4] or Tabula Rasa (2019–)[5] projects. Outputs-wise, artists could select single frames, exhibit the model's continuous generation, or exhibit the whole technical system––as Mario Klingemann has done with Memories of Passersby I (2019). Overall, as ML models partially automated the generative parts of the creative process, curation––whether building datasets or selecting visual outputs from ML models' continuous generation––became a key site for artistic intention.

Although the potential uses of ML for artistic practice seemed rather concrete, opinions were divided on what ML's current capabilities meant for the arts. Some artists framed ML in a continuous conversation with other periods in art history, such as the code-based and computer arts movement[6] emerging in the 1960s and 1970s and the harnessing of randomness by much experimental art. Others found the generative capabilities of ML models to be a step-change departure from past tools. While ML models could help produce surprising variations of existing images, however, artists felt that they themselves remained irreplaceable in giving these images artistic context and intention––that is, in making artworks. The creativity involved in artmaking, they argued, was about making creative choices; a practice which remained beyond the capabilities of current ML technology.

Ultimately, artists agreed that despite the increased affordances of ML technologies, the relationship between artists and their media remained essentially unchanged, as artists ultimately work to address human––rather than technical––questions.

References:

1. https://www.oii.ox.ac.uk/research/projects/creative-algorithmic-intelligence/
2. https://annaridler.com/myriad-tulips
3. https://www.jakeelwes.com/project-zizi-2019.html
4. https://triplecode.com/project/littleai.html
5. https://triplecode.com/project/tabularasa.html
6. http://www.vam.ac.uk/content/articles/a/computer-art-history/

To learn more, read the full report here.

This article can be cited as Anne Ploin (2023). Is machine learning "revolutionising" the Arts?. *The New Real Magazine*, Edition One. pp 67-69. https://doi.org/10.2218/newreal.9270

Public XAI, Creative AI for Good, and other emerging themes in AI & Arts

A short summary of our research interests and promising directions for future work in The New Real

The New Real has set out to understand how AI can augment and be enriched by the arts, and how far data science and the arts can help to answer each other's questions. It is community-driven and has shaped a new field called 'Experiential AI' which aims both to support the creation of significant artistic works and to inspire new concepts and paradigms on ethical and responsible AI.

We have identified four promising directions for future research and development in AI & Arts:

1. Creative AI for good
2. New paradigms for human-centred creative AI
3. Next generation intelligent experiences
4. Public XAI and more-than-human intelligence

We first came together to explore how the arts could help to address challenges in AI science. In our research, we have seen that AI artists are adept at surfacing critical issues and scaffolding human understanding through the design of digital experiences. We found a field of critical practice in which artists work with AI technologies and data both as a medium and as a theme, both as a tool and as a topic. This has helped us to identify strategies used by artists and curators to develop and delight online audiences while simultaneously negotiating tensions and dilemmas that arise with AI-fuelled and data-driven experiences.

Building on this we asked how artistic methods can complement work in 'explainable AI' (XAI) by helping to make data-driven AI and machine learning tangible, interpretable, and accessible to the intervention of end users. Here, we are not concerned only with the internal operations of algorithms. We are also concerned with opening up algorithms, the science behind them, and their potential impacts in the world to user intervention, public scrutiny and policy debate.

This leads us to propose that legible intelligent systems need to be open to understanding and intervention at four levels:

Aspect - the framing of a current challenge or future scenario

Algorithm - the technology and catalyst that enables and is developed by the work

Affect - the quality and character of an experience for an audience, and

Audience and Apprehension - valuable learning within the human-AI interaction.

In The New Real, we looked at the explosion in AI and its implications for creativity and the arts. We also looked at the wider digital turn in the creative sector during COVID-19.

We brought these two strands of work together to propose future challenge themes for research and development on the Arts and AI:*

1. Creative AI for good

It's important to address critical issues and align development with social goals through a challenge-led approach, with a specific commitment to promote diversity, fairness and accountability for positive societal and environmental impact.

2. New paradigms for human-centred creative AI

Provocatively we ask how art and creativity can help to radically change how we think about AI design, to enable richer modes of model interpretation and interaction, and embrace human traits such as bias, disagreement, and uncertainty as a signal with creative potential rather than noise that needs to be removed.

3. Next generation intelligent experiences

To answer artist and audience demand for serendipity and spontaneity in data-driven and synthetic media, we look to infuse experiences with intelligence, and intelligence with serendipity, across creative industries from visual arts and film to music and games.

4. Public XAI and more-than-human intelligence

Finally, we seek to enhance sense-making and agency where AI algorithmic techniques and human understanding of them mutually benefit. This is about more inclusive and democratic forms for explainable AI, and enabling creative shifts in cognitive perception through human-nonhuman interactions.

We invite you to join us on this journey which we hope can inspire a transformative research agenda for both AI science and the creative industries for the coming decade.

The New Real is a partnership between the University of Edinburgh, The Alan Turing Institute and Edinburgh's Festivals.

Links and further reading:
The first time the Experiential AI theme was proposed was in this article for AI Matters.

