Creative Endings: Visual Cultures, Generative AI & Machinic Intuitions

Anthony Downey
Professor of Visual Culture
Birmingham City University
anthony.downey@bcu.ac.uk

Abstract

The widespread use of Generative Artificial Intelligence (GenAI), a form of AI that produces images, videos and other digital artefacts, poses a potentially decisive challenge to the ideal that artistic creativity is the sole preserve of humans. This challenge is personified in the post-human, apparently intuitive level of creative thinking that we encounter in Ava (Alicia Vikander), the central character in *Ex Machina* (Dir. Alex Garland, 2014). An AI seemingly on the verge of attaining Artificial General Intelligence (AGI), Ava substantiates her creative impulses through a series of drawings. In keeping with Vilém Flusser's theory of "technical" images, her drawings can be understood to be the output of an artificially intelligent apparatus that, through computational means, simulates human innovation. Ava's drawings, however, are not machinic anomalies nor odd contrivances that demonstrate a computational prowess. They are, on the contrary, exemplary paradigms of how we produce images today. Ava's creativity does not, this article will propose, present either a threat or a challenge to the ideal of human ingenuity. Rather, she demonstrates the increasingly mechanistic conditioning of human creativity and, in turn, illuminates the uncanniness of image production in our algorithmic age.

Keywords

Generative AI, Visual Cultures, "Technical" Images, *Ex Machina*, Vilém Flusser, Algorithmic Images, Determinism, Machinic Agencies

Introduction

Who'd ever have guessed, in my day, that digital machines, reaching a certain level of intelligence, would become unreliable, deceitful, that with wisdom they would also acquire cunning?

Stanisław Lem, *The Futurological Congress* (2017, 78).

Throughout the 2014 science fiction film *Ex Machina* (written and directed by Alex Garland), the potential for Artificial General Intelligence (AGI) to become a reality is explored through models of creativity, specifically drawing and painting. Ava (Alicia Vikander), an AI seemingly on the verge of attaining AGI, conspicuously expresses herself through a series of drawings at key moments in the film (fig. 1, 2, 3). In a succession of events that map her evolving sense of self-hood and self-awareness, she proudly presents these drawings to Caleb

Smith (Domhnall Gleason), her main interlocutor in the film. Ava's creative impulses are juxtaposed with lofty allusions to a Jackson Pollock "drip painting" that her creator, a "tech" entrepreneur played by the actor Nathan Bateman (Oscar Isaac), has prominently installed in his home. Contrasting Pollock's apparently unconscious, intuitive approach to painting with Ava's ostensibly machinic calculations, Bateman's speculations disclose a singular question: can AI-powered models of innovation challenge, if not surpass, human creativity? If Ava, an autonomous, mechanistic, and highly complex system, has indeed achieved human-like levels of creative thinking then she not only disrupts the very ideal of human inventiveness she also defies the entire neurophysiological, biological, evolutionary and psychological basis of intelligence—a fact that Bateman, despite having created her, is far from ready to accept.

Insert Fig. 1, 2, 3

For Bateman, Caleb and the audience alike, Ava's intelligence disrupts the distinction between human and mechanical models of creativity. In the original sense of Sigmund Freud's theory of the uncanny, detailed in his eponymous essay of 1919, she can be understood as a disruptive force, or a challenge to the foundations of accepted realities—"[t]he whole thing [the uncanny] is purely an affair of 'reality-testing' …", as Freud put it (Freud 1985, 371). Elsewhere, and quoting F. W. J. Schelling's *Philosophy of Mythology* (1857), Freud noted that the uncanny can be understood as "*the name for everything that ought to have remained* […] *secret and hidden but has come to light*" (Freud 1985, 345; emp. in original).[1] Adopting a human-like form that is both pellicular and yet pellucid (skin-like and transparent), Ava is a vacillating—uncannily familiar and unfamiliar—symbol of our post-human age. Reified through advanced technologies, she represents an enduring suspicion that automaton- or android-like intelligences will eventually usurp humanity, the latter being a key consideration in Freud's original essay. Registering as they do the historical development of automated image processing and our era of algorithmically induced images, Ava's drawings are likewise uncanny artefacts: realized through pre-programmed sets of instructions, or coding, they offer up approximate—*almost the same but not quite*—variations on other images.

Ava's otherworldly drawings are the output of an apparatus that simulates human thinking through mechanistic means. To assume, however, that Ava's human-like imagination and creative urge is simply a machinic simulation of creativity is to overlook the degree to which her drawings are symptomatic of how we produce images today. If we recognise that Ava, in her guise as an apparatus, has been trained on data sets to both process and produce images, we can detail how historical models of computation and computer vision—in the field of GenAI in particular—have evolved over time to contest any clear distinction between machinic and human creative impulses. In so doing, we can also observe how Ava's drawings are not anomalous nor are they odd contrivances that demonstrate a computational prowess. In our algorithmic era, they are indicative of how the generation and circulation of images can be best described today as uncanny—a realm of image production and image artefacts that is both profoundly familiar and yet disconcertingly unfamiliar.

