Artificial Intelligence, Creativity, and the Precarity of Human Connection

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Abstract: I argue that there is an underappreciated respect in which the widespread availability of generative artificial intelligence (AI) models poses a threat to human connection. The central contention is that human creativity is especially capable of helping us connect to others in a valuable way, but the widespread availability of generative AI models reduces our incentives to engage in various sorts of creative work in the arts and sciences. I argue that creative endeavors must be motivated by curiosity, and so they must disclose the creative agent's inquisitive self. It is through self-disclosure, including the disclosure of the inquisitive self, that we put ourselves in a position to be seen by and connect with others through our creative pursuits. Because relying on AI for certain generative tasks is less self-disclosive than the creative work such technologies supplant, this reliance threatens to weaken our connections to one another.

0. Introduction[1]

This essay is motivated by two questions. The first is: Does the widespread availability of generative artificial intelligence (AI) models pose a threat to human creativity? Versions of this question have quickly appeared in the headlines of editorials, blog posts, and all manner of think pieces following the public release of impressive AI applications like Midjourney and ChatGPT.[2] With good reason, the focus of the concern tends to be on practical questions about the employment prospects for creative professionals in the age of AI. But in this essay, I would like to suggest another sense in which AI poses a threat to creativity. This sort of threat is subtler, but equally profound.

The subtle threat I have in mind here can be captured with an analogy. It is akin to the threat my smart phone poses to my attention span. Although possible, maintaining a healthy attention span while regularly using my smart phone is a challenge. This is because it is easy to develop habits of smart-phone engagement that negatively affect my attention span. When I get into these bad habits – like leaving my notifications on and

[1] I am grateful to Ryan Davis, Jordan MacKenzie, and Keshav Singh, as well as audiences at the 25th World Congress of Philosophy at Sapienza University of Rome and the Philosophy, Politics, and Economics at the Frontier Workshop at the University of Buffalo for helpful conversations and feedback on earlier versions of this article.

[2] For some illustrative examples, see Clarke (2023), De Cremer et al (2023), Ellis (2024), and Uzzi (2023).

checking my phone constantly – I find it harder to do things that require sustained focus, like closely reading complex philosophical texts. In this way, my smart phone poses a threat to something I value. This is the notion of "threat" I have in mind in considering whether AI poses a threat to human creativity.

The second question motivating this essay is: If AI poses this sort of threat to human creativity, would that be a bad thing? If it would, there must be some value of human creativity that is not secured by reliance on AI.[3]

Note that answering the first question is at least partly an empirical matter. Part of the task of answering it will involve gathering data about how people engage with generative AI models and what effects this engagement has on their behaviors. But it is also partly a philosophical matter. Key terms – especially "creativity" – stand in need of philosophical analysis to make it clear how empirical evidence would bear on the question. The second question is a more straightforwardly philosophical. It is a question about the value of human creativity and whether that value would be lost in a world in which human creativity dwindled due to reliance on AI. In this essay, I will bring philosophical work on creativity to bear on the first question, arguing that the concern it raises is reasonable. I will then argue that there is at least one reason to think the answer to the second question is "yes." That is, I will argue for one respect in which AI posing a threat to human creativity would be a bad outcome.

My central contention is that, insofar as the widespread availability of AI models threatens human creativity, it threatens our ability to connect with other humans. As I will show, this is true with respect to both artistic and scientific creativity. Notably, I will not argue that this is the only or the most important potential negative outcome of humans becoming less creative in the age of AI. However, both popular and scholarly discourse on the matter suggests that this is one of the least acknowledged potential pitfalls. Philosophers working on creativity have, by and large, overlooked the important role human creativity plays in enabling us to make valuable connections with each other. For this reason, their accounts of creativity's value do not make it obvious that a threat to creativity is a threat to human connection. In this paper, I aim to correct this oversight.

Before I begin constructing my argument, allow me to make the significance of the two motivating questions more vivid with an anecdote. For a recent philosophical outreach project, I led three groups of approximately twenty third-grade girls in a guided discussion about art and artificial intelligence.[4] I first asked the students to share why they enjoy making art. Their responses were endearing and mostly unsurprising. They included the following: making art helps them express their feelings and ideas, they like

[3] It is important to note that this is consistent with *some* of what is valuable about creativity being secured by reliance on AI. I am grateful to an anonymous reviewer for suggesting that I make this clarification.
[4] This outreach project was part of the Girls Engaged in Math and Science Exposition at Berry Middle School in Hoover, