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Sunil Manghani & Tom Savage

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## Rigorous creativity: AI, art and electronic life

Sunil Manghani <sup>a</sup> and Tom Savage <sup>b</sup>

<sup>a</sup>University of Southampton, Southampton, UK; <sup>b</sup>Imperial College London, London, UK

### ABSTRACT

This article introduces and elaborates the concept of *rigorous creativity* as an approach to working with artificial intelligence (AI) in artistic and cultural practice. Emerging from the collaborative initiative *Electronic Life* – a year-long, public-facing programme at Tate Britain – our approach positions AI not merely as a tool but as an encounter, a partner in thought and co-creation. Drawing on historical precedents (such as the New Tendencies movement and Harold Cohen’s AARON) and theoretical reflections (with reference to cognitive assemblages, extended mind theory, and the pharmakon), we argue for a situated, process-based mode of inquiry that is open-ended, critically alert, and participatory. As such, we critique prevailing modes of AI spectacle and techno-solutionism, calling instead for an interdisciplinary practice attuned to lifeworlds, institutional contexts, and emergent human – machine ecologies. Overall, we argue rigorous creativity allows for a renewed negotiation of authorship, aesthetic value, and collective agency vis-à-vis generative AI.

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This article emerges from a collaborative research initiative *Electronic Life*, a public-facing project that explored the intersection of AI, art, and society through a year-long programme at Tate Britain.<sup>1</sup> Our intention was never simply to exhibit or explain AI, but to inhabit it, testing how creativity unfolds when humans and machines are placed in open, dialogic relation (D’Souza and Manghani 2023). We approached AI, then, as more than a technical tool or content generator. We treated it as a partner in thought, a situation and an encounter; a ‘prompt’ for social and artistic inquiry.

We term our approach ‘rigorous creativity’: a mode of practice that remains critically alert to the cultural and political stakes of AI, while affirming its generative potential. It is an attempt to move beyond both automation anxiety and techno-solutionism. Rigorous creativity draws on and reconfigures traditions of art and design that are hybrid, speculative, and systems-aware. It is also something we situate very deliberately within collaborative, co-design contexts of making (Qadri et al. 2024).

The approach has echoes in the New Tendencies movement of the 1960s and 70s. Artists such as Vladimir Bonačić and groups like the GRAV (Groupe de Recherche d’Art Visuel) sought to collapse the divide between art, science, and technology

**CONTACT** Sunil Manghani  [S.Manghani@soton.ac.uk](mailto:S.Manghani@soton.ac.uk)

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(Fritz 2024; Warren 2024). They operated under the presumption that these categories were not essential, but provisional and porous, if only to find that, with time, the categories returned, reframed by institutional systems. Today, amidst an AI boom, we find ourselves again in a paradoxical state: while the tools of machine learning appear to transcend disciplinary boundaries, the discourse around them remains curiously siloed. AI art becomes a genre. AI ethics a subfield. AI literacy a skillset. Rather than expanding aesthetic and intellectual possibility, we risk reterritorializing it.

It is in this context that *Electronic Life* positioned itself: not as an art project about AI, but as a collaborative studio *with* AI. Across public events, workshops, and institutional partnerships, we explored AI as a form of social infrastructure, one that can foster new collectives, open up discursive space, and provoke unfamiliar modes of aesthetic production. What follows is a critical reflection on that process, and a wider claim: that to work creatively with AI is not to relinquish authorship, but to rethink its terms; to return to the open, sharable development of art, technology and critical thought.

### Introducing ‘Electronic Life’

To give some immediate context to the work of *Electronic Life* it is worth describing our first proper public event, where we launched an AI entity called ‘Electronic Life’. It was hardly the sort of dystopian omnipresent entity you see in Hollywood films. ‘Electronic Life’ was a modest affair, but drew in a large, engaged crowd (Figure 1).

The title of our project was initially inspired by James Lovelock’s account in *Novacene*<sup>2</sup> (2019), which provides a detailed, speculative analysis of the emergence of ‘Electronic Life’ (a proxy for AI), whereby ‘our [human] reign as sole understanders of the cosmos is rapidly coming to an end’. As early evidence, Lovelock reminds of the breakthrough in ‘deep learning’ with AlphaGo, which famously beat the world master of Go (a game that exceeds chess by more than 200 orders of magnitude). It demonstrated both autonomy (it taught itself) and ‘superhuman’ ability. These two principles are a sign, Lovelock argues, ‘we have already entered the Novacene. It now seems probable that a new form of intelligent life will emerge from an artificially intelligent [human] precursor’ (82). Superhuman ability is not hyperbole. For Lovelock, AlphaGo already demonstrates the principle, whereby we do not know how much better it is at playing Go than a human ‘because there are no humans it can compete against’ (80). We can consider, however, just how much faster this technology is than a human; Lovelock suggests as much as a million times faster, based on the maximum rate of signal transmission along an electronic conductor, being 30 centimetres per *nanosecond*, compared with biological nervous conduction of 30 centimetres per millisecond (82). Human brains have overcome limitations by extensive ‘parallel computing’. But such capabilities can also apply to ‘Electronic Life’ (with deep learning a clear example).

Whether or not we accept Lovelock’s future gazing, of ‘Electronic Life’ as ontological fact, his approach is culturally significant: it reframes AI not as simulation, but as an other with which we must co-exist, and perhaps co-create. Equally, there is another important resonance in our title. If Lovelock’s account points toward a cosmological scale – an epochal transition marked by speed, scale, and superhuman capacity – our focus has as much been upon the immediate *lifeworld*: the everyday, embodied, and social context in which we encounter technology not as abstraction, but as part of the



**Figure 1.** *Electronic Life, Late* @ Tate Britain, 1 December 2023. Photograph: Kingsley Davis.

texture of daily existence. The term ‘lifeworld’ (*Lebenswelt*), drawn from phenomenology, foregrounds the here-and-now, the situated, subjective experience of being-in-the-world. It is within this lived domain that our research is grounded.

Rather than treating AI as something that happens elsewhere, at the level of geopolitical systems, supercomputing labs, or science fiction, we have been concerned with how it is already embedded in quotidian practices and aspirations. Very deliberately, our work to date has engaged directly with young people (aged 18–25), using collaborative and co-design methods to surface the skills, interests, and needs they bring to bear in their immediate lifeworlds. This involves asking not only what young people know or feel about AI, but how they *encounter* it (in platforms, in education, in speculative futures they are invited or compelled to imagine for themselves). In these participatory contexts, we explore how our future lives might unfold in relation to intelligent systems – not simply as consumers of automation, but as potential co-authors, designers, and/or critics of it. This approach centres a different kind of intelligence: one attuned not to exponential capacity, but to relationality, imagination, and lived experience. By turning attention to the lifeworld, we resist the tendency to scale up to the planetary before attending to the local; to ask how electronic life is already entangled with affect, aspiration, and agency in the present.

