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The Teleological Nature of Digital Aesthetics – the New Aesthetic in Advance of Artificial Intelligence

Abstract: If aesthetic and teleological judgments are equally reflective, then it can be argued that such judgments can be applied concurrently to digital objects, specifically those that are products of the rapidly developing sophisticated forms of artificial intelligence (AI). Evidence of the aesthetic effects of technological development are observable in more than just experienceable objects; rooted in inscrutable machine learning, AI's complexity is a problem when it is presented as an aesthetic authority, particularly when it comes to automated curatorial practice or as a progressively determinative aesthetic force originating in an independent agency that is internally self-consistent.

Rooted in theories of the post-digital and the New Aesthetic, this paper examines emerging new forms of art and aesthetic experiences that appear to reveal these capabilities of AI. While the most advanced forms of AI barely qualify for a 'soft' description at this point, it appears inevitable that a 'hard' form of AI is in the future. Increased forms of technological automation obscure the increasingly real possibility of genuine products of the imagination and the creativity of autonomous digital agencies as independent algorithmic entities, but such obfuscation is likely to fade away under the evolutionary pressures of technological development. It's impossible to predict the aesthetic products of AI at this stage but, if the development of AI is teleological, then it might be possible to predict some of the foreseeable associated aesthetic problems.

Keywords: New Aesthetics; digital aesthetics; artificial intelligence; post-digital; teleology; curation.

It could be claimed that the digital, digital materiality, computationality, autonomous algorithmic entities and/or independent digital agencies are fanciful at best, the subject of science fiction, and impossible as genuinely creative and imaginative artists. These claims, however, almost don't matter. We exist in the digital and, as such, we are unable to see outside of it or without it. As this becomes more and more the case, the question of actual AIs will matter less and less – even if they exist, we won't be able to tell the difference – and their aesthetic output will become indistinguishable from those of any other human artist.

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Very recently, Stuart Dredge, a technology journalist, asserted: "Music Created by Artificial Intelligence Is Better Than You Think."[1] The article doesn't make any justified aesthetic claims – relying on a weak argument that AI can make music, but that this music may or may not be better than that composed by human musicians – but it describes an interesting set of recently available web and smartphone-based AI applications and services that are capable of producing music primarily for commercial purposes for web-based and corporate video productions that want to avoid licensing fees and intellectual property issues. Rooted in adversarial models of music generation, these AI composers such as "Endel" are targeted at creating a personalized music experience: "hinting at a possible future where the command "Alexa, play me something to help me relax" [these AI driven apps create] create a stream of entirely original music, rather than just a playlist of existing tracks."[2] This is illustrative of an increasingly interesting challenge to aesthetics in the context of the New Aesthetic, one that is evidenced in all forms of artistic media: it's not so much a question of whether music can be created by AI (of course it can) but what happens when its ubiquity is unchallenged precisely because its origins are no longer obscured. For example, it's not so much a concern with instances like Sony CSL's "Daddy's Car" (2016) and "Mr. Shadow" (2016) and "Bad at Christmas" by Chloe Jean with Alysia (with the hashtag #withAlysia) because they are singular experiences and, to be honest, kinda terrible; instead, what's really interesting is that there are increasing instances of AI-generated music that aren't identifiable as such, that are indistinguishable from similar environmental forms of music/muzak (once the sole purview of human musicians), and increasing number of examples that change and evolve in a manner that is "personalized" and "tailored" to respond to its reception.

The debate about computer produced art has a relatively long history, rooted in early efforts of artists working at Bell Labs in the late 1950s and 60s, but discussion about AI produced art is more recent. Most take the hardline position that AI cannot (and will never be able to, in some case) produce art; Sean Kelly's February, 2019 article "A philosopher argues than an AI can't be an artist"[3] in the *MIT Technology Review* is a good example, arguing that the central importance of genuinely creative and innovative artistic activity isn't programmable nor reproducible, and that AI cannot create art because it aesthetic products will not be socially embedded. For Kelly, deep learning algorithms simply do not respond to their social conditions and can only be judged by pre-existing standards in a manner similar to how we judge tools; "Artificial-intelligence algorithms are more like musical instruments than they are like people."[4]

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[1] Stuart Dredge, "Music Created by Artificial Intelligence Is Better Than You Think," *Medium*, February 1, 2019, https://medium.com/s/story/music-created-by-artificial-intelligence-is-better-than-you-think-ce73631e2ec5, acc. February 17, 2019.

[2] Ibid.