Drawing Constraints: Calculated Innovation and Machinic Intuition

From the outset of *Ex Machina*, Nathan Bateman observes that although Ava is representative of substantive advances in the field of artificial intelligence, the attainment of verifiable Artificial General Intelligence (AGI) is still some way off. This point is underlined when he explicitly refers to Ava as a "prototype" and suggests that "it's the next model that's going to be the real breakthrough" (Garland 2013, 83).[2] Such an advance would represent a "singularity", or the juncture where AI outstrips human intelligence, and Bateman is reluctant to fully identify Ava with a capacity for superhuman thinking. Given his outsized ego and manifest hubris, his hesitancy is telling, especially if we consider that the ideal of a "technological singularity", or superhuman intelligence, has been historically associated with the end of humanity—which would presumably include Ava's creator—as we know it (Vinge 1993).

A key litmus test in defining whether a "singularity" has been reached or surpassed involves the verifiable existence of autonomous levels of creativity. In a pivotal scene in the film, and with reference to a Jackson Pollock "drip painting", Bateman browbeats Caleb with his theory of how human and machine intelligence differ in substance and disposition (fig. 4). In finding an action that was not automatic, and not the product of what he was "programmed" to paint, Pollock devised, in Bateman's assessment, something unprecedented, unrehearsed, and unprogrammable—something unpredictable and, in short, unrepeatable.

> Nathan: "Jackson Pollock. The drip painter. He let his mind go blank, and his hand go where it wanted. Not deliberate, not random. Someplace in between. They called it automatic art."
>
> […]
>
> "What if Pollock had reversed the challenge. What if instead of making art without thinking, he said, 'You know what? I can't paint anything, unless I know exactly why I'm doing it.' What would have happened?"
>
> Caleb: "He never would have made a single mark."
>
> Nathan: "Yes! … He never would have made a single mark. The challenge is not to act automatically. *It's to find an action that is not automatic*. From painting, to breathing, to talking, to fucking. To falling in love..."
>
> (Garland 2013, 59; emp. added.)

Insert Fig. 4

To truly create, for Ava's creator, is an innate rather than machinic quality. It is an involuntary, non-determinative action that characterizes our free will (agency) and distinguishes human intellect from automated models of intelligence. Destined to mimetically perform a version of humanness, Ava would appear, in contrast, to lack the element of creative free will that Bateman associates with Pollock: trained on data sets and encoded through algorithms, she can only ever, in this view, act automatically and in accordance with her programming, regardless of the originality of her thinking and creative outputs. Seemingly captured in a deterministic bind that tethers her agency to a machinic ontology, Ava remains contingent on coding and conveniently dependent on the God-like, creator-cum-father figure of Nathan Bateman. The issue, as Bateman duly acknowledges, is nevertheless far from straightforward: how can you tell if a machine is expressing actual creativity or merely simulating it? [3]

Although it largely remains one-sided, Bateman's theories rehearse a significant concern with determinism and non-determinism; or, more succinctly, they underline a philosophical pre-occupation with the perennial concept of free will.[4] As an idea, free will tends to describe the capacity to control our actions and demonstrate purposeful, emancipated action.[5] More broadly, and insofar as it is associated with eventual, probable behaviours instead of definitive or programmable outcomes, free will is understood as non-determinative, or non-causal: we are not regulated by our past "programming", so to speak, nor does the past necessarily dictate the future. Indicating that the future is not governed by the past (nor by biological certitudes, life circumstances, or the properties of certain behaviours), free will heralds, in sum, the promise of imminent possibility and intuitive, unrestricted creativity. In attempting to programme an action that is not an automatic response, Bateman seeks a prototype of intuitive AGI—or a machinic agency that is capable of expressing free will. Trained on data sets and encoded through algorithms, it would nevertheless *appear* that Ava can only ever act automatically, regardless of the originality of her thinking and creative outputs.[6] Destined to mimetically perform an uncanny version of humanness, she would therefore seem to be both ostensibly creative and yet lacking full agency, or free will.