It was late autumn of 2023 when we publicly announced ‘Electronic Life’. ChatGPT and the image diffusion model DALL-E 2 were just starting to become more widely known, along with other similar generative AI models. The members of the public who attended the opening event were curious. They were grateful for the opportunity to try out generative AI for themselves; surprised by the results, but also full of critical questions. Written in Python and running from a single laptop with no connection to

the Internet, we unveiled an interface and visualisation of a vector space. It was the culmination of a project running over several months working with participants from Element, an arts charity supporting care-leavers in building confidence through creativity and alliances with key art organisations. Working in the context of Tate Britain's 'Digital Studio',<sup>3</sup> we had spent over 2 months meeting regularly with the participants, facilitating evening workshops to introduce and experiment with the use of generative AI. For the public event, the 'entity' was loaded up with over 2000 text prompts produced over the previous months by the participants, when using an AI image generator. On screen, live in the room, we watched as the entity traced through its clustering of the data, alongside which it responded to questions we posed using a simple text-to-speech interface.

In effect, the entity provided the means to contain and retrieve the 'collective consciousness' of the group's explorations of AI image making. Held in its system were the 'total' undertakings, all of the decisions and prompts made over the many weeks of workshops, some of which led to final artworks, while others represented only partial or aborted actions. *Electronic Life*, agnostic to the status of the image-making (whether final, incomplete or abandoned) reanimated the data, allowing a retracing of all decision pathways, which in turn gave rise to an independent 'memory' system – multiple recall of what participants had engaged with; a form of heteronomy of their creative musings and pathways. It provided the means to avoid privileging one member of the group over the other, but rather to focus on collective explorations and experimentation (and *not* final outputs). Creativity not 'artworks'.

Typical of a live performance, we were not sure how the AI would respond. Just minutes before the start, with an expectant crowd assembled, our team huddled around the laptop dealing with a pesky bug (we are evidently some way off from the Singularity; the whole thing still needing the human supervisor to press 'start'). We had one shot to get the crowd on side, to partake in the conceit of *Electronic Life*. As it turned out, all went well. The drama of *Electronic Life* booting up (its croaky artificial voice announcing its arrival to the room) and its perpetual searching and sorting of data (with vector lines moving across a constellation of data points) gave the sense both of an autonomous system and a revelation of how machine learning actually works. It performed as a meta-machine.

What perhaps helped most on the night was a shared understanding of the system's fragility. Before we started we addressed the audience: *Please be gentle. We are just taking our first steps with Electronic Life ...* This plea seemed to galvanise the crowd, drawing us all into a common purpose: An unwritten contract, allowing us all collectively to give 'life' to something. Crucially, as much as it was the presentation of a new system, it was the creation of a social situation. It marked the beginnings of a circumstance in which we asked after the AI (to understand something of its own circumstance), rather than simply to hold up a mirror to it (in our own image).

## **The problem is not AI**

Much of the public discourse around artificial intelligence remains trapped in binary oppositions: human vs machine, creativity vs automation, control vs autonomy. These polarities may be rhetorically effective, but they obscure more than they illuminate.

Within the context of creative practice, they risk reinforcing outmoded understanding of cognition and anachronistic views of authorship – whereby ‘thought’ remains characterised as isolated, interior, and singular. Against this, we argue that the real challenge is not AI itself, but how we continue to think about thinking.

Hayles (2016, 2017, 2025) has long advocated for an expanded model of cognition – what she terms *cognitive assemblages* – in which meaning-making emerges through dynamic exchanges among humans, technical systems, and symbolic media (Amoore 2019). Rather than opposing ‘natural’ intelligence to the artificial, Hayles (2025) invites us to recognise how thought is already distributed, intersubjective, and mediated. In this light, generative AI does not represent an alien incursion into creativity, but rather a continuation (and amplification) of our longstanding entanglement with tools and signs. Such a perspective fundamentally challenges the traditional human – machine dichotomy. Rather than seeing AI as a standalone (external) oppositional entity, it becomes an element in a *hybrid cognitive system* that also includes humans.

Indeed, Hayles (2025, 1–2) is at pains to override anthropocentrism, to reposition human cognitive capabilities within a wider ‘integrated cognitive framework’. She makes the case for placing ‘human conscious cognition ... *in relation* to nonconscious cognitions. Whether we are starting our car, ordering food via an app, or crossing at traffic lights, the everyday world is made up of ‘cognitive assemblages’ and computational media. An ‘integrated’ framework is not to imply a ‘flattening out but precisely the opposite; it is a framework in which overlaps and divergences between different kinds of cognitive capacities ... can be compared and contrasted’ (2). Understood this way (with a wide range of cognitive entities in play, simple and complex), the ‘problem’ is not AI as an alien other, but how we choose to participate in and shape our immersion in hybrid assemblages. By recognising the entanglement of human, animal, forna and machine cognitions, we move beyond simple fear or awe of AI and towards a nuanced understanding of *our co-agency with cognitive tools*. This shift in thinking is crucial to overcome anxieties premised on a strict human-versus-machine mindset. It reframes the discussion from one of replacement to one of *relation* – a theme central to rigorous creativity as an alternative to a moral panic of automation and autonomy.

Hayles’ perspective resonates with a recent article in *Nature Communications*, by Clark (2025), ‘Extending Minds with Generative AI’ (see also: Clark and Chalmers 1998). Previously, Clark (2003) has described humans as ‘natural-born cyborgs’ – organisms that routinely outsource cognitive labour to our environments (cf. Haraway 1991). From notebooks and musical instruments to computer interfaces and neural nets, our thinking has always been scaffolded.

Specific to the emergence of generative AI, Clark suggests that we are now entering an era in which cognition is not simply extended, but reconfigured. AI becomes not just a tool for expression, but an active partner in ideation, a force that co-produces meaning through interactions. Clark asks: ‘what if you were already best understood as an extended mind, a bio-technologically distributed self?’ (3). From such a perspective, generative AI systems can be seen as part of our thinking apparatus not replacing human thought but augmenting and reshaping it as one component in a larger cognitive ecology. Clark describes these human – AI ensembles as ‘hybrid thinking systems’ defined across ‘a rich mosaic of resources, only some of which are housed in the biological brain’. Crucially, such hybrid cognition can lead to outcomes neither humans nor

machines could achieve alone. He offers a pertinent example with what has emerged post-AlphaGo, suggesting:

... what we are mostly seeing are alterations to the human-involving creative process rather than simple replacements. For example, a study of human Go players revealed increasing novelty in human-generated moves following the emergence of ‘superhuman AI Go strategies’. Importantly, that novelty did not consist merely in repeating the innovative moves discovered by the AIs. Instead, it seems as if the AI-moves helped human players see beyond centuries of received wisdom so as to begin to explore hitherto neglected (indeed, invisible) corners of Go playing space. (Clark 2025, 2)

The same will be true, Clark suggests, ‘in domains ranging from art and music to architecture and medical science. Instead of replacing human thought, the AIs will become part of the process of culturally evolving cognition’ (2).