[3] Sean Kelly, "A philosopher argues that an AI can't be an artist," *MIT Technology Review*, February 21, 2019, https://www.technologyreview.com/s/612913/a-philosopher-argues-that-an-ai-can-never-be-an-artist/?utm_medium=tr_social&utm_source=facebook&utm_campaign=site_visitor.unpaid.engagement&fbclid=IwAR0vGU21NkdSISUOJi97AqPdMI0b-VPzGOEtJbpyXDfEx9TepaPq8zIYzIA, acc. March 1, 2019.

[4] Ibid.

Kelly's argument, however, is a little subtler than it first appears, to his credit. Speaking about mathematical proofs and theoretical physics, Kelly notes that it is also impossible to argue that an AI algorithmic entity could convince human beings of its 'discoveries' because, contra a positive Turing test, "we would have to be able to accept its proposals as aiming to communicate their own validity to us."[5] But what if AI was able to convince us? Or, perhaps more realistic, what if it didn't need to? This is the New Aesthetic as it continues to evolve, a realm of autonomous algorithmic production agents providing aesthetic products that are experienced and judged not determinatively (in that they should be a representation of a concept sufficient to determine the particular) but reflectively (in that assessing the quality of an object of experience for the subject itself, a kind of reassurance as to their universal communicability, becomes the primary response). To put it another way: as AI increasingly generates objects and experiences that resemble in every way art – and the fact that this is already taking place cannot be disputed – what should be our response? If we cannot make a determinative but only a reflective judgment about these objects and experiences, as in the case of thispersondoesnotexist.com, what happens when we can't tell the difference at all?

Part of situating this question lies in the odd relationship AI has to aesthetic and teleological judgments. If aesthetic and teleological judgments are equally reflective, then it can be argued that such judgments can be applied to digital objects equally, specifically those that are products of the rapidly developing sophisticated forms of AI. How is this the case? Of course, digital objects can be aesthetically judged: the design of a graphic user interface can be judged as beautiful or ugly in a reflective consideration entirely separate from any assessment of its function. At the same time, its function can be teleologically judged. Given this, it's important to note that AI produced objects are equally available to reflective and aesthetic and teleological judgments precisely because they both appear to be the product of another autonomous individual; it's impossible to mistake a GUI for a naturally appearing phenomenon, despite all of the efforts of skeuomorphic design philosophy. While in the case of an AI-generated object, this other is unavailable: when using an app, its programmer or designer is not just unavailable but the substance of its digital materiality is simply not evident, a breakdown, in this case, of predication. The name of the programmer or designer of an app might be available (though most often not in the use of an app on a smartphone, for instance), but the programming language itself consists of multiple layers of computational functionality that have been refined, resolved and rewritten often by digital agents undirected by any human intervention. As digital technology occupies an increasingly fundamental role in the transformation of the aesthetic features of contemporary society, its inherently teleological nature is emerging as a parallel active presence; it's not so much that the digital is a quality of our world but that it's progressively a determinative, causal driving force which changes our world in a manner that bears more and more the characteristics of an independent agency that

[5] Ibid.

is internally self-consistent. Whereas computationality and digital materiality were once additions to our experience of the world, now they are actually transforming it.

Emerging new forms of art and aesthetic experiences appear to reveal these parallel capabilities of AI. While the most advanced forms of AI barely qualify for a "soft" description at this point, it appears inevitable that a "hard" form of AI is in the future. In fact, it's clear that increased forms of technological automation obscure the increasingly real possibility of genuine products of the imagination and creativity of autonomous digital agencies as independent algorithmic entities teleologically designed precisely to hide their artificial origins. Unchallenged aesthetic authority creates these additional problems, resulting in the obfuscation of computationality and digital materiality. Such obfuscation is unlikely to fade away under the evolutionary pressures of technological development, even with the awareness generated by a genuine New Aesthetic that would begin to recognize these aesthetic objects and experiences as appreciably new.

We're reaching a stage in the digital evolution where evidence of the digital is disappearing proportionate to its increasing pervasiveness. The Obvious Art Collective (Gauthier Vernier, Pierre Fautrel and Hugo Caselles-Dupré, who have the algorithm involved 'sign' the painting), using generative adversarial networks, and drawing from a database of 15,000 14th-20th century portraits, put it this way: "The artist runs the risk of becoming a machine, hitched to another machine."[6] Bemoaning the foreseeable difficulties, a recent article about the Next Rembrandt project in AdWeek (the irony doesn't escape me) complained: "Creativity is supposed to be our exclusive province, the spark that makes us special, the thing computers could never dream of mastering."[7] Whether weak or strong, general or specific, algorithmically autonomous or not, AI is increasingly authoritative and creative. Its curatorial judgments are already being accepted at a very base and general level, so why not in a more generative way? AI is already being used to settle attributions, to discern fake examples of art from genuine, so why not allow it to discern in a qualitative manner the difference between mediocre, good and great art? And if discernment is allowed as a type of aesthetic judgment, why not grant it full aesthetic authority? If the Next Rembrandt project is a visualization of data, it's a project with the specifically stated aim of producing an object of beauty. "Commenting on the implications for Rembrandt art itself, art historian Gary Schwartz notes that, 'While no one will claim that Rembrandt can be reduced to an algorithm, this technique offers an opportunity to test your own ideas about his paintings in concrete, visual form.'"[8] If we're testing our ideas against digital algorithmic agents, though, aren't we granting them infallibility, so much so that