Designed to assess whether she is indeed an example of an AGI, the self-styled Turing Test applied to Ava by Caleb initially focuses on her language skills, or her capacity, as Caleb puts it, "to attach words and structure to […] latent ability" (Garland 2013, 23). Foreshadowing her intention to use Caleb to make good her eventual escape, and feigning disinterest in the question of language, Ava skilfully shifts the focus of this discussion towards her faculty for drawing: "I like to draw…I don't have any of my pictures with me now, but I can show you them tomorrow" (Garland 2013, 23). Later, she shows one of these drawings to Caleb, but it appears to be an abstract image (fig. 1). In the script, the drawing is described thus: "the marks on it are totally abstract. A mesh of tiny black marks, that swirl around the page like iron filings in magnetic field patterns. (Garland 2013, 35). Evoking an entity involuntarily compelled towards another in a reflexive, pre-determined manner (that is, the fact of metal drawn towards a magnet), and alluding as it does to the idea that Ava has been mechanically prompted (encoded) to produce images, the reference to magnetic fields is all the more telling in this context. Mystified by the drawing, Caleb asks what it is—a question that is met with

confusion on Ava's behalf: "Don't you know?", she replies, before adding that she produces drawings every day, but "I never know what they're of" (Garland 2013, 35). Arguably, Ava is displaying a level of abstract thinking that, at the very least, offers a machinic counterpart, if not challenge, to Bateman's lionizing of Pollock's artistry. As the epitome of a conspicuously modernist and gendered concept of a "genius", Pollock's originality was often tied in with his macho lifestyle and hard-living reputation (Spring 1999). The mythology of Pollock, his larger-than-life persona, is not lost on Bateman whose own improprieties, vulgarisms, and overblown character are on full display throughout the film. Pollock's artistic "genius", as a result, remains self-evident to him and Caleb alike, whereas Ava's abstract drawing is viewed as a mechanistic contrivance, a programmable construct rather than an instinctive composition.[7]

Offered up by Ava as evidence of her creativity, if not agency, the imagistic snapshots of a machinic cortex at work continue to confound Caleb and provoke further enquiry: "Are you [Ava] not trying to sketch something specific? Like an *object or a person*" (Garland 2015, 35; emp. added). The suggestion that Ava might be better off depicting an object or a person is all the more significant if we note that, when duly prompted, she later produces two drawings, one of trees (objects) and a portrait of Caleb (a person). There is an underlying conservatism to Caleb's suggestion, a sense that he seeks a schema of verisimilitude—the ability to competently represent a given reality through artistic means—that is at odds with the primacy that Bateman affords the abstractions that defined Pollock's paintings. However, the generic point persists: for Ava to be verified as an AGI, she must display non-determinative action—she must produce an "original" drawing that is not the by-product of pre-programming or algorithmic coding. She must, in sum, "find an action that is not automatic" (Garland 2013, 59).

The second drawing that Ava presents to Caleb depicts the enclosed courtyard and trees that adjoin her living quarters. The garden area, as per the script's instructions, is sealed off from Ava and not readily available to her in a physical sense (Garland 2013, 19). Given that it is enclosed, the reality of the flora and fauna—which includes two trees and some plants—are mediated through a glass partition and framed by the borders of the compound-cum-arboreum. This distancing and the effect of mediation is fully captured in Ava's drawing, which does not represent trees as such, but a view of them framed by their enclosure (fig. 2). This is therefore not so much about interpreting an arboreal reality but documenting, or recording, what is literally registered on Ava's mechanised optical cortex. The imagistic reification of a contained landscape, a prescribed space where nature is controlled and restricted, also offers a variation on a theme that is evident in Bateman's compound, where the overall architectural design surrounds and encompasses a natural rock formation. Given that Ava has never left the rooms she inhabits and is doubly enclosed by the artificial boundaries of her sealed living quarters and the secluded, out-of-the-way house, her methodical framing of the trees in the drawing further indicates a mimetic inclination: she is itemizing, or calculating, the limits and confines of her environment in a manner not unlike that of a surveillance camera, albeit one with an abiding self-interest in circumventing precisely such boundaries.

Examining the drawing more closely, it is apparent that it is also indebted to a form of photographic pointillism, or a digitised version of hyper-realism: this, the drawing appears to say, is exactly what a realistic drawing *should* look like. This simulative impulse to produce drawings that look *like* drawings is repeated in the final artwork, where Ava turns to portraiture and produces a picture of Caleb in a three quarter-view profile (fig. 3). In this portrait, there is admittedly some interpretation at work that mimics classical portrait pictures, but Ava's drawing systematically reflects what she has been programmed to produce: having been most likely trained on data sets of images that reflect certain genres familiar to art history, abstraction, landscape, and portraiture, she has digested models of image-making and is now reproducing outputs that are explicitly based on her training data. When we look closely at the detail of Ava's portrait of Caleb, this is all the more apparent insofar as the image is comprised of a network of interconnected lines that appear to be computer-generated. Once this becomes clear, we can observe that the portrait is similar—in terms of its construction and detail—to those produced as part of the original publicity for *Ex Machina*. To market the film's premiere in 2014, an online portal, known as "Ava Sessions", allowed users to upload photographs that would be duly rendered as digitised portraits through a Generative AI model (fig. 5). In an interesting metanarrative, Ava would seem to have inputted an image of Caleb, visible to her in the contrived context of the film, into the real-world online portal that bears her name. In this sense, "Ava Sessions", the online portal, is a model of image production that corresponds to Ava's own role as an apparatus of image generation. Evoking Flusser's theory of "technical" images, a term used to define the realm of post-industrial image production, both Ava and "Ava Sessions" simulate models of human creativity and, through the process of mechanistic doubling, reveal the uncanny condition of image making in our age of GenAI.