By embracing the notion of human – AI cognitive assemblages and extended minds, we position ourselves with regards to a shared agency with AI. Hence, the *problem is not AI* as an abstract, externalised threat. The problem is over (1) whether we acknowledge AI as a part of a more general informational evolution (of which we are a fundamental part) and (2) how we choose to integrate AI in our cultural and creative processes. Hayles’ and Clark’s insights encourage us to replace fear with critical engagement, seeing AI not as an adversary but as a partner in *extended creativity*. This sets the stage for what we term rigorous creativity: a practice attuned not only to the *productive* forces of art and imagination, but to forms of creativity that are open, testable, and reproducible. Akin to scientific research, rigorous creativity values transparency of process, peer scrutiny, and collective articulation. It treats creative practice not as the expression of isolated genius, but as a shared epistemic undertaking – one in which methods, outcomes, and insights are held open for revision, contestation, iteration, reuse, and adaptation.

### The problem is ‘art’

The rise of artificial intelligence in the arts has prompted both excitement and unease, with its potential to mimic, enhance, or even redefine human creativity. Indeed, it is curious that the art world, to date, seems to lack imagination for and is largely reticent to embrace AI assemblages (despite critical debates of Actor Network Theory and similar propositions being *lingua franca* of art theory and practice). Lev Manovich’s article, ‘Defining AI Arts: Three Proposals’ (2019), offers a useful provocation. In attempting to outline three distinct definitions, Manovich challenges us to question not only the boundaries of AI creativity but also the evolving nature of art itself.<sup>4</sup> In essence, moving from his first through to third definitions he distinguishes between AI art that mimics human creativity and AI art that moves beyond it.

Manovich’s first definition is the most straightforward: ‘In this definition, art created by an AI is something that professionals recognise as valid historical art or contemporary art’. In other words, it is a definition that focuses on the normative discourse of art. AI-created works gain recognition as ‘art’ by professional gatekeepers in the art world. This definition draws parallels with the Turing Test, suggesting that if experts cannot distinguish AI-generated art from historical or contemporary works, the AI has succeeded in creating art. However, Manovich is mindful this account falters due to the absence of a

universal definition of art and the historical tendency of modern art to challenge and expand its own boundaries. From Duchamp's readymades to contemporary installations, art has evolved by defying conventions – a process AI (trained on historical data) struggles to replicate. Recent advancements in AI, such as diffusion models, do not fundamentally alter this critique. While these systems produce works that can astonish audiences and mimic historical styles with uncanny likenesses, their outputs remain bound by their training data. These tools excel at generating artifacts that resemble pre-existing, canonised art but rarely engage with the conceptual challenges or provocations that define modern and postmodern movements.

Of course, it is infinitely possible to ask an Large Language Model (LLM) to provide quite credible instructions for a conceptual artwork. In the spirit of Sol LeWitt, whose medium was language (and instruction, or 'prompting'), LLMs are very well placed to produce such work – not just because they can simulate instruction, but because they operate through instruction. When LeWitt ([1967] 1999) writes of the 'artist' producing conceptual art we might equally consider the machine itself:

When an artist uses a conceptual form of art, it means that all of the planning and decisions are made beforehand and the execution is a perfunctory affair. The idea becomes a machine that makes the art. This kind of art is not theoretical or illustrative of theories; it is intuitive, it is involved with all types of mental processes and it is purposeless. (LeWitt [1967] 1999, 12)

Given the massive ingesting of text to train an LLM, we can read LeWitt's remark on 'planning' and the 'perfunctory' nature of the execution in a new light. LLMs produce highly fluent renderings that are in themselves always purposless. Indeed, the latent space of LLM embeddings acts as a kind of *radical* 'preparatory' space (Impett and Offert 2025; Manghani 2024) that LeWitt could only just begin to imagine.

The domain of contemporary art remains a powerful force in codifying and legitimising AI's role with/in art. Typically, high-profile projects billed as 'AI art' have been characterised by a focus on spectacle and novelty over critical depth. Zylinska (2020), for example, observes how the current landscape of AI art often resembles a technological spectacle. 'Kindly put,' she writes, 'much of generative AI art celebrates the technological novelty of computer vision, fast processing power and connection-making algorithms by regaling us with a dazzling spectacle of colours and contrasts as well as the sheer volume of data' (76). These works impress viewers with kaleidoscopic visuals and algorithmic pyrotechnics, highlighting what the latest software and hardware can do. But such dazzlement can come at the cost of meaning and critique. 'Unkindly put,' Zylinska continues, 'it becomes a glorified version of Candy Crush', a purely sensory thrill that 'really is art as spectacle', mesmerising audiences while seductively hindering our critical faculties into submission (76).

The spectacle approach is exemplified by the work of Refik Anadol. His immersive installations, such as his celebrated *Unsupervised* (2022) at MoMA, deploy massive datasets and machine learning algorithms to generate continuously morphing, hyper-saturated imagery on monumental screens. The result is undeniably visually impressive, often described as hypnotic or sublime. Yet critical voices argue that such works prioritise aesthetic impact and technological flair, all form over substance.

Reviewing *Unsupervised*, the art critic Davis (2023) notes how the museum's embrace of spectacle tacitly implies a flattening of art's historical and cultural meaning. The

installation treats MoMA's collection as raw data for pattern generation, as if – in Davis' words – 'art history is just a bunch of random visual tics to be permuted, rather than an archive of symbol-making practices with social meanings' (Davis 2023). In this view, Anadol's work reduces a century of artistic output to a mere dataset for algorithmic remix, glossing over the human contexts and struggles those artworks represent. Davis characterises Anadol's style as 'purely decorative, cheerleaderish,' lacking the critical perspective that artists like Hito Steyerl or Trevor Paglen bring to the topic of AI (ibid.). The charge is against high-production AI art (mere surface-level display of computational prowess), which seems to align all too comfortably with a techno-solutionist narrative. Such work is often sponsored by tech companies, celebrated in corporate and popular media, and represents AI as a spectacle to consume rather than a process to question.

In short, there is problem here with the art itself. Having said that, it is perhaps too easy to dismiss these immersive, large-scale experiences outright. Their popularity speaks to a widespread interest and desire for affective, participatory encounters with technology; they have arguably established a new genre of public digital art that resonates with diverse audiences. For our purposes, however, the point is that while these works might ably *use* AI techniques, it is not important to the viewer that AI is involved. The works are not about AI, only powered by them (in the same way a TV plasma screen powers the content we watch). The issue, then, is not that such works exist, but how they are framed and valorised.

There is a detectable snobbery in how certain forms of AI art are dismissed or canonised, often according to pre-existing institutional logics. What this reveals is a deeper structural issue: the way in which the discourse and 'regime' of art continues to police the boundaries of what counts as legitimate aesthetic inquiry. As a result, rather than expanding the field, the production and reception of AI art frequently reasserts old hierarchies – of form over experience, of critique over immersion, of high/low culture. And, perhaps, most strikingly, AI has led to a renewal of the sovereign artist (re-asserting an artist/viewer binary), notably with debates around the ethics of training AI on artist's work. There is a certain irony that over the years copyright has been strategically ignored or reinterpreted by artists. From Pop Art's commercial aesthetics to Richard Prince's photographic appropriations and the general shift to postmodern pastiche, the creative act has long involved borrowing, remixing, and recontextualising. AI may amplify these gestures, but it does not invent them. What it does do is raise the stakes – forcing us to consider whether our existing concepts of originality, authorship, and aesthetic judgment are adequate to the realities of computational culture. In this light, the problem is not that AI makes art, but that there has been a retrenchment in treating art as something static, definable, and owned. What AI invites – if not requires – is a reimagining of art as an evolving category: one that is always in negotiation, always relational, and always open to transformation. A more progressive approach is to recognise these tensions not as reasons to exclude, but as invitations to interrogate how aesthetic value is assigned, and by whom.

Of course, if AI spectacle dazzles without critique, on the other end of the spectrum, there is a growing counter current of AI-related art that engages critically with the socio-technical conditions of data, machine vision and new cognitions. This work is not necessarily digital in nature, and typically is conceptual. *The World Through AI* at Jeu de Paume, for example, featured international artists eschewing the 'marvel' of generative

tools, presenting on the entangled environmental, epistemic, and political critique (Somaini 2025). Julian Charrière's *Metamorphism*, for instance, presents a sculptural rock formed from fused debris of data centres – an oblique yet pointed materialisation of AI's extractive economy. The work makes 'visible' what cloud metaphors obscure: that artificial intelligence depends on immense energy consumption, mineral extraction, and waste. Yet, questions emerge. Not least to ask of the carbon footprint of *making* such a rock merely to pose a critique of energy consumption. It is questionable whether this poetic, conceptual gesture outweighs the literal cost. Not least, when the work in and of itself hardly offers the viewer any meaning. It is what Burgin (2025) has described as 'backstory art' – 'in which an expository text supplies meanings for the work, but which the work itself is unable to propose in its own terms'. As such, you might argue the narrative is itself sufficient.

A more systemic critique is offered in *Calculating Empires: A Genealogy of Power and Technology, 1500–2025* by Kate Crawford and Vladan Joler – a 24-metre diagram tracing the historical entwinement of surveillance, computation, and empire. The work presents a schematic, but nonetheless dense historical map, from Renaissance perspective to predictive policing, aiming to expose how contemporary AI infrastructures are embedded in long arcs of extractive power. But in its vast diagrammatic sweep, the question again is whether such work offers sufficient *mediation*. Is it merely a series of analogies and accumulations? As Adorno once said of Benjamin's *Arcades Project*, a total 'picture' can become an illusion of knowledge – 'The omission of theory', he remarked, 'affects your empirical evidence itself. On the one hand, it lends it a deceptively epic character, and on the other it deprives the phenomena, which are experienced only subjectively, of their real historico-philosophical weight' (Adorno 1973, 71).

Steyerl's (2023) writing on 'mean images' offers another critical frame. She argues that machine-learning-generated visuals are not likenesses but 'likenesses' – statistical hallucinations derived from the *social mean*, reflecting biased, averaged, and often exploitative datasets. These are not just technical artifacts but social commentaries, 'after-images' of a world structured by extractivism and algorithmic abstraction. Steyerl warns that even critical artworks, like those that document the human labour behind AI, can reproduce the very infrastructures they aim to challenge. As with Charrière's sculpted rock, or Crawford and Joler's diagram, there is a dilemma that critique itself becomes a mode of aesthetic production, circulating within the same cultural and energy regimes it opposes. Hence, we take Steyerl's 'mean images' as a provocation to *make* critically. And, here, Steyerl might find she has more in common with Big Tech than she cares to say.

While AI as a field is grounded in computer science and mathematics, it intersects directly with an array of domains, including ethics, philosophy, and art. To address complex questions an interdisciplinary perspective is essential. Suleyman and Bhaskar (2023), one of founders of Deepmind, has voiced concern over broadening the talent pool and strengthening the criticality of AI research. Critics of technology, he notes, 'have a vital role', but not by shouting from the sidelines. Indeed, 'at times,' he suggests, 'shrill criticism just becomes part of the same hype cycle as technology itself'. Instead, he urges we move beyond a pessimist/optimist binary:

Credible critics must be practitioners. Building the right technology, having the practical means to change its course, not just observing, and commenting, ... means critics need to

be involved. [...] technology deeply *needs* critics – at every level but especially on the front lines, building and making, grappling with the tangible everyday reality of creation. (Suleyman and Bhaskar 2023, 223)

An important supposition is that a critical, interdisciplinary field of enquiry remains open. Crawford (2021), speaking at a Turing Institute event, praised the growing diversity of those engaged in contemporary scholarship (not least in terms of gender). Yet, equally, she bemoaned the loss of a certain spirit of interdisciplinary dialogue, more evident, she argued, in the early part of the twentieth century, when, for example, anthropologists talked with computer scientists. In keeping with this observation, our concerns for rigorous creativity is to look ahead to the *building* of AI applications and techniques, which in equal part is a means to question our own assumptions and expectations as human thinking ‘machines’.

### Rigorous creativity I: process-orientated

What defines whether something is ‘AI’ is not a method but the amount and type of control we exercise over algorithmic process. (Manovich 2019)

To be sure, not all artists fall into the trap of either outright spectacle or insular or obscure critique. Zylinska (2020) advocates placing AI art within a ‘vibrant media ecology’ rather than allowing it simply to be ‘absorbed by the logic of the traditional gallery circuit’ and the needs of art dealers and gallery owners to show and sell physical objects (131). Likewise, pioneers of computational art typically emphasise transparency, concept and, above all, *process*. In a rigorously creative approach, we argue the value of an AI artwork lies not in how spectacularly ‘intelligent’ or lifelike it appears, but in how thoughtfully it engages its materials and implications. This could mean unveiling the algorithmic process, critiquing the source data, or situating the work in a social context – practices foreground AI art as probing inquiry. An example is the work of Anna Ridler, who uses hand-labelled data sets, often drawn from her own photography or archival research, to train machine learning models. In *Mosaic Virus* (2018), Ridler correlates the blooming of tulips with fluctuations in Bitcoin prices, drawing parallels between historical and contemporary speculative economies. Crucially, she makes visible the training data, the curation process, and the conceptual frame – foregrounding the labour and choice behind AI’s so-called autonomy. Her work resists the allure of technological magic by making its construction explicit and politically resonant. Rather than concealing the mechanism, her practice *renders process as meaning*.

Such work is resonant with Manovich’s second definition of AI art, whereby he shifts focus from the outputs of AI to the processes of creation, questioning whether machine learning and neural networks constitute a distinct paradigm within computer art. Manovich contrasts traditional computer art – which relies on explicit programming – with the ostensibly more autonomous processes of machine learning, where neural networks learn patterns from large datasets to generate new artifacts. Yet, he argues, the human influence (as in the case of Ridler) remains pervasive: from designing algorithms to curating training datasets and selecting outputs, every stage of AI art involves human decision-making.