[6] https://medium.com/@hello.obvious/a-naive-yet-educated-perspective-on-art-and-artificial-intelligence-9e16783e73da, acc. September 25, 2018.

[7] Tim Nudd, "Inside 'The Next Rembrandt': How JWT Got a Computer to Paint Like the Old Master," *Adweek* June 27, 2016, https://www.adweek.com/brand-marketing/inside-next-rembrandt-how-jwt-got-computer-paint-old-master-172257/, acc. September 25, 2018.

[8] Microsoft News Center Europe, "The Next Rembrandt," https://news.microsoft.com/europe/features/next-rembrandt/, acc. September 25, 2018.

it's not that Rembrandt will be reduced to an algorithm but that it's algorithms which will soon be elevated to Rembrandts.

Rutgers University's Art and Artificial Intelligence Laboratory took a few steps beyond the normal framework of digital humanities towards this with their Creative Adversarial Networks (CAN) project[9] which concluded that not only can computers generate art by using deep learning through databases of different historical artistic styles but the results are equally effective in terms of their aesthetic value as those produced by human artists. In their abstract, they ambitiously state: "We propose a new system for generating art. The system generates art by looking at art and learning about style; and becomes creative by increasing the arousal potential of the generated art by deviating from the learned styles."[10] What they mean by this is that they have created generative adversarial networks that have learned different visual art styles, presented various permutations of those styles in a digital adversarial relationship, and have refined the permutations through the adversarial responses in such a way that the final results appear to be, for all appearances to be art. The results: participants largely preferred the machine-created artworks to those made by humans, and many even thought that the majority of works at Art Basel were generated by the programmed system. There have been many claims that computers are capable of generating art equal to human-created art, but CAN is an attempt to go beyond mere programming and the generation of art to developing a digital agent capable of creating art. The difference between generation and creation here is crucial; generation is the result of programming, while creation is the result of free activity even amidst a dominating set of contexts, data sets and influences. So, computers may be getting closer to autonomously producing their own art that people deem more creative[11] than that produced by their fellow human beings. Even more so, there's a shift from deem to accept to prefer; the significant difference in terms of human observers' reactions evolved such that the vast majority of instances humans' reactions to the work created by CAN were believed to be created by other human beings and preferred over that of their fellow human beings. As noted in a Hyperallergic article about the CAN project:

> It might be debatable what a higher score in each of these scales actually means… However, the fact that subjects found the images generated by the machine intentional, visually structured, communicative, and inspiring, with similar, or even higher levels, compared to actual human art, indicates that subjects see these images as art![12]

[9] Ahmed Elgammal, Bingchen Liu, Mohamed Elhoseiny, and Marian Mazzone, "CAN: Creative Adversarial Networks. Generating 'Art' by Learning About Styles and Deviating from Style Norms," *arXiv:1706.07068v1*, https://arxiv.org/pdf/1706.07068.pdf., acc. September 1, 2018.

[10] Ibid.

[11] Claire Voon, "Humans Prefer Computer-Generated Paintings to Those at Art Basel," *Hyperallergic*, July 31, 2017, https://hyperallergic.com/391059/humans-prefer-computer-generated-paintings-to-those-at-art-basel/, acc. September 1, 2018.

[12] Ibid.

And if the subjects see these images as art, then they are granting aesthetic authority.

If AI products are, in effect, increasingly autonomous and authoritative creative agents, to the point of appearing dangerously close to eclipsing human-produced objects, then is there a way to address this problem? Can we counter this increasing encroachment? In Ian McDonald's 2017 novel *Lune: New Moon*, one of the characters notes as an explanation for their postgrad work in "computational evolutionary biology in process control architecture" that it was a development of what appears to be a truism that, namely, "Technology will always converge with biology."[13] Out of this arises a really interesting question: is the development of technology analogous to biological evolution, or is it sufficiently distinct and only appears to converge at a point where technology becomes intertwined with biological functions? To put it another way, there are two contrasting perspectives on how technology changes over time. The first is that it is developed over time in response to changing circumstances; human beings (and, as our understanding of animal behavior expands, other higher-order tool-using animals) recognize and respond to need or develop a solution to a problem. On the other hand, technology evolves in response to its perception of our needs. Until recently, that last sentence would be completely absurd, but with the increasing capabilities of AI its absurdity is debatable. If AI is evolving in a teleological fashion analogous to natural evolution, then it might as simple as seeing the beautiful like we do in any other natural object and, over time, as we do with any other artist. In a way, it could be suggested that it's aesthetics which might be an adjudicating factor when it comes to something like the Turing test, especially if digital objects are teleologically judged as if they are evolving biological organisms.