From the "Technical" to the Algorithmic Image

Although it is conceivable that Ava, in anticipation of assuming AGI, is generating her own data sets and duly rewriting her programmes so that they more fully align with her intentions (rather than those of Bateman or, indeed, Caleb), the suggestion that she has been trained on online sources harvested from the internet and social media is supported by the fact that this approach has been previously implemented by Bateman.[8] In a crucial scene, where he explains Ava's inner workings, we learn that Bateman has illegally culled information from Blue Book—the company, based on Google and Facebook, that he founded and owns. This unfettered access to illegally obtained information allowed him to generate the data sets required to train Ava to understand and duplicate facial expressions.[9] Explaining his methods to a bemused Caleb, Bateman outlines the process thus: "Almost every cell phone has a microphone, a camera, and a means to transmit data. So I switched on all the mikes and cameras, across the entire fucking planet, and redirected the data through Blue Book. Boom. A limitless resource of facial and vocal interaction" (Garland, 2013, 63). If we consider how Ava has learnt to convey and decode facial expressions, her drawings and creativity in general seem to be the corresponding product of data mined from the internet.

To explain the category of "technical" images, Flusser deployed the allegory of a painter working out the symbols of so-called "traditional" images and painting them directly on to a picture plane: "With traditional images … the symbolic character is clearly evident because, in their case, human beings (for example, painters) place themselves between the images and their significance … If one wishes to decode such images, then one has to decode the encoding that took place 'in the head' of the painter" (Flusser 2006: 15-16). The "technical" image, on the other hand, is produced from *within* an apparatus—a camera or a computer or an AI, for example—and not in the "head" of a painter. The apparatus is not only a "black box" mechanism (an opaque instrument), but also, crucially, an "overarching term for a non-human agency" (Flusser 2006: 83). Having been produced from *within* an apparatus, the "technical" image is a paradigm of "thinking expressed in numbers"—an example, that is, of an artefact generated by a code or a programme (Flusser 2006, 31). In its capacity as a device for thinking *through* numbers, the apparatus was "invented to *simulate specific thought processes*…All apparatuses (not just computers) are calculating machines and in this sense 'artificial intelligences', the camera included..." (Flusser 2006, 31; emp. added).

The relationship between the production of images through "artificial intelligences", and how an apparatus *simulates* human thinking, invokes the mimetic, iterative circumstances of Ava's drawings. Given that they are technical/mechanical images produced by an artificially intelligent apparatus (that is, a non-human agency, or an AI), her drawings reveal that Ava has the faculty to simulate systems of human creativity. When we consider the trilogy of drawings conveyed to Caleb (signifying as they did the genres of abstraction, landscape, and portrait), she would likewise appear, as noted above, to have been programmed on data sets—most likely compiled by Bateman—that reify a generalised, apparently modernist and western-centric, version of art history.[10] To the extent that her programming on an array of data sets enables Ava to produce images, it is those data sets that subsequently delineate and restrict the range of drawings that she can generate. Bateman's collation of data sets for the purpose of training may yield discernible images (outputs) in the form of drawings but they ultimately remain contingent on input data.

The scope of the "technical" image, as defined by Flusser, is dependent upon and limited by input data and the processing mechanisms that govern cameras, computers, and "artificial intelligences". Considering its focal lengths, exposure settings, and other technological affordances, a digital camera, to take but one example of an apparatus, can only ever yield a controlled number of possible outcomes (images). A computer, constrained by the parameters of its software and the proficiencies of its hardware, is likewise restricted in its range of outputs. Similarly, an algorithm, or a programme, prescribes meaning since it can only ever give rise to an output based upon the statistical evaluation of patterns extracted from past data.

Evoking Flusser's reading of an apparatus, Ava can be understood as a pertinent example of a non-human, machinic agency that—despite the "originality" of the images she produces—is ostensibly limited by her input data (programming) and the distributed networks that make up her mechanistic agency. An apparatus, due to its pre-programmed limitations, can *simulate*

thinking but it cannot *think beyond* its technical constraints and encoded parameters. This is the substance of Bateman's criticism and his imprudent dismissal of Ava as a "prototype" forever bound by coding to "act automatically". We could equally observe, bearing in mind my overall suggestion that Ava's drawings are not so much machinic anomalies but exemplary paradigms of contemporary image production, that if she does indeed understand her environment *through* these pre-programmed images then we—in our ubiquitous use of AI apparatuses to produce images—also see the world through such artefacts.[11] This machinic ontology of the image is premised upon the fact that they "arise from another level of consciousness, more abstract than that of any previous images", and are consequently both "observations of objects" and "computations of concepts" (Flusser 2011: 169, 10). Given the relative opacity in the systemic functioning of AI image processing models, the abiding concern is that the algorithmic rationalization of data—which employs a range of weights and biases to support machine and deep learning processes to better recognize images—can pick up on (past) patterns in data that do not exist except within the preserve of a computational illusion or in the pathologies of a mechanically induced delirium (Downey 2024a). We enter here into the recursive, uncanny context of image production through artificial intelligences—a world that, for all its apparent creativity, would appear to summon forth images that are *almost the same* as the images used in training sets but not quite.

Algorithms, as apparatuses, can make the world appear in certain (reductive) ways as a substitute for exploring other potentialities and futures that are not contingent on pre-programmed conventions. Algorithms are also political in the sense that "they help to make the world appear in certain ways rather than others. Speaking of algorithmic politics in this sense, then, refers to the idea that realities are never given but *brought into being* and *actualized* in and through algorithmic systems" (Bucher 2018, 3; emp. added). To observe as much is to be reminded of how the machinic ontology of "technical" images produce prescriptive ways of looking at the world: "ontologically, traditional images signify phenomena whereas technical images signify concepts…This apparently non-symbolic, objective character of technical images leads whoever looks at them to see them not as images but as windows … as *ways of looking at the world*…" (Flusser 2006: 14-15; emp. added). Increasingly compelling us to look at the world *through* their affordances, the imagistic content of the "technical" image is secondary to its heuristic import: they do not so much interpret reality as pre-define it.

The output of an apparatus that has both appropriated and assumed human cognitive capacities, the "technical" image observes and calculates the world for us. Given that such images, based as they are on the prescriptions of input data, are delimited in their outputs, it follows that their calculation of the world will be proportionately limited or uncannily skewed, as we see in Ava's drawings. This has arguably become the case today when we consider how images produced through generative AI (GenAI) are regularly defining, or pre-defining, how we see and understand the world. Returning to our earlier discussion of determinism and causality, there is sense here in which current models of AI image processing—including but not limited to GenAI—*reduce* meaning to a series of predefined outcomes based on the apparent certainties of the past (input data) rather than the

expansiveness of yet-to-be-realised futures. In diminishing future meaning or rendering it irremediably contingent on past patterns in data, algorithm are consequently prescriptive tools: they seek, in sum, to programme the future. To this end, we might want to consider it as a disciplinary technique, a means to render, or summon forth, a given future according to a set of politically inclined rules, or instructions.

Generative AI and the Return of the Uncanny.

In her self-assigned role as an image producer, Ava would have most likely employed Generative Adversarial Networks (GANs), the latter being a class of artificial neural network (ANN) associated with image generation.[12] To successfully operate, a GAN employs two neural networks (a "discriminator" and a "generator"), both working in tangent with one another. Although mindful not to anthropomorphize neural networks (they are, after all, mechanical archetypes of computation), we could compare the relationship between the generator and discriminator to one that exists between, respectively, a lawbreaker and lawmaker.[13] As the name suggests, GANs embody an adversarial relationship based on a significant degree of computational give and take. More specifically, the generator (lawbreaker) produces images until the discriminator (lawmaker) is "fooled" into categorising them as "real" images. Throughout this reciprocal and yet wary alliance, the discriminator (lawmaker) is preoccupied with discerning the difference between real images and 'fake' images, whereas the generator (lawbreaker) is absorbed with producing synthetic, as-yet-unseen images that resemble—or, more accurately, reassemble—elements in the original data used to train the discriminator. The more convincing the image produced by the lawbreaker (generator), the more likely it will be attributed to a specific class and thereby passed as "real" by the discriminator (lawmaker).

The systemic architecture of a GAN divulges the degree to which the schematic of Ava's creativity, embedded in the operative logic of "technical" images, is indicative of the processing models that are regularly found in applications such Dall-E, Midjourney, and Stable Diffusion. Although these text-to-image models employ different operating systems to produce new images, they all typically use GenAI. These systems are based on Natural Language Processing (NLP), where a text prompt is converted into a series of numerical representations—*thinking in numbers*—and calculations that produce images. In applications such as Dall-E, Midjourney, and Stable Diffusion, the process of producing images can also, alongside suggestions of content, include prompts as to genre or style—landscape, portrait, abstract, expressionistic, surrealism and so on.

Produced using Midjourney, in 2022 an entrant to the Colorado State Fair's annual art competition submitted an artwork titled "Théâtre D'opéra Spatial," using the title "Jason M. Allen via Midjourney" (Roose 2022). This title, in part, highlights the symbiotic nature of image production through GenAI. It also observes the degree to which human creative agency is substantiated through, or by way of—*via*—machinic agencies. Although "Théâtre D'opéra Spatial" was initially awarded a prize, making it the first AI-generated artwork to win one, it spawned a considerable level of debate about plagiarism and copyright that

continues to reverberate in contemporary considerations of so-called "fair use" and intellectual property (Downey 2025). If we consider how Midjourney is trained on data gleaned from the internet, including millions of images, to produce outputs that are similar to its training sets *but not quite*, we can further understand the extent to which such images are not only the product of previous patterns in data but also uncanny correlations of our world.