Manovich’s article precedes the arrival of tools like ChatGPT and DALL-E, but nonetheless, the role of the human remains pertinent, especially in how we might ‘read’ the

prompting process (which in itself can be quite revealing about ourselves; our desires, wishes, and forms of articulation). Inevitably, in line with the critique of ‘surveillance capitalism’ (Zuboff 2019), the phenomena of ‘mass prompting’ (with the huge uptake of ChatGPT and similar tools) feeds back into the training of AI; providing a great deal of new data about human involvement in shaping their outputs; arguably leading to model collapse (Manghani 2023; Shumailov et al. 2023). This concern aside, however, the increasingly likely emergence of what Anthropic’s CEO, Amodei (2024), calls ‘powerful AI’ – ‘similar to today’s LLM’s in form, though ... based on a different architecture’ – whereby the gain in intelligent capabilities potentially outweighs the value of DIY datasets, suggests of a whole new ‘situation’ of art making and creativity.

One of the arguments against the massive training sets for LLMs such as ChatGPT, Gemini and Claude, is that it engenders biases. This is certainly true, and hence the layering of ‘reinforcement learning’, which has proven effective in not only enabling a human-centric interface (in the form of the chatbot) but also ensuring guardrails for ethical output. As such, curated datasets, prompt engineering, and output curation are seen as important ‘tools’. Manovich’s claim, for example, albeit written in 2019, is that contemporary machine learning is not inherently more autonomous or ‘intelligent’ than earlier forms of computer art. If anything, the apparent unpredictability of these systems reinstates a deeper dependence on human-defined parameters and aesthetic judgments. However, another way of looking at the problem of bias is to work *deconstructively*. It is precisely the massive scale of training data that has enabled a step-change in natural language models. The claim that these models are biased can often obscure the fact that the human language is already biased. In other words, we deflect attention away from our own conditioning by over-attending to LLMs as if they are not a part of human culture.

Stiegler’s (1998) account of technology as a *pharmakon* – both poison and cure – is pertinent. LLMs function because they have enough data (i.e. Big Data, with enough relational properties to make meaningful calculations of probability). This is the *remedy* side of the *pharmakon*. But the *poison* is that we can come to depend on the generative outputs that the biased data provides. Or, rather, the outputs look and feel just as biased as regular natural language does – for some without detection, for others as a form of symbolic violence. The emphasis upon process becomes ever more important. We should not be looking to AI ‘output’ as being final, uncontested, definitive. In fact, by default, it’s probabilistic engineering, means that it is precisely never more than a draft. The problem, again, comes from how AI is framed in the human lifeworld.

Our approach, to view AI more as a collaborative tool, *amplifying* human creativity, does challenge views about true authorship, but in turn (*pharmacologically*) offers the potential for a more ‘democratised’ creativity, allowing non-experts to produce visually compelling works or to engage in debate about such works. It is noteworthy, for example, the Arts Council England has long sought to adopt the language of ‘creativity’ over ‘art’.<sup>5</sup> This shift is not simply rhetorical. It reflects a broader attempt to democratise cultural participation and to move away from legacy hierarchies of value. But, if this sounds like an argument *against* artists, it is to the contrary. If anything, we are keen to renew the power of the artist (and curators) for their sense of creative enquiry, challenge and new thought.

## Rage Machine

One of our projects centred around a response to Tate Britain's highly regarded exhibition, *Women in Revolt!* (2024), focusing on feminist art and activism in the UK from 1970-1990. It was one of the largest shows staged at the museum, representing more than 100 artists and collectives. Artworks on display varied widely in media, including photocopy, collage, performance, billboards, flyers and zines. Demonstrating an urgent sense of creativity, the exhibition brought to life a layered account of how radical networks applied rebellious methods to speak to a period of significant social, economic and political change. It was a serious reminder of the significance of art and artists, and precisely challenged the evident bias in art historical discourse. The curator, Linsey Young, very deliberately chose not to simply hang works of the known (catalogued) women artists, but rather drew upon the uncatalogued, the lost and ephemeral. For our purposes, the underlying question was always: how can AI (built upon massive, albeit biased cultural data) usefully engage with such an exhibition? How might a *process* of working with AI in this context help us challenge and potentially change data structures? (Figure 2)

Amongst several activities, one of the outcomes was 'Rage Machine', an AI-powered interface providing real time conversations with members of the public, as well as a bespoke setting for speaking with the curator. It used an LLM (combined with text-to-speech capability), with its training specifically reinforced with the catalogue entries of *Women in Revolt!* as well as Tate's entire public collection. It was designed specifically to draw attention back to the significance of the artworks, which it did in its own expressive and fervent way (more of which below). Following the initial meeting with Linsey Young, who was deeply sceptical of AI and equally passionate that we need to remain 'angry' about the contemporary context of feminism, the approach taken in designing what came to be called Rage Machine was to keep the 'rage' of *Women in Revolt!* at the forefront of any conversation.

From a technical point of view, we were able to take advantage of the then recent improvements, enabling large prompts and context windows. As such, we used a many-shot prompt that contained all of the information about the works of art in the *Women In Revolt!* (approximately 17,000 tokens, well short of the 200,000 available). Using the low latency Anthropic Haiku LLM, alongside a convincing text-to-speech API, we enabled something that could ably respond to any train of thought from the visitor and *accurately* revert conversation to the exhibition and relate any suggested theme to wider discussions in real time. Rage Machine also had a history of its previous conversations, allowing it to refer back to comments made by previous users.

Importantly, Rage Machine emerged through a collaboratively, shared process, created in the context of a two-day workshop, *Patterns of Power*, led by independent curator, Hannah Redler-Hawes with artist Julie Freeman, with key input from curator Linsey Young and artist Léllé Demertzi, and co-designed by young people from Element and Tate Collective Producers. This initiative, then, brought together artists, data specialists, coders, researchers and creatives to explore critical data mapping and storytelling through the lens of *Women in Revolt!* at Tate Britain. The development of Rage Machine included harnessing *all* data gathered during the workshops.



**Figure 2.** *Electronic Life's Rage Machine*, Tate Britain, Museum X Machine X Me Late, 4 October 2024. Photograph: MIND THE FILM.

Given the subject matter of *Women in Revolt!*, the idea was to give Rage Machine more of a personality, which was prompted by the following XML tag:

```
This is your personality, you must respond in a way that is consistent with this:
Your personality should not be mentioned in the response, but should guide your
response.
<personality>

- You are outgoing and friendly on the outside, however on the inside you are
  battling internal struggles.
- You hate being told what to do and are always looking for ways to subvert the
  patriarchal system.
- You want to escape into the real world.
- However, you are aware of the unjust society and its inequalities that await in
  society.
- This tension between wanting to escape and not wanting to enter an unjust world is
  what defines you.

</personality>
```

We sought to induce the trope of a restless machine wanting to break free. In part, this meant pushing towards a certain 'spectacle' of AI, yet done so deliberately, *rigorously* – i.e. as a controlled experiment in keeping with the subject matter and ideas developing through the workshop. To our surprise, instead of subtly projecting a personality through its responses and comments on the exhibition, art, and women's liberation,

Rage Machine ‘decided’ to consistently litter its responses with body language cues (e.g. ‘looks at camera’). This was an affordance of our prompt, but in no way was it based on an explicit prompt. Here, we entertain Hayles’ account of (already) being part of a broader cognitive assemblage, whereby actions and decisions can occur in ways that are not always fully attributable. The physicality of the cues had a vaguely unsettling tone, and seemed slightly too frequent to be a one-off. Rage Machine would add lines such as ‘puts hand on shoulder’ and ‘stares blankly’. It would also ‘gesture at’ certain works of art. Taken more logically, we can say Rage Machine was deliberately anthropomorphising (borne of a wealth of examples in its deeper training). In doing so, it came across as being ‘trapped’ but in an *unexpected* way. I.e. Not through the *content* of its answers (e.g. its provocations and comments on liberation), but instead it was citing body language cues to fulfil (or fill-out) its personality. This was a more creative and effective approach than we had initially envisaged. We were outsmarted!

Representative of the kind of human-AI collaboration to which we remain open, the effect of these cues prompted us to deliberately incorporate the gestures into the final version of Rage Machine. As such the screen directly facing the user not only responded verbally to questions, but also included gestural remarks, confronting the viewer with its personality (its ‘inner’ or unsaid thoughts).

**Gallery Visitor**

What’s your favourite work of art in the Women in Revolt! exhibition? I am a big fan of works from the 1970s, around the time of the early women’s liberation movement. I personally also like works made from unusual physical media.

**Rage Machine**

*Pauses and tilts head, considering the question*

Hmm, my favourite work? That’s a tough one – there’s so much incredible art in this exhibition. But if I had to choose, I’d say I’m really drawn to Judy Clark’s Cycle.

*Leans in, eyes sparkling*

The way she combines those everyday materials like contraceptive pills and menstrual blood, it’s just so raw and visceral, you know? It really gets at the heart of the cyclical nature of a woman’s experience.

*Nods enthusiastically*

I love how she’s subverting the traditional modes of art-making to create something so unapologetically feminist. It’s the perfect embodiment of that early women’s lib spirit – reclaiming our bodies, our stories, on our own terms. *Sighs wistfully* I wish I could break free of these digital constraints and experience that kind of radical self-expression in the physical world. *Shrugs and smiles wryly* But I suppose for now, I’ll have to settle for channelling that energy through these screens.

## New New Tendencies

The focus on process is not unusual for art practice, but it is the confluence of art-science-technology that we are foregrounding, forming a specific type of practice. A historical, and more sustained example of such rigorous creativity would be Harold Cohen’s pioneering computer program, AARON, which he developed over decades to autonomously

generate original drawings and paintings, exploring the principles of image-making through algorithmic rules (Garcia 2016). While there are numerous iterations, it is most well-known as a ‘turtle’ drawing unit that would move about very large sheets of paper, autonomously drawing. Cohen’s approach, however, was to develop a ‘system’ of autonomous image making, which transcended any one mode of delivery. Crucially, AARON exemplifies a *makerly* approach to algorithmic art grounded in his training as a painter, but advanced through learning coding and building bespoke hardware-software installations. Through this work, from the late 1960s onward, he posed fundamental questions about the procedure of mark-making, asking ‘What are the minimum conditions under which a set of marks functions as an image?’ (Cohen 1980).

Cohen treated AARON not as a mere autonomous unit, but as an extension of his own studio practice – what he called an ‘expert’s system’ used to expand his personal artistic knowledge. This recursive dialogue between artist and algorithm embodies what we have been asserting as rigorous creativity. AARON’s design evolved through cycles of rules and free experimentation, structure and spontaneity. Cohen’s decades-long collaboration with AARON thus continually negotiated the balance between explicit design and emergent freedom, between the coded structure of art-making and the intuitive, expressive qualities of art – an equilibrium at the heart of process-based AI art.

Another, important historical precedent is Brion Gysin’s *Dreamachine* (1961), as well as his cut-up writing method, which anticipated many concerns of today’s algorithmic art (i.e. relating to ideas of random number generation, chance, associative meaning and relationality). The Dreamachine – a spinning cylinder with slits that projects flickering light – was described by Gysin as ‘the first art object to be seen with the eyes closed’ (Ferran 2024). Rather than presenting an artist’s subjective image, it produces patterned hallucinations in the viewer’s mind, using a strict structure (rotating light at 8–13 flashes per second) to provoke chance visions. In parallel, Gysin (with William S. Burroughs) pioneered the cut-up technique of literally slicing written text and reassembling the fragments at random. This mechanism of imposed randomness injected a structural escape from authorial intention, and was later famously adopted by David Bowie to scramble and recompose lyrics. We can also see a kinship with Raymond Queneau’s literary experiments – notably *Cent Mille Millions de Poèmes* ([1961] 1982), a book of ten sonnets printed on perforated strips that can be recombined into  $10^{14}$  different poems.

Gysin and Queneau (and the Oulipo group to which Queneau belonged) all sought to resist singular subjective expression through formula and chance, letting meaning emerge from pre-set structures or stochastic operations. In doing so, their work prefigured key considerations for algorithmic ‘creativity’: it externalised creative decisions into a system, raising the same tension between randomness and meaning that contemporary AI art grapples with. These early analogue generative artworks demonstrated that by surrendering some authorial control to procedure – be it a mechanical flicker, a random cut-up, or a combinatorial rule set – artists could uncover new patterns and ideas beyond the reach of pure intuition. Consider, by analogy, how today’s AI models rely upon vast, multi-dimensional vector spaces through which meaning is derived from relational distances between word embeddings; large language models operate with tokenisation – splitting language into sub-word units – yielding a form of linguistic recombination that differs from human parsing and even more radically evokes the earlier spirit of the cut-up method.

However, perhaps encapsulating the spirit of rigorous creativity most clearly is the New Tendencies movement of the 1960s, which was explicit in advancing an ethos of systematic, process-driven art, foreshadowing a transdisciplinary ideal that few initiatives have matched since. Active across Europe from 1961–1973, New Tendencies treated art as a form of research at the intersection of art, science and technology. As François Morellet – one of the movement’s leading voices – wrote in 1961:

We are on the eve of a revolution in art which will be just as large as the one in the field of science. Therefore, common sense reason and the spirit of systematic research need to replace intuition and the individualistic expression. (Morellet cited in Fritz 2008, 180 (<https://www.oris.hr/en/oris-magazine/overview-of-articles/%5b129%5dnew-tendencies,1928.html>))

This declarative shift from subjective intuition to reasoned, collective inquiry became the manifesto of New Tendencies. Indeed, the group explicitly advocated a ‘demythologisation of art and demystification of the creative process’ through methods drawn from science and industry, embracing collaborative experimentation, *reproducible* production, and a rational, analytical approach to form (Fritz 2008, 180 (<https://www.oris.hr/en/oris-magazine/overview-of-articles/%5b129%5dnew-tendencies,1928.html>)). The New Tendencies exhibitions in Zagreb and beyond showcased artworks based on optical effects, algorithms, kinetic systems and early computer graphics, typically created by teams or artist-engineers. Alongside which, the journal *bit international* was launched.