The real problem, however, is almost that it doesn't matter. What's important to keep in mind is that it almost doesn't matter what type of AI will emerge in the future – hard or soft, autonomous or programmed, actual or virtual – but that there will be the appearance of AI that we will have to contend with. This notion of the 'appearance' of AI even belies the necessity for actual AI; Rachel Severson, working in the field of childhood development, has done some fascinating research that leads to the conclusion that "some research indicates children understand a device like Echo or Google Home is a piece of technology, but they also see these gadgets in psychological terms – as having emotions, as being capable of thought and friendship, and deserving of moral treatment."[14] In referring to AI-driven technology devices, which Severson describes as 'personified technologies', there isn't a need for an actual AI but just the seeming experience of AI for us to relinquish our aesthetic authority to another. The result of this is that the code itself, at a deep level, is often programming itself, leading to the question of what do algorithms want?[15] In this respect there should be some sympathy for the position of skeptics of true, autonomous AI, who rightfully point out that AI will be programmed

[13] Ian McDonald, *Luna. New Moon* (New York: Tor Books, 2016): 49.

[14] Samantha Kelly, "Growing up with Alexa: A child's relationship with Amazon's voice assistant," CNN, October 16, 2018, https://www.cnn.com/2018/10/16/tech/alexa-child-development/index.html, acc. January 28, 2019.

[15] Cf. Ed Finn, *What Algorithms Want: Imagination in the Age of Computing* (Cambridge: MIT Press, 2017).

by human programmers, no matter how screwy the algorithms get, by noting (in a Lacanian fashion, via Kant's categories) that the language used by AIs to present aesthetic experiences may simply be a reflection of our own languaged projections into the world, and that that this projection will always return to us in an alien form that is functionally an Other, or what the CAN project called "the arousal potential of the generated art by deviating from the learned styles."[16] Whether AIs become true Others or not is not just irrelevant, therefore, but impossible to respond to. The presentation of new aesthetic experiences might appear to pass the Turing test, but even if it legitimately does so how would we know? This is the challenge of the New Aesthetic: not so much that AIs and autonomous algorithms will be providing us with different aesthetic experiences firmly originating in the specificity of their computational materiality (which they already are in at least a limited fashion) but in our inability to reactualize a purely human form of aesthetic productivity.

To return to Kelly's article, specifically to the possibility of conceding the status of art to AI produced aesthetic objects and his claim that it's impossible, he writes:

> This claim is not absolute: it depends on the norms that we allow to govern our culture and our expectations of technology. Human beings have, in the past, attributed great power and genius even to lifeless totems. It is entirely possible that we will come to treat artificially intelligent machines as so vastly superior to us that we will naturally attribute creativity to them. Should that happen, it will not be because machines have outstripped us. It will be because we will have denigrated ourselves.[17]

This is a continuing refinement of a definition of the New Aesthetic: it's not so much that aesthetic experiences might originate from autonomous algorithmic entities nor that fully creative and independent AIs might act as artists, creating visual, musical and literary art on par with any produced by human artists, but that it's increasingly impossible to the point of being actually impossible to distinguish between aesthetic objects that are produced by algorithmic dependent digital agents and fully autonomous algorithmically independent agents. This is a situation we've created for ourselves, as we've pushed the computational capabilities further and further, where now we are not just enthralled by the products but are eager to participate and be a part of those products. If AIs exist, what do they want? Well, it seems like we're increasingly eager to find out and fulfill those desires; this is, I believe, an explanation for why there might not be any more poetry after Auschwitz but there certainly are many selfies taken there. Adorno wrote: "In the products of the culture industry human beings get into trouble only so that they can be rescued unharmed, usually by representatives of a benevolent collective."[18] Today, the New Aesthetic is that benevolent collective.

[16] Elgammal, et al., "CAN: Creative Adversarial Networks."

[17] Kelly, "A philosopher argues that an AI can't be an artist."

[18] Theodor Adorno, "Culture Industry Reconsidered," *New German Critique* 6 (Fall 1975): 12–19.

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