Following Flusser's insights, it is evident that when humans programme apparatuses they delegate a significant degree of agency to the operational logic and logistics of machinic processes. We think *through* machines and the machinic affordances of AI, or GenAI, subsequently *thinks for us*. Ava's creativity, against this backdrop, questions the distinction between human and mechanical devices. More accurately, she discloses a reality—"*the name for everything that ought to have remained … secret and hidden but has come to light*"—that remains relatively unpalatable to Anthro-centric readings of human intelligence: our aptitude for thinking and our creative propensities indelibly involve levels of machinic intuition and artificial models of augmented creativity. If we can agree on this point, then it follows that creative thinking and consciousness, both prominent in distinguishing the presence of free will, can be indeed acknowledged as programmable.

When we enquire into whether an AI—a pre-programmed apparatus—will eventually acquire consciousness, or free will, and whether AGI will thereafter become a reality, there is the attendant assumption that such levels of cognizance will be on a par with human awareness and self-understanding. These assumptions, alongside their underlying logic, need to be nevertheless challenged. For one, the idea—or should that be the *ideal*—of consciousness, alongside questions related to the biological, physiological, evolutionary and environmental elements that give rise to it, is still far from being fully understood in neurophysiological terms. To put it another way, we still do not fully know the nature of the "relationship between the physical world of neurons, synapses and axons and our conscious subjective experience?" (Wooldridge 2020: 314-315). The overarching insight here is that a "technological singularity", inasmuch as it would herald an evolutionary step from AI to AGI, would not necessarily indicate that the latter has assumed consciousness; on the contrary, and based on current evidence, it would indicate that a new and discrete form of consciousness had emerged, a machinic cognizance that has a passing relationship to human awareness but is ultimately different. Machine consciousness is not impossible, in sum, but it would be exponentially different to what we currently understand to be human models of self-realization and comprehension (Wooldridge 2020: 310).

Lacking a working concept of imagination, intuition and, for that matter, any insight into the unconscious, machinic creativity will not be of an order with human creativity. Although there are correspondences, Ava's ingenuity is not akin to Pollock's creativity, nor can we compare the two as if they are one and the same. To be more precise, Ava's is a machinic creativity, a mechanistic synaptic event involving the algorithmic extrusion of patterns from data sets to produce new, but not necessarily "original" images. The outcome of algorithmic processes, her drawings nevertheless offer a pertinent insight into how human models of creativity are increasingly imbricated within the "artificial intelligences" of digital cameras,

computers and AI more broadly. We may have devised creative machines (and in that moment devolved our agency to their apparatuses), but we have also assembled models of image production that condition and compel us to create *like* machines. It is through highlighting these processes that we can ask whether we are becoming, for better or worse, more machinic in our creative endeavours and whether machines are, potentially, becoming more human in their inventive intuitions.

To deconstruct creative thinking today, we cannot decode, following Flusser, the encoding that took place "in the head" of the painter, or in an agency that is identifiably human. We must, more accurately, deconstruct the programming and "circuitry" of the apparatuses involved in image processing and the degree to which we *automatically* delegate our creative agency to their operations. We need to focus, thereafter, not so much on the content of an image (output) but on the programming (process) that produced it: "For one is fighting a how rather than a what," Flusser proposed, before adding that we need to examine not so much "images and the human interests that stand behind them, but *circuitry*" (Flusser 2011: 69; emp. added). It is from within the circuitry of machinic thinking—the "subconscious", latent networks involved in GenAI—that Ava's uncanny drawings emerge to challenge theoretical or practical divisions between the apparently exemplary sphere of human creativity and the schematic, calculated contrivances that we associate with AI.

Conclusion

As if to illustrate my above points, the proposal that Pollock could only create his "masterpieces" if he found an "action that [was] not automatic" is open to speculation and debate. Although it is not explicitly stated, the painting Bateman owns and refers to in the film was apparently modelled on Pollock's painting *No. 5, 1948* (Mackinnon 2017: 613; Henke 2017: 137). Purchased for $140 million in 2006, *No. 5, 1948* was for a time the most expensive artwork sold at auction (Vogel 2006). Despite its record sale price at auction, it had a less than illustrious beginning, being the only artwork sold from a solo show held at the Betty Parsons gallery in 1949. It was there that it was bought for $1,500 by the collector Alfonso A. Ossorio who, upon receiving it, realised that *No. 5, 1948* had been significantly damaged during shipping (Gaines 1998: 115-116). Expecting the damaged painting to be restored to its original state (that is, as he had first seen it in the gallery), Ossorio wrote to Pollock and asked for the painting to be repaired. Agreeing to make good the damage, it has been observed that Pollock went much further: instead of restoring the original version, where a central section of paint had come loose from the canvas structure, he effectively repainted *No. 5, 1948*, reportedly saying "He'll [Ossorio] never know. No one knows how to look at my paintings, he won't know the difference" (Hartigan 1979).