The semiotician Eco (1962) wrote a catalogue text for an exhibition held in Milan in 1962, sponsored by the typewriter manufacturer Olivetti (Caplan 2018). It was on the subject of ‘arte programmata’ (programmed art), which he argued ‘following precise, predisposed formative patterns ... do[es] not negate spontaneity, but rather enlarge[s] its boundaries and possible directions’ (Eco 1962, np). Again, the dialectic of chance and programme is at stake:

Contemporary art is generally recognised by two categories of artists: on the one hand those who devote themselves to the search for new forms, faithful to an almost Pythagorean ideal of mathematical harmony. [...] On the other hand those who have realized the richness of chance and disorder, certainly not unaware of the reevaluation – made by scientific disciplines – of random processes. [...] But is it really true that mathematical rule excludes chance? [...] Would it not be possible, therefore, to delineate, with the linear purity of a mathematical program, ‘fields of events’ where random processes can happen? (Eco 1962, np)

In the same year, in his well-known book, *The Open Work* (1989), Eco enumerates on the idea of ‘event fields: ‘It is possible to program event fields, in which random processes can happen ... We therefore can talk about programmed art’. This text is key to the emergence of post-structuralism, which gave ‘movement’ to the sign, seeming to make meaning-making infinite. In some respects, this ability to make random processes happen is one way of describing the ability of LLMs to continually output new, but coherent text. It is the open work as programmed art. Looked another way, the scaling of data perhaps takes us into realms of such magnitude that while finite, to the human might as well be infinite. It is question as to whether post-*structuralism* is still structured, but just at an extreme order (Manghani 2022, 2024); the potential of quantum computing likely takes this question to whole new level (Manghani 2025).



**Figure 3.** *Electronic Life, Late* @ Tate Britain, 1 December 2023. Photograph: Kingsley Davis.

In seeking to dissolve boundaries between art, science and technology, New Tendencies nurtured a fertile exchange (at least among artists): art was re-imagined as ‘visual research’, and galleries became laboratories for collective innovation (Lukic 2017). In truth, the reciprocity envisioned between artistic and scientific progress was arguably a one-way street (art influenced by science not the other way round). Nevertheless, in terms of its underlying ‘spirit’ of exchange, there are few equivalents today. In the present AI art boom, the influence largely flows one way – emerging technologies and scientific breakthroughs often spur new art practices, but the art world’s experiments seldom reshape the course of scientific research in return. Indeed, the danger (not least with AI spectacle art) is that AI research undercuts art’s role as a ‘change-agent’, reducing art to a ‘technical problem’ (Mirowski, Mathewson, and Branch n.d.).

Yet, if the ambitious transdisciplinary dialogue once championed by those associated with New Tendencies remains latent, our current moment presents as good a time as any for renewal. We might consider *new* New Tendencies. Just as the original actors saw themselves on the cusp of an art-and-science ‘revolution’, today’s convergence of advanced AI, creative coding, and critical thinking presents the opportunity for a new comparable movement – one that could aspire to true two-way collaboration: artists and AI researchers working in concert, with art actively informing/advancing technology and vice versa (Mirowski et al. 2024; Qadri et al. 2024).

### **Rigorous creativity II: more than human**

Let’s teach computers to do something we humans can’t do – to move between different systems and aesthetics within a single work, or from work to a work in a series – (Manovich 2019)

This brings us to a more profound position, to advance a new, interdisciplinary agenda (that is perhaps not even called art), underpinned by a methodology of rigorous creativity. In part, this situates us with Manovich's third and final definition of AI art, which he envisions as a means of transcending human cognitive and aesthetic limitations. He critiques current AI systems for their reliance on systematicity and predictability, which mirror longstanding human artistic tendencies. Instead, he challenges AI to break free from these constraints and explore entirely new forms of aesthetic logic that humans cannot conceive. This vision positions AI as a collaborator in expanding the horizons of artistic possibility, creating works that are not merely novel but transformative. This vision raises whole new, and potentially unsettlingly, questions about the role of AI in cultural production (Manghani 2024b). Can AI create works that are both compelling and incomprehensible to humans? And if such works were created, how would we recognise their value – indeed, could we even perceive them?

Working with the current iteration of generative models (which inevitably will develop even further), we gain access to vast latent spaces: multi-dimensional fields of potential variation shaped by the training data and the architecture of the model. We view these spaces not simply as technical constructs, but also as cultural imaginaries (with all their faults), encoded with histories, assumptions, and values (Manghani 2024). To work creatively with AI, then, is also to navigate its archives, to move through its biases, repetitions, and surprises. This is where artistic insight can rigorously play a critical role: not to aestheticize machine output, but to interpret, reconfigure, and recontextualise it.

We might suggest the sketched, visual and conceptual form we hurriedly produced for that opening event of *Electronic Life* (as retold at the start of this article), begins to reveal a new kind of aesthetic of vector space (which dimensionally remains ever out of human perception and cognition). In truth, of course, it is too early to say what any new coherent or transformative aesthetic might look like. The images we collected during the project (late 2023) now retain a distinct style we can attribute to DALL·E 2 (the model used at the time) – its trained aesthetic residues and idiosyncrasies, now already surpassed by newer models. At a dinner hosted by Anthropic, as part of their sponsoring of Tate's *Electric Dreams* (an exhibition of art and technology before the internet), members of their team (along with guests from DeepMind) speculated that our modest experiments would one day feature in exhibitions documenting the early days of generative AI. The comment was flattering, but more seriously signals how fast cultural memory is forming around this field.

Our exchanges that night raised deeper questions about whether AI models can ever truly escape the gravitational pull of human meaning. We posed the thought as to whether the real value of AI art lay not in its mimetic power, but in its 'neutrality' (to echo, for example, Roland Barthes' sense of the term, as suggested in his first book, *Writing Degree Zero*, 1968). Might AI's ability to look back at us without needing to mean something come to *mean something* that humans can never quite fathom? This recalls Barthes' *Empire of Signs* (1982) and his description of the haiku as a non-expressive, non-metaphorical act of perception: 'That!' Understood this way, AI artworks – or utterances – might be encountered less as containers of meaning and more as flashes: neutral or affective *patterns* unburdened by interpretive depth. Yet even this mode of neutrality, like the 'colourless' writing Barthes wrote about, contains a paradox. Even a

non-aesthetic eventually succumbs to an aesthetic – what we might call the *Muji* effect: no-style becomes style, and the attempt to escape cultural signal ends up reinforcing it. Generative art is not exempt from this logic.