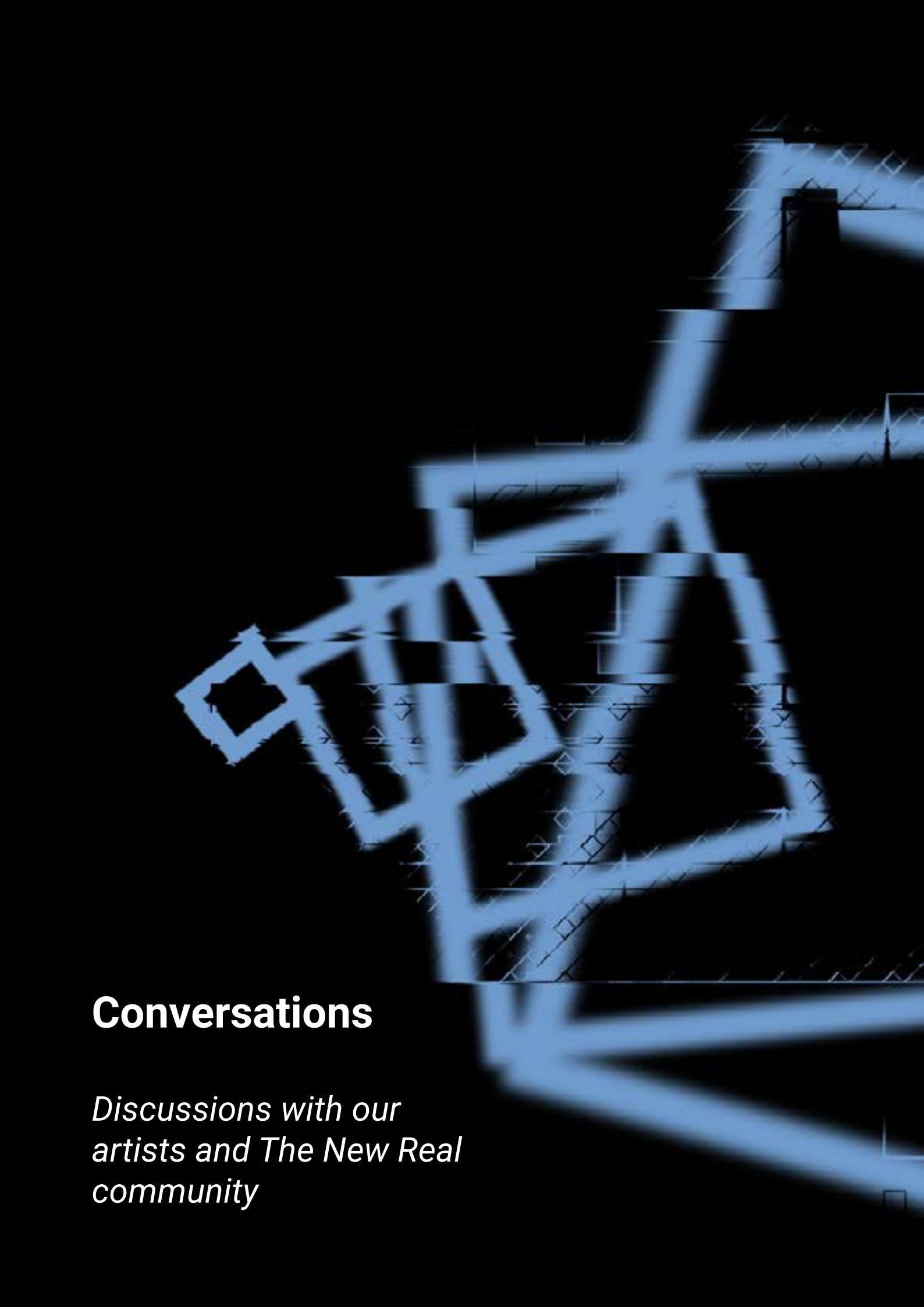
Our reflections on how AI artists help us understand the New Real are published here.

The challenge themes build on scenarios and promising directions for future R&D in the festivals sector following the COVID-19 crisis first proposed here.

You can read our thoughts on the contributions of experiential methods to explainable AI and the thinking behind the Experiential AI framework (4A's) in papers available here.

** These challenge themes were revised in November 2023 in light of our ongoing research.*

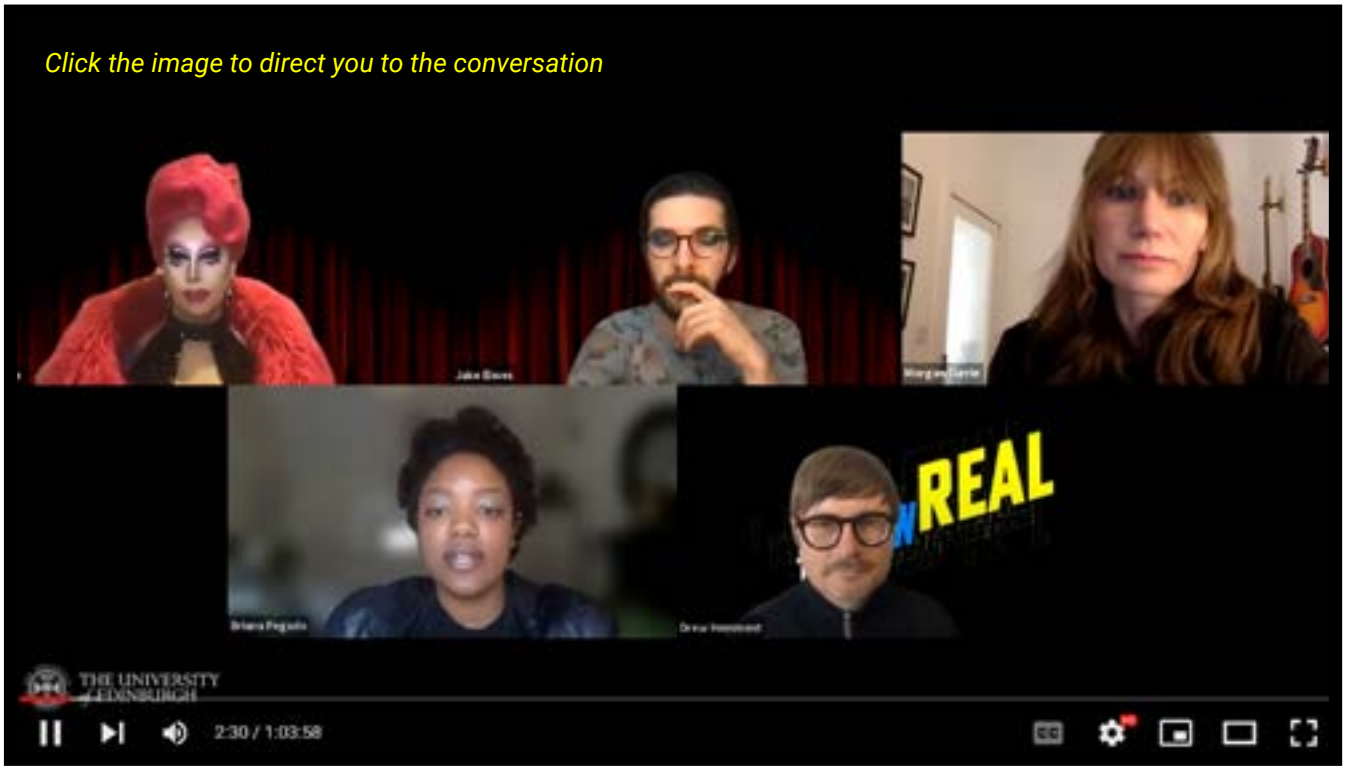
Cite this article as Drew Hemment (2023). Public XAI, Creative AI for Good, and other emerging themes in AI & Arts. *The New Real Magazine*, Edition One. pp 70-71. https://doi.org/10.2218/newreal.9263



Conversations

Discussions with our artists and The New Real community

Video: **The Politics of AI and Drag**



New Real artist Jake Elwes in conversation with Me the Drag Artist, Morgan Currie and Drew Hemment. Chaired by Briana Pegado.