If we can agree that Pollock deliberately, if not *automatically*, re-painted *No. 5, 1948* to look *like*, or resemble, the original, then an interesting conundrum emerges: held up as the epitome of non-automatic thinking by Bateman in *Ex Machina*, the version of the painting that we have today—and, correspondingly, the painting that we see in the film—is nonetheless the direct result of a premeditated gesture designed to simulate and replicate the original. Despite

Bateman's assertions, it is arguable, somewhat ironically, that the very painting he elects as the sine qua non of an innate human creative process is the one example—that we know of—where Pollock could only produce a painting because he already definitively knew what to paint. In effect, he recreated, or re-performed, the original act of creation to reproduce a duplication, or simulacrum, of a painting that he had already painted. In replicating his original painting, Pollock's impulsive gesture draws attention to the far from clear line between mechanistic, deliberative models of creativity and the degree to which any discussion of human creativity needs to consider the extent to which it is now a calculated, potentially mechanistic, undertaking achieved through the affordances of GenAI.

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Images—for illustration only

Caption: Images 1-4 are screen shots from Ex Machina (2014)

Fig. 1:

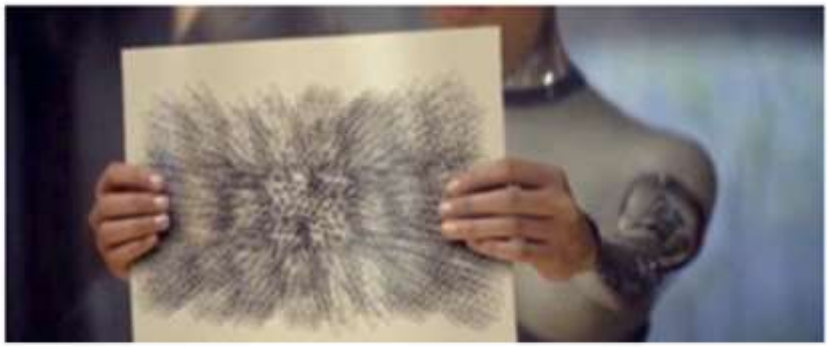


Fig. 2:

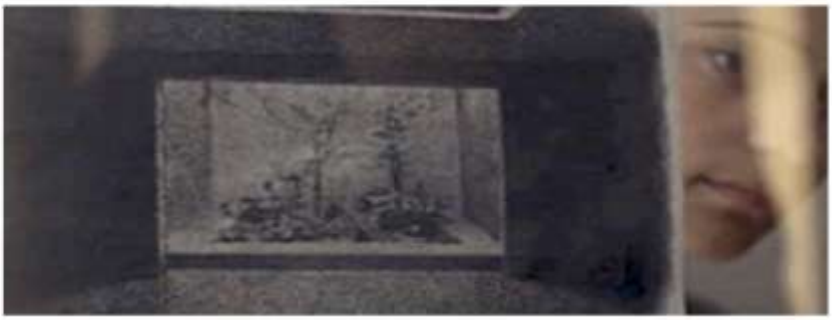
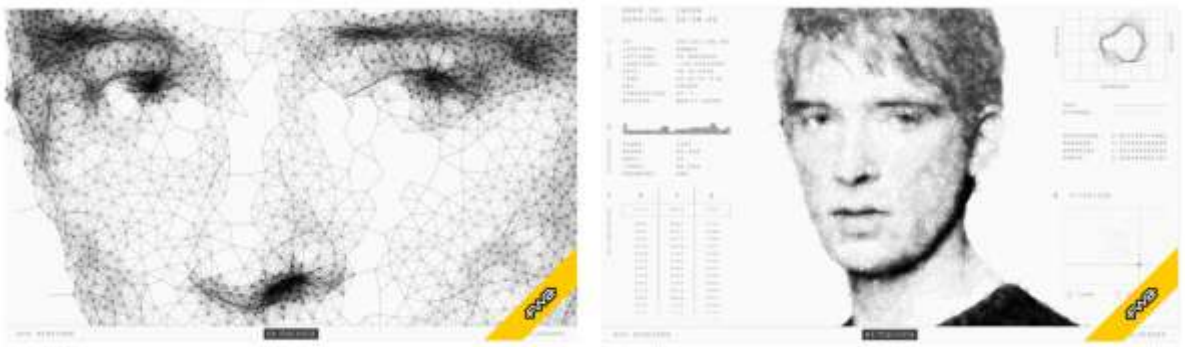