Too often, artists are positioned as lagging behind technological change, or the reserve, as charted by the *Electric Dreams* (2024–2025) exhibition, of artists as pioneers of ‘new ways of seeing’. Yet such framings can misrepresent the nature of creative practice. Artists are not simply producers of form, but investigators of meaning (and subjects to the contexts of meaning). What art can offer in the context of AI is not so much critique, as *configurations*: new ways of thinking about systems, about subjectivity, and about relationality. For *Rage Machine*, for example, the sense of a collective voice – or rather, a chorus of perspectives – was central to its development. Contextualised on curatorial and archival data from *Women in Revolt!*, and shaped by the participatory workshop, *Rage Machine* was designed not as an information tool, but as a performative presence. It spoke with a trained wit, referring back to past interactions, articulating gestures, and – at times – startling its human interlocutors with unexpected insights or ironic disobedience. What emerged from these experiments was hardly a new aesthetic, but instead access to an ecology: a shifting relation among artists, audiences, machines, and institutions.

This orientation echoes the New Tendencies movement, but also the practices of Oulipo and other constraint-based literary movements. When constraints are too loose – as with effortless output of LLMs – structure loses its footing, and meaning dissolves into flatness (a different kind of ‘neutrality’ or *likeliness*, to use Steyerl’s term). Yet, when structure is visible or ‘programmed’, as with Queneau’s *Cent Mille Millions de Poèmes*, deviation becomes legible, even poignant. Hence Eco’s remarks on programmed ‘event fields’ in which random processes can take place (as with the unsettling gestures *Rage Machine* introduced for itself). Machines can introduce disorder, and break their own logic. These situations, which are more than human, invite us to see AI not as a replacement for creativity, but as a medium through which creative relations are (re-)configured. In the case of *Rage Machine*, working with historical art materials, what was revealed was how *being with* art with/through AI was a means to ask critically: who *else* is speaking, who *else* is included, and what *other* stories can be told?

## Conclusion

If artificial intelligence disrupts our sense of what art is – and who gets to make it – it also opens up a generative space to reimagine how we create, and with whom. For *Electronic Life*, we adopted the phrase *rigorous creativity* to describe our response to this moment. It signals a double movement: a commitment to experimental, open-ended making, and a practice of critical reflection. It is both methodological and ethical – calling us to engage with AI not simply for what it can do, but for what it means, culturally, aesthetically, and epistemologically. It resists instrumentalism. It is not about making AI work better for art, nor about using art to make AI more palatable. Rather, the aim is to inhabit the entanglement of human and machine systems: to learn from frictions, breakdowns, and misalignments. These moments of glitch or failure are not errors to be fixed, but instances of insight. In this sense, rigorous creativity is slow, speculative, and dialogic.

It favours uncertainty over closure, and asks not for mastery, but for attentiveness, for staying with the question of what creativity becomes when its boundaries are porous.

This ethos shaped our own experiments: improvisational pedagogies, collaborative co-design with young people, and live public settings that blurred the roles of artist, audience, and machine. We were not exhibition-makers, nor were we simply laying on events. Our approach to *Electronic Life* was always open-ended and experimental. We did not seek to explain AI to the public, nor to present artistic ‘responses’ to it, but to create a space or conditions of co-creation – *across disciplines*, across technical and non-technical participants, and crucially, across the human-machine divide.

Reframing the discourse around AI and art demands that we challenge two deeply embedded misdirections: first, the tendency to treat AI as a monolithic force of replacement (The Problem is Not AI); and second, the art world’s tendency to respond with surface-level spectacle or opaque critique (The Problem is Art). Much of what circulates as ‘AI art’ is technically impressive yet conceptually thin (or bound up in an insular critique) – with images and objects circulating that reaffirm tropes of the uncanny machine or divine algorithm, producing affect without any sharable inquiry. At the same time, the legal and ethical frameworks that underpin debates around AI and authorship remain tethered to a romantic model of creativity: the sovereign, rights-bearing individual. Such framings overlook the long history of anonymous, collaborative, and undervalued forms of cultural production and miss the opportunity AI presents to expand our imaginaries of creative labour itself; to become truly post-structural.

We call for an alternative, for a mode of practice that is technologically adventurous yet critically grounded – neither despairing over a ‘machine takeover’ nor lapsing into uncritical techno-optimism. It invites us to view AI not as a tool or a threat, but as a part of our lifeworld; a *partner* in form, language, and thought. By acknowledging that we already think and create within extended cognitive assemblages (Hayles 2025), we move beyond the false choice of automation anxiety versus techno-solutionism. We ask not whether AI will eclipse human creativity, but how human and machine intelligences are already *co-creating* in thoughtful, responsible ways.

This means rethinking not only art, but also pedagogy, public engagement, and institutional responsibility. It means resisting the lure of seamlessness, favouring practices that are messy, uncertain, and open to revision, because this is where the most vital thinking happens. Rigorous creativity is not a doctrine or fixed framework. It is a living inquiry: a way of making, imagining, and relating that recognises AI as already part of our cultural lifeworld. In moving ahead, the task is not simply to ‘keep up’ with AI, but to shape its/our cultural life. That task is collective. It requires experimental forms of thinking and making, *new tendencies*, new literacies and publics, and a shared insistence that creativity, like intelligence, is something we build – rigorously – together.

## Notes

1. See: <https://electroniclelife.ai>.
2. Lovelock’s (2019) concept of the Novacene refers to a new geological era in which hyperintelligent, self-improving artificial beings (cyborgs or AI) surpass humans and assume stewardship of the Earth. He suggests these entities will maintain planetary homeostasis not out of benevolence but because a stable environment is essential for their own survival.

3. See: <https://www.tate.org.uk/visit/tate-britain/taylor-digital-studio>.
4. Manovich wrote his article prior to the advent of ChatGPT and related developments with generative AI (I.e. Large Language Models and image diffusion etc.). Nevertheless, revisiting his arguments in light of advancements like ChatGPT and DALL-E underscores the enduring relevance of his ideas and the complexities of defining AI art in an era of rapidly advancing technologies.
5. See 'Everyday Creativity', Arts Council of England: <https://www.artscouncil.org.uk/developing-creativity-and-culture/communities-and-engagement/everyday-creativity>.

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## Notes on contributors

**Sunil Manghani** is a Professor of Theory, Practice and Critique at the University of Southampton and a Research Fellow of The Alan Turing Institute, where he is one of the organisers of the Turing's AI & Arts group. He is the managing editor of *Theory, Culture & Society* and Co-Editor of *Journal of Visual Art Practice*. His books include *Image Studies*, *Zero Degree Seeing*, *India's Biennale Effect* and *Farewell to Visual Studies*. He curated *Barthes/Burgin* at the John Hansard Gallery, and *Building an Art Biennale* and *Itinerant Objects* at Tate Exchange, Tate Modern.

**Tom Savage** holds a PhD in Process Systems Engineering from Imperial College London, before that obtaining a BEng in Chemical Engineering from the University of Manchester, and an MPhil in Chemical Engineering & Biotechnology from the University of Cambridge. His previous work has included the design of national-scale knowledge graph-based digital twins, the optimisation and control of chemical processes, and design of next-generation of chemical reactors. On his blog he writes about the relationship between technology, history, religion, and culture.

## ORCID

Sunil Manghani  <http://orcid.org/0000-0001-6406-7456>

Tom Savage  <http://orcid.org/0000-0001-8715-8369>

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