As part of The New Real exhibition at Edinburgh International Festival in 2021 – that featured The Zizi Show – the Festival and Edinburgh Futures Institute co-presented online events with the artists and guests.

Artist Jake Elwes has developed a major body of work through, in a multi-year, multi-dimensional exploration of AI and drag, involving a growing community of artistic collaborators.

In this conversation, we speak to the artists on their mission to challenge discrimination and champion queer and drag artists in The Zizi Show. Through drag performance, this artwork aims to use cabaret and musical theatre to challenge narratives surrounding AI and society.

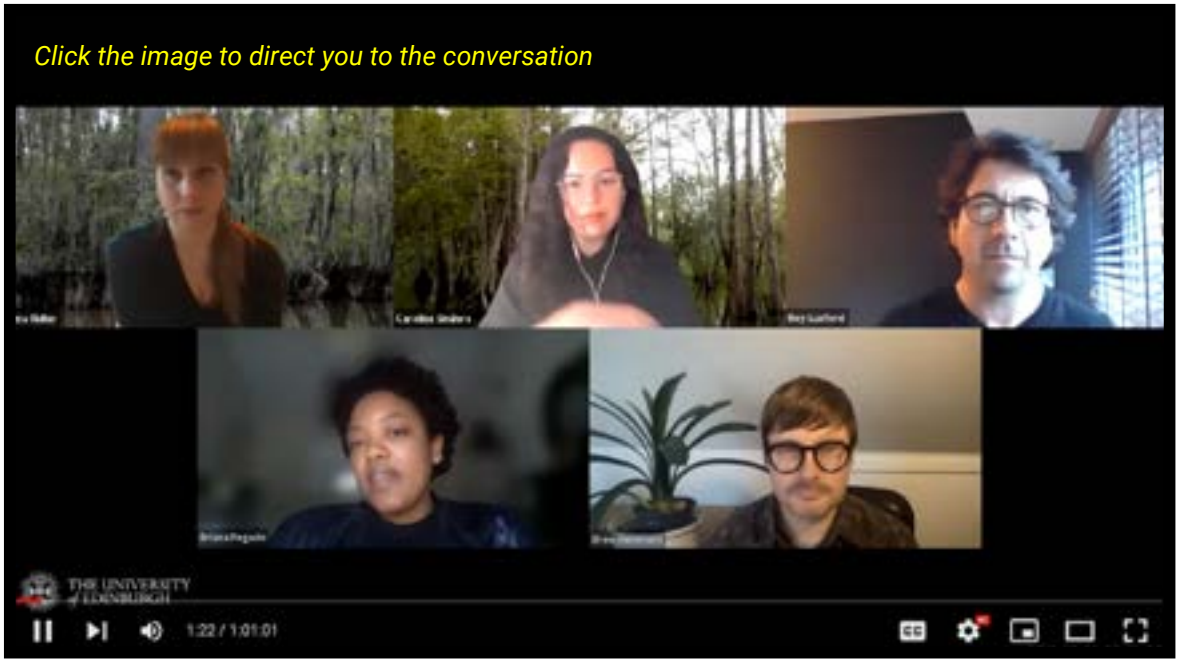
This takes us back to 2021, a key period in the development of Zizi, and explores the theme of representation, ethics and AI, and the artistic interests and collaborative work of Jake Elwes and Me the Drag Artist.

Chair: Briana Pegado FRSA, Creative Director of Fringe of Colour Films.
Panel: Jake Elwes, Artist; Me, Drag Artist; Morgan Currie, Lecturer in Data and Society, University of Edinburgh; Dr Drew Hemment, Curator, Edinburgh Futures Institute.
Presented by: Edinburgh International Festival and Edinburgh Futures Institute.

Discover more:
The Zizi Show on the artist's website
The Zizi Show at the Edinburgh International Festival

Cite as Briana Pegado, Jake Elwes, Me., Morgan Currie, Drew Hemment (2023). Video: The Politics of AI and Drag. *The New Real Magazine*, Edition One. pp 73. https://doi.org/10.2218/newreal.9264

Video: **AI and Art, the Future is Now**



New Real artists Anna Ridler and Caroline Sinders in conversation with Roy Luxford and Drew Hemment. Chaired by Briana Pegado.

As part of The New Real exhibition at Edinburgh International Festival in 2021 – that featured Mechanized Cacophonies by Anna Ridler and Caroline Sinders – the Festival and Edinburgh Futures Institute co-presented online events with the artists and guests.