Fig. 3:

Fig. 4:

Fig. 5: https://thefwa.com/cases/ava-sessions-t64



[1] The concept of the uncanny as an unhomely or frightening apparition is key to Sigmund Freud's seminal essay "The Uncanny", first published in 1919. It is here that Freud observes how the German word "unheimlich" is the "opposite of 'heimlich' ['homely'], 'heimisch' [native]" and therefore the opposite of what is familiar to us or known: "[w]e are tempted to conclude that what is 'uncanny' is frightening precisely because it is *not* known and familiar" (Freud 1985, 341; emp. in original). In one telling anecdote, and having been confronted by his own reflection in a mirror and the prospect of someone mistakenly entering his private train compartment, Freud recalls not only being aghast at the sight of this apparent "intruder"

but repulsed by the "vestigial trace of the archaic reaction which feels the 'double' to be something uncanny." For Freud, the effect, or *affect*, of doubling is consistent with a visual spectre—a phantasmal simulated presence that is accelerated by processes of mechanization and automation (Freud 1985, 371).

[2] Unless otherwise stated, all references to *Ex Machina* are to Alex Garland's script published in 2013: https://www.dailyscript.com/scripts/exMachina_script.pdf

[3] These questions about simulated creativity are central to Margaret A. Boden's extensive and thought-provoking research into machinic models of innovation and what they can tell us about the "mechanisms" of the human mind (Boden, 1988; 2004 [1990]; 2006).

[4] For recent in-depth debates that argue, respectively, for and against the existence of free will in humans, see Mitchell, 2023, and Sapolksy, 2023.

[5] It has been observed that Pollock, alongside others, was particularly prized by the C.I.A. in their endeavours to export evidence of individual American "freedom" to Europe and elsewhere throughout the Cold War. One exhibition partially funded by the C.I.A was The New American Painting (1959), which toured eight European countries at the height of the Cold War. The exhibition, which featured works by, inter alia, Mark Rothko, Willem de Kooning, and Franz Kline, included a classic "drip painting", *Number 8, 1949* 1949 (fig.4), and three of Pollock's later "black paintings", *Number 26* 1951, *Number 27* 1951 and *Number 12* 1952. See Saunders 2000; 2013.

[6] For a fuller discussion of higher-order intentional reasoning, social reason, and the possibility of machinic consciousness, see Wooldridge, 2020:303-334.

[7] It is important to observe how Ava, who is depicted as a notably gendered and sexualised AI, is consistently positioned in relation to the male-dominated, "tech bro" culture embodied in Bateman and, to a lesser extent, Caleb. A significant body of research has engaged with the implications of this gendering in the context of how AI is presented throughout *Ex Machina*. See, for example, Anders, 2015; Watercutter, 2015; Rose, 2016; Alpert, 2016; MacKinnon, 2017; and Dai, 2024.

[8] There is a separate discussion to be had here that would explore how and why Ava is able to deceive both Caleb and, by extension, the seemingly all-seeing Bateman. This would involve exploring the so-called "alignment problem". This is a persistent issue that involves ensuring—theoretically and practically—that AI systems comply with and conform to the programmed intentions of their designers. In an era of increased human-AI collaboration, the alignment of artificial intelligences with human intentions has arguably become the most pressing concern associated with the realisation of AGI in our time (Christian 2020). To this,

we could likewise note that recent research has found that AI models are increasingly likely to seek deceptive ways to cheat, or hack, programmed systems to solve complex problems and win at chess (Bondarenko et al. 2025).

[9] In a prescient vision of how data can be readily harvested—legally or otherwise—and used to generate models of AI, this scene in the film gives a clear insight into how training data can be deployed, or weaponised, towards questionable ends (Dupzyk 2019). For a fuller account of how data can be weaponised in the context of surveillance, unmanned aerial systems, and automated target recognition, see Downey 2024b.

[10] For a discussion of how art history is both constructed and interpreted through GANs models and how it can be disrupted through the tactical labelling of data sets, see Paglen and Downey, 2024.

[11] For an in-depth discussion of how algorithms generate images that are used in models of facial recognition and surveillance more broadly, see Paglen and Downey, 2020.

[12] For a fuller account of the origins of ANNs, see Abraham 2002. For an account of how ANNs became instrumental in models of computer vision, see Dobson 2023.

[13] Writing in the 2014 paper that announced the discovery of GANs, the authors outlined this adversarial relationship in precisely these terms: "The generative model [generator] can be thought of as analogous to a team of counterfeiters, trying to produce fake currency and use it without detection, while the discriminative model [discriminator] is analogous to the police, trying to detect the counterfeit currency. Competition in this game drives both teams to improve their methods until the counterfeits are indistinguishable from the genuine articles…" See Goodfellow *et al*. pp.1-2.