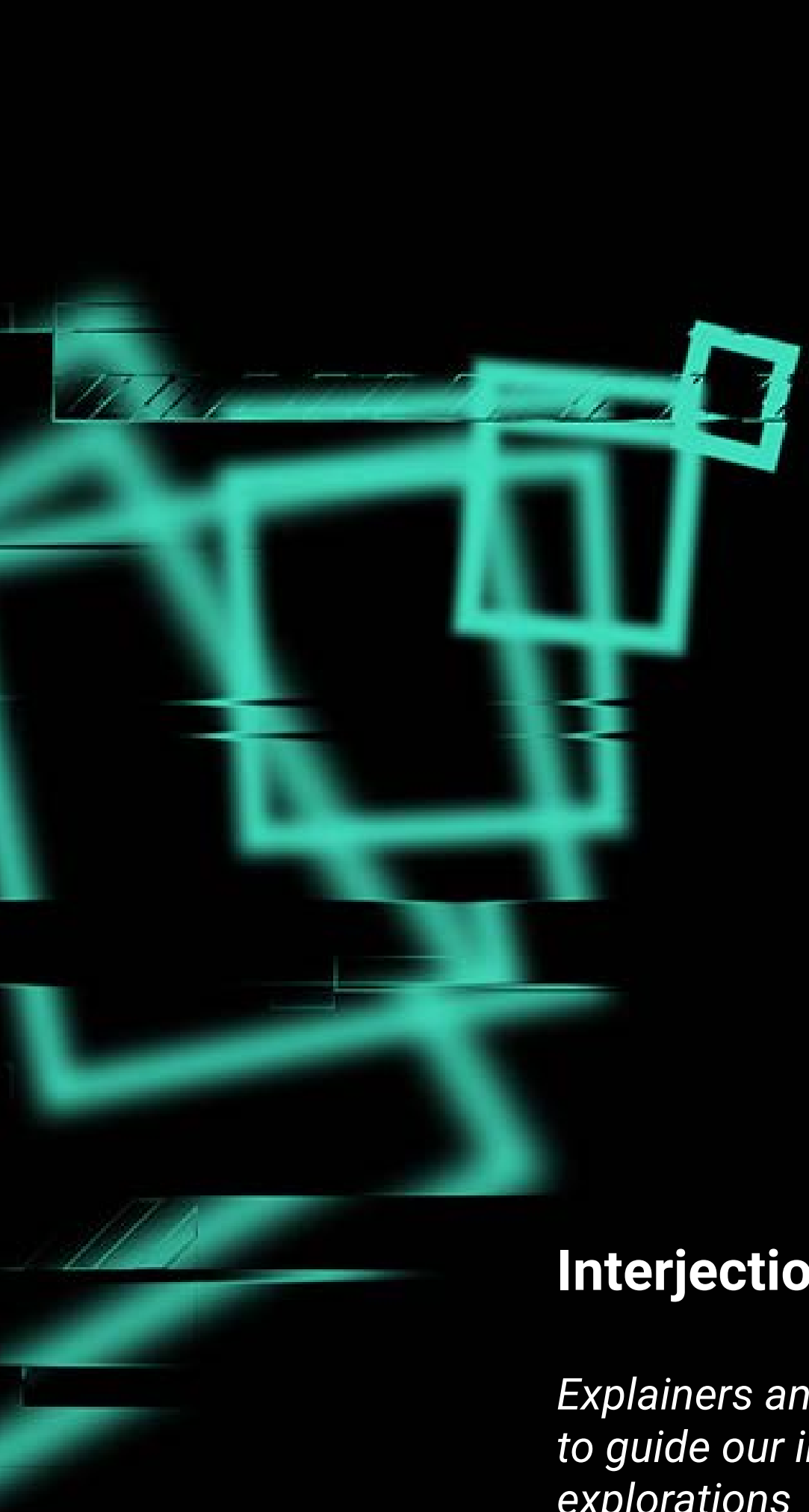
Why are artists working with AI? And how? This conversation offers an insight into the work of artists Caroline Sinders and Anna Ridler, exploring how experiences of nature have been mediated by technology during lockdown due to the loss of freedom to gather and travel.

This conversation takes us back to the Covid-19 lockdowns in 2020 and 2021, and explores the artistic interests of Anna Ridler and Caroline Sinders, when they were exploring the potential of AI for their practice, and responding to the challenge of working remotely – both in their own collaboration, and in the ways they could reach and engage audiences. The focus is the artwork Mechanized Cacophonies commissioned by The New Real for the Edinburgh International Festival.

Chair: Briana Pegado, FRSA, Creative Director of Fringe of Colour Films.
Panel: Anna Ridler, Artist; Caroline Sinders, Artist; Roy Luxford, Programme Director, Edinburgh International Festival; Dr Drew Hemment, Curator, Edinburgh Futures Institute.
Presented by: Edinburgh International Festival and Edinburgh Futures Institute.

Discover more:
Experience Mechanized Cacophonies at www.mechanizedcacophonies.live
Mechanized Cacophonies on Anna Ridler's website
Mechanized Cacophonies on Caroline Sinder's website
Mechanized Cacophonies at the Edinburgh International Festival
AI is Human After All artist residency

Cite as Briana Pegado, Anna Ridler, Caroline Sinders, Roy Luxford, Drew Hemment (2023). Video: AI and Art, the Future is Now. *The New Real Magazine*, Edition One. pp 74. https://doi.org/10.2218/newreal.9265



Interjections

Explainers and hot topics, to guide our intrepid explorations

AI in real time

A celebration of the dynamic world of AI in real time, focusing on music improvisation and the joys of co-creation. *By David De Roure*

It's exciting to see AI being used creatively – for the computer to generate realistic outputs, but also to be part of a co-creative process with the human responding creatively to the AI.

Many of today's examples incorporate AI-generated content into the creative workflow of the practitioner. For instance, I've been involved in several music composition projects where the AI is trained on a collection of content and then generates suggestions which the composer selects and assembles. And AI training can take hours or days, learning from hundreds of thousands of examples, giving a sense that the time dimension of AI is sometimes slow.

But the AI can itself be something that is dynamic, responsive and evolving – active in "real-time", and interactive with the human. My favourite example of this is music improvisation, where the artist and AI interact together "in the moment". This is about co-creation in the act of performance. And this matters, because it's an insight into our future lives – as humans interact routinely with the AI deployed pervasively around them, in "smart" everything. We will all be "living in the moment" with AI, so let's explore that now, and what it means to be a creative human in the face of automation.

And there are certainly things to explore – not just real-time AI but multiple AIs interacting, and interacting fast. Already we adopt approaches where one AI generates and another discriminates at speed, algorithm versus algorithm to beneficial outcome. Imagine a music performance with multiple AI and human musicians, but also AI audience members and critics – an evolving, dynamic, interactive, co-creative system. What will emerge? What are the feedback loops that guide its progress?

Not only art, but the process of creating art, brings insights into our hybrid human-machine future. It's about being creative about being co-creative.

Cite as David De Roure (2023). AI in Real-time. *The New Real Magazine*, Edition One. pp 76. https://doi.org/10.2218/newreal.9271

How Deepfakes Are Impacting Society

Image: *Actor Jordan Peele and his deepfake Barack Obama*

Fake online video and audio content has become a powerful tool for spreading political misinformation and harming personal reputations. *By Morgan Currie*

Deepfakes are the result of machine-learning systems that manipulate the content of one piece of media by transferring it to another. The AI ingests video, photographs or audio of a person or object, then learns to mimic its behaviour and output the results onto another target person or object, creating an eerily accurate counterfeit.

The deep-learning software used to make deepfakes has become cheap and accessible, raising questions about the potential for abuse. While there are plenty of examples that are benign and playful – Salvador Dali taking selfies with museum patrons[1], for instance – the origins of the technology show how harmful it can be.

The term first became widely used in 2017, after a Reddit user by the name 'Deepfakes' posted pornographic videos featuring actresses whose faces were digitally altered to resemble female celebrities, such as Scarlett Johansson and Gal Gadot. For many, the videos crossed basic lines governing consent and harassment and showcased a potent new tool for revenge porn[2]. That 'Deepfakes' used Google's free open-source machine-learning software also drove home how easily a hobbyist, or anyone with an interest in the technology, could masquerade falsehoods as reality.

Since then, other examples of disturbing deepfakes include a video of US House of Representatives Speaker Nancy Pelosi[3] altered to make her sound drunk – it circulated widely after Donald Trump posted it and Facebook refused to take it down – and a video by two artists of Facebook CEO Mark Zuckerberg confessing that his company "really owns the future". Eric Adams confessed to using deepfake audio technology to speak Spanish and Mandarin to constituents in robocalls about local events. There's also a whole industry of livestreaming 24/7 deepfakes of influencers in China[4].

Actor Jordan Peele used a deepfake Barack Obama[5] to warn of the dangers of deepfakes, highlighting how they can distort reality in ways that could undermine people's faith in trusted media sources and incite toxic behaviour. Some in the intelligence community have warned that foreign governments could spread deepfakes to disrupt[6] or sway[7] elections.

Meanwhile, the vast majority of deepfakes are of non-consensual porn[8], not misinformation, which raises another set of legal and ethical concerns. According to WIRED, 2023 has seen the largest amount of new deepfake online porn[9] - more than the total of other years combined – and a corresponding rise in non-consensual content in circulation. Victims become the targets of gender-based online harassment, and family members can wind up seeing the images and videos.

Social media companies have started to address the deepfake dilemma – Facebook set up a public contest in 2019 to help it develop models to detect deepfakes and banned them in early 2020[10], in anticipation of the damage that could be done in an election year. Twitter now deletes reported deepfakes and blocks any of their publishers.
Governments are also putting forward laws to curb the technology. California passed a 2019 law banning deepfakes altogether, and in December 2020 the US Congress passed into law the Identifying Outputs of Generative Adversarial Networks Act[11].

The entertainment industry has responded coolly to these protections, claiming too much oversight clamps down on free speech rights. In 2018, Walt Disney Company's Vice President of Government Relations, Lisa Pitney, wrote[12] that a proposed New York law that included controls on the use of "digital replicas", would "interfere with the right and ability of companies like ours to tell stories about real people and events. The public has an interest in those stories, and the First Amendment protects those who tell them."

Others feel such legislation is not going far enough. Existing laws put the burden on users to identify deepfakes, exonerating the platforms they circulate on. Social media companies remain exempt from regulations[13] and no industry-wide standards currently exist, keeping them off the hook for now.

Cite as Morgan Currie (2023). How Deepfakes Are Impacting Society. *The New Real Magazine*, Edition One. pp 77-78. https://doi.org/10.2218/newreal.9266

References:

1. https://newatlas.com/salvador-dali-ai-generated-computer-museum-exhibition/59641/
2. https://www.wired.com/story/deepfake-porn-harms-adult-performers-too/
3. https://www.youtube.com/watch?v=sDOo5nDJwgA
4. https://www.technologyreview.com/2023/09/19/1079832/chinese-ecommerce-deepfakes-livestream-influencers-ai/
5. https://www.youtube.com/watch?v=cQ54GDm1eL0
6. https://thehill.com/policy/cybersecurity/446611-house-intel-to-examine-deepfake-videos-in-june
7. https://www.cnbc.com/2019/10/15/deepfakes-could-be-problem-for-the-2020-election.html
8. https://www.vice.com/en/article/7x57v9/most-deepfakes-are-porn-harassment-not-fake-news
9. https://www.wired.co.uk/article/deepfake-porn-is-out-of-control
10. https://www.vice.com/en/article/8xwqp3/facebook-deepfake-detection-challenge-dataset
11. https://www.congress.gov/bill/116th-congress/senate-bill/2904
12. https://www.rightofpublicityroadmap.com/sites/default/files/pdfs/disney_opposition_letters_a8155b.pdf
13. https://www.wired.com/story/opinion-californias-anti-deepfake-law-is-far-too-feeble/

AI Myths Debunked: Unpacking Six Common Misconceptions

Image: *Sophia the robot, Hanson Robotics Ltd, speaking at the AI for GOOD Global Summit, ITU, Geneva, Switzerland, 7- 9 June, 2017. Courtesy: ITU Pictures, CC-BY 2.0*

Media coverage of AI has contributed to misinformation about what it can do now and what it might achieve in the future. It's time to unpick the hype. *By Vassilis Galanos, SJ Bennett, Ruth Aylett and Drew Hemment.*

Artificial Intelligence (AI) is the subject of extraordinary hype concerning its abilities and possibilities, resulting in the spread of misinformation and myths. While this "mythinformation," as Langdon Winner once called it, dates at least back to the 1980s, it's helpful to revisit this topic in light of hype about generative AI today. In the news media, we see examples of AI used in policing to identify potential suspects and in recruitment to screen CVs, while in films and TV, we are shown sentient robots and computer systems. AI is even marketed as something that can autonomously produce its own artworks, while AI text generators threaten to displace jobs and flood the web with text of dubious quality[1].

These stories of AI are so widespread they have become 'suitcase words' – words that carry around multiple meanings that change depending on the context in which they are used[2]. Here, we debunk six of the common misconceptions that have taken root about AI. These six myths are pointers – they are all interconnected and come in various guises sometimes related to other technological myths about progress and commercial desire.

First Myth: AI learns like humans

A common misconception is that new AI systems learn the same way as humans, only better, with the main difference being that they are more 'objective' and 'correct'. However, while there are superficial similarities, and they can find patterns that a human might miss due to the sheer size of the datasets they learn from, AI systems have no understanding of meaning or cause and effect – they are making statistical associations. What they learn depends entirely on what data they are given. For example, face analysis systems trained on data with too few people of colour cannot accurately

process faces with dark skin. And even this learning is fallible: a robot cleaner can confuse useful items with trash; a medical system might miss significant patient background information; and a robot judge might suggest that someone is guilty because of previous convictions or because of the neighbourhood they live in. Another example is the so-called 'hallucinatory' academic references produced by widely used text generators such as OpenAI's ChatGPT[3]. The long history of "philosophical objectivism", or the idea that there is one correct, rational perspective, spans the history of automated systems, producing an illusion that 'the computer is always right'. AI is not exempt from this type of cognitive bias, called automation bias. Conversely, AI can produce outputs which are difficult to distinguish from the real deal. A good example of this can be seen in the current hype regarding generative AI systems. These systems, such as ChatGPT, Bard, DALL-E, and MidJourney, are capable of producing text or images that may seem indistinguishable from human-generated outputs, yet may contain entirely false or unverified information. Such output can be used to 'poison' datasets and thus skew or warp interpretations of the world.

Second Myth: AI will take our jobs

There is a widely-held and understandable fear that AI will remove 50% of current jobs over the next 15 years, resulting in a plethora of new, low-skilled work. However, we tend to vastly overestimate AI's capabilities and underestimate the flexibility and judgement needed in many manual or cognitive jobs. In the last couple of centuries, every introduction of new and more efficient tools has meant jobs are lost which are then replaced by a vast array of others. Moreover, the impact of automation is a political as well as a technological issue, illustrated by the growth of the gig economy which has resulted in a swathe of low-paid, unstable jobs with little oversight. One example of this is Amazon Mechanical Turk, a labour marketplace which is essential for the development of many machine-learning systems. In addition, the seemingly automated work delegated to AI is based on the more-than-often invisible labour delegated to an underpaid workforce, either offshored or at precarious career stages[4].

Concerns about how AI enables certain exploitative employment models to be deployed are certainly valid, and work is needed to combat the impact of such systems. The New Real artists-in-residence Caroline Sinders and Anna Ridler explore the theme of hidden human labour in the Art section of The New Real magazine. Caroline gives an example of how to engage people in probing the massive, often opaque systems of unstable, low-paid labour, in her provocation TRK (Technically Responsible Knowledge), which focuses on Amazon Mechanical Turk[5].

Third Myth: AI is immaterial

While popular conception often characterises AI and other computing technologies as an intangible or immaterial entity, it's crucial to understand that AI's functioning primarily relies on concrete, physical infrastructures. These include data centres filled with servers, fibre-optic cables, electricity grids, and myriad electronic devices. AI's algorithms require vast amounts of data, which is stored and processed in these material infrastructures, consuming substantial energy. This hardware plays an integral role in the performance of AI. Without this physical backbone and the environment in which they comfortably exist; cold, secure and electricity-rich, the advanced software capabilities of AI would be unable to operate. Consequently, AI is not an immaterial phenomenon; instead, it's deeply interwoven with physical realities around the globe.

Such dimensions of the AI production pipeline involving the material resources required to train and use it are hidden due to further myths about AI's very use to tackle climate change. A growing amount of research, however, is focusing on the environmental impact of AI, its carbon and water footprint required to train its algorithms, as well as the high mineral cost to produce its supporting hardware, which has engendered conflicts, forced labour and displacement within local communities. Such realities are often obscured by the hype about solving climate change and addressing social issues by applying AI systems[6].

Fourth Myth: AI is a person

People often refer to 'an AI', as if talking about a person-like entity with greater-than-human intelligence, and maybe even sentience. Yet, rather than talking about 'intelligence' – a term that psychologists often avoid

as there is no generally agreed definition – it is more accurate to focus on AI as a set of algorithms. We encounter these every day; they are a list of steps to follow in order to achieve a particular outcome, like a cooking recipe or instructions for making a cup of coffee.

In practice, AI is a set of many different pieces of algorithmic software similar to our smartphone apps or Google Search. However, some of these AI systems are combined into artefacts, such as robots, which in order to make them more user-friendly are designed to look, sound and behave in similar ways to humans. Examples include computer assistants like Apple's Siri, Amazon's Alexa, or Sophia the Robot, and more recently AI chatbots like ChatGPT[7]. Humans are hard-wired to empathise with what appears similar to us. This can make us feel that systems that mimic speech or emotion actually possess these characteristics – after all, we have been personifying things since the days of tree spirits. However, to claim that AI applications communicate with each other or with humans as humans do between them is like suggesting that trees communicate in the same way as well. While 'communication' also has many different definitions, it is misleading to ascribe human communication traits to nonhumans, especially algorithms, which, if treated with the same rights as humans, their often biased output may surmount to credible opinion.

Fifth Myth: AI is capable of autonomous actions

We are frequently shown footage of robots that makes them appear much more successful than they actually are. We are led to believe that scientists can implement capabilities of perception, understanding, planning, and enabling robots to react sensibly to new situations, or even have self-awareness or consciousness. However, most of these videos are staged to one degree or another: in some, robots are remotely controlled, while others might show one successful run out of a hundred. Our understanding of how cognition works is patchy and shallow, and AI programs are very specialised, matching some human capabilities only in very specific cases and well-understood environments, and failing when placed within new contexts. Scientists still do not possess the necessary knowledge to allow us to combine skills of perception, analysis and reaction in the way living creatures can. Even humble lifeforms like slugs have surprisingly complex and nuanced cognition but try searching YouTube for 'robot fail compilations' to see the stage of our current engineering capabilities[8]. Overconfidence in designing 'intelligent' systems may have disastrous consequences; take driverless cars, which have caused fatal accidents when they meet unexpected situations.

Sixth Myth: AI will outsmart humans

Given the rapid increases in computing capability over the past decade, it is easy to think that there will be a tipping point – a singularity – when computers are more 'intelligent' than humans. Similarly, because robots are often represented as being able to 'become' sentient and even dangerous, it is presumed that this is something that will inevitably happen. In reality, making computers compute at higher speeds with bigger memories just means they can process the same data, faster – it doesn't make them more 'clever'. Speed doesn't give computers the ability to understand things in the way humans do, or to be more flexible and less failure-prone. How robots are often presented in the press is way out of step with their actual or likely capabilities[9]. Besides, improvement in cognitive capabilities is curtailed by the physical limits on how much speed we can engineer. For example, robots rely on electricity and they consume lots of it. Their capacity to evolve into sentient beings is dependent on their very limited electric capacities – what if the batteries run out after a few hours, leaving the robot helpless until recharged?

Final Words

AI is the subject of more myths and misrepresentations than any other technology domain we know of. It's important to remember that all these systems and machines, whether we identify them as AI, robots, machine learning or algorithms, are useless without humans making meaning out of them[10].

To sum up: unlike humans, AI does not learn from embodied experience and social interaction; it primarily relies on datasets, algorithms, and computing power. The fear of AI taking over all human jobs is an overstated concern which obscures the vast networks of human labour which underpin the systems we see and shape their outcomes and actions. However, although AI can seem ethereal and detached, it is important to remember it is also socially and materially tangible as it runs on computer hardware

and consumes a significant amount of energy. AI is not a person as it lacks self-awareness, consciousness, emotional intelligence and the ability to understand complex human contexts, however, it has the potential to impact people's lives and contexts. The belief that AI is neutral and objective is also a myth; AI often inherits and magnifies the biases in its training data. Lastly, although AI's computational capabilities may surpass human intelligence in specific, narrow tasks, it isn't equipped to outsmart human ingenuity, critical thinking, creativity, and the ability to understand the broader picture. With these six pointers in mind, AI development can proceed in a responsible and sober manner.

The abundance of myths and hype that surrounds AI doesn't mean it is useless or that it shouldn't be developed and supported as a field. Many applications that we use in our everyday lives are products of simple machine learning, such as recommendation systems ("people who bought this also bought…" or music playlist algorithms), text prediction, and other assistive technologies. Advances in AI help us make important steps forward in medicine and surgery, from robotic prosthetic limbs and object recognition systems for the visually impaired, as well as text template production. But we need to make informed decisions about where and how to implement AI in a way that is successful and socially responsible, so it's important to unpick some of the myths and bring some calm, clear thinking to this fast-developing area.

Cite as Vassilis Galanos, SJ Bennett, Ruth Aylett, Drew Hemment (2023). AI Myths Debunked – Unpacking Five Common Misconceptions. *The New Real Magazine*, Edition One. pp 79-83. https://doi.org/10.2218/newreal.9267

References:

1. https://journals.sagepub.com/doi/10.1177/027046768400400609 ; https://www.christies.com/features/A-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx

2. https://www.technologyreview.com/2017/10/06/241837/the-seven-deadly-sins-of-ai-predictions/ ; https://medium.com/@r.s.aylett/ai-da-a-robot-picasso-or-smoke-and-mirrors-a77d4464dd92

3. https://hbr.org/2018/04/if-your-data-is-bad-your-machine-learning-tools-are-useless ; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9939079/ ; https://mitpress.mit.edu/books/promise-artificial-intelligence

4. https://www.forbes.com/sites/cognitiveworld/2018/08/07/job-loss-from-ai-theres-more-to-fear/?sh=3ff47c3b23eb ; https://www.theverge.com/2019/5/13/18563284/mary-gray-ghost-work-microwork-labor-silicon-valley-automation-employment-interview ; https://time.com/6247678/openai-chatgpt-kenya-workers/ ; https://restofworld.org/2023/china-ai-student-labor/

5. See more at: https://carolinesinders.com/trk/

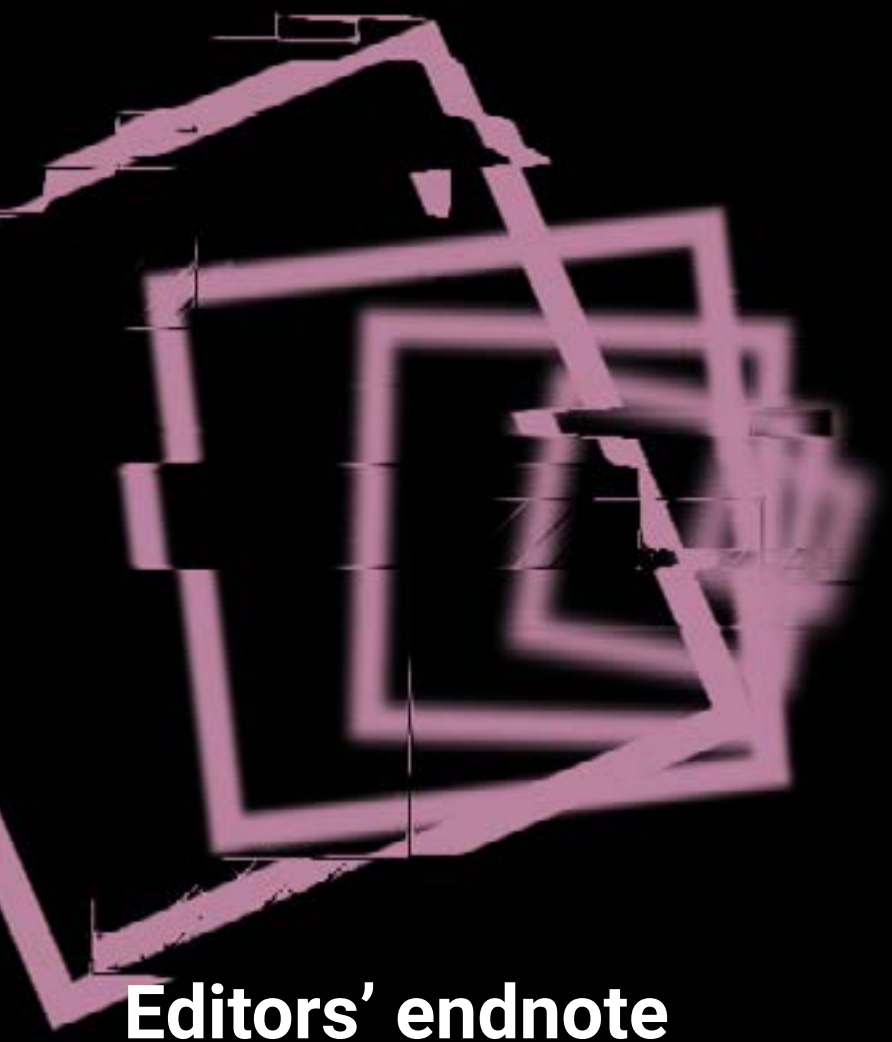
6. https://hub.jhu.edu/2023/03/07/artificial-intelligence-combat-climate-change/ ; https://earth.org/environmental-impact-chatgpt/ ; https://www.proactiveinvestors.co.uk/companies/news/1026167/ai-s-growing-thirst-rising-water-consumption-in-data-centres-sparks-environmental-concerns-1026167.html

7. https://link.springer.com/article/10.1007/s10506-017-9214-9 ; https://www.nngroup.com/articles/anthropomorphism/

8. https://www.forbes.com/sites/fernandezelizabeth/2019/11/30/ai-is-not-similar-to-human-intelligence-thinking-so-could-be-dangerous/?sh=754fa9176c22 ; https://www.youtube.com/watch?v=g0TaYhjpOfo

9. https://cdn.ymaws.com/www.apaonline.org/resource/collection/EADE8D52-8D02-4136-9A2A-729368501E43/ComputersV14n2.pdf ; https://www.springer.com/gp/book/9783642325595

10. https://www.blackincbooks.com.au/books/2062



Editors’ endnote

Closing thoughts, from The New Real Editor, Gemma Milne & Deputy Director, Matjaz Vidmar

Visiting With An AI Oracle Or Stepping Through A Looking Glass?

Image: *Stable Diffusion*, generated 08.11.23 with prompt 'Visiting with an AI Oracle or Stepping through a Looking Glass?'*

Some closing thoughts *by our Editor, Gemma Milne, and The New Real's Deputy Director, Matjaz Vidmar.*

The advances in Generative AI systems have crossed an uncanny valley. They are seemingly able to conjure up a visual representation of any imaginary tableau as well as hold entirely original, unscripted conversations and perform useful editing tasks. This advancement has moved Generative AI from an exotic research field to the mainstream everyday conversation.
But what have we learned from engaging with these technologies? Are the questions we're asking being answered, or are we simply left with more questions - ones that are really about us as humans and less about the technology itself?

Exploring the Future, with an AI Oracle

Experiencing such "intelligent" interactions showed us that perhaps a synthetic future is possible – one in which smart machines and AI enable a world of creative leisure and personal fulfillment by taking away the hard graft of manufacturing, distributing and disposing of "stuff". Alternatively, a more dystopian reading of these capabilities leads to erosion of human jobs and rights and leaves a large portion of us economically, socially and politically redundant. These sorts of utopian and dystopian prophecies have been expressed before, however, the present realisation of some of these systems has specifically manifested the biggest fears and hopes associated with it.

Like visiting with an (AI) oracle, the answers we are getting are not entirely in response to the questions we asked, but nonetheless, they seem to affect a foretelling of what is to come.

The limitations and concerns surrounding Generative AI are important to remember and put in context with the current hype regarding AI becoming either humanity's salvation or its doom. Essential to the understanding of which, if any, of these futures may come to pass is the un-black-boxing of the surface-level user interfaces and the underlying algorithms and databases.

Seeing Blurry Reflections of Ourselves

So what are we seeing when we explore these technologies with those limitations and concerns in mind?

It is important to note that the technology involved is still limited in fundamental ways of "knowing". Though Generative AI is able to build and then navigate a sophisticated model of symbolic language(s), both textual and visual, we intuitively believe that "understanding" lies elsewhere.

For starters, AI is limited to the data that it "ingested" during its "training", and although the process is, to a degree, similar to human "learning", its algorithmic formulaicity leaves us feeling deeply suspicious and superior to such a mechanistic recipe.

This means that while AI can generate sophisticated symbolic language models, these are not equal to conceptual knowledge models. In a sense, it is able to speak well, without knowing what the words mean.

More critically due to this explicit data-driven learning process, any novel, creative extraction of the model contents is assumed to have a strong link to the input data, hence challenging the notions of the originator's data rights and value(s).

Like stepping through the looking glass, the world behind these polished tools may seem to be strange and incomprehensible, but the reflection of our realities contained within allows us perhaps a clearer view of the challenges we face in the world outside the mathematical modeling.

A Human Exploration of a Synthetic Future

The present Edition explores these issues from several angles, drawing from the artistic and intellectual engagement with the New Real in advance of the explosion of Generative AI into the public consciousness. The three ever-present themes stand out:

- **AI is intensely political;**
- **Technology is not necessarily ethical;**
- **The human condition is deeply personal.**

The artistic works of Jake Elwes, and Caroline Sinders and Anna Ridler, commissioned by The New Real, stand in conversation with the analytical pieces challenging the techno-moral status quo (Vallor) or problematising AI's stewardship and cinematic embodiment (Speed). These Reflections are complemented by innovative curatorial approaches (Troiano), social-scientific interpretations (Currie and Catanzariti) and insights into new forms and responsibilities of artistic activism (Bennett). The rich contours of the critical AI arts landscape are further signposted in Interjections and Explainers covering a range of particularly burning issues from debunking myths about AI, to mapping societal impacts of deepfakes.

This inherent complexity of navigating the new real is tackled in the Roadmap feature section, canvassing critical strategies for engaging with the Generative AI from academic, artistic, technological, curatorial, and organisational points of view. Bringing together a diverse range of voices and practitioners, we hope to champion inclusivity and diversity, whilst at the same time provide clarity and guidance. Crucially, the strategies presented are not about how to survive within a field of rapid transition, but rather they speak of opportunities for empowerment: Yes, Generative AI has brought about challenging times for creative practice, but creative practice can in turn challenge the times.

The Offering from the Arts

In this sense, if era-defining Generative AI technology is foretelling a synthetic future as perceived by today's technological and social concerns and opportunities, the arts consistently deliver the "unexpected", go beyond the model and the data to explore the future as it cannot be foretold.

There is productive tension between the technical advancement in the apprehension of the world and the artistic affectation of its experience. A dialogue between these dimensions allows us to realise that the path of advancement in either is neither linear nor global.
Rather, it is situated in the living bodies, our social communities, and our individual and collective expressions, which both define and defy the expectations.

We invite you to anticipate our next Edition.

Cite as Matjaz Vidmar and Gemma Milne (2023). Visiting with an AI Oracle or Stepping through a Looking Glass?. *The New Real Magazine*, Edition One. https://doi.org/10.2218/newreal.9268

The New Real Magazine
Edition One

The New Real Publications
The New Real is a hub for AI, creativity and futures research. Its mission is to support the development of significant artistic works, and to stimulate new paradigms for inclusive and responsible technologies. To promote open research it develops imaginative ways to experiment with new concepts, practices and infrastructures, and to empower people to be agents of positive change. As a part of this mission, The New Real publishes an Open Journal, which includes this magazine.

Executive Editors
Drew Hemment & Matjaz Vidmar

Editor
Gemma Milne

Researcher
Caroline Sinders

Design and Production
Keili Koppel
Steven Scott, TwoFifths Design

Open Journal Systems Management
Rebecca Wojturska, Edinburgh Diamond

Thanks to The New Real Community.

The New Real is a partnership between The University of Edinburgh, The Alan Turing Institute and Edinburgh's Festivals. Supported by UK Research and Innovation (EPSRC, AHRC), Turing 2.0, Creative Scotland, Scottish AI Alliance, and Data-Driven Innovation Programme.

Cite as: Drew Hemment, Matjaz Vidmar & Gemma Milne, eds. (2023). Generative AI Arts: A Synthetic Future Foretold. The New Real Magazine, Edition One, pages 88.

ISSN 3029-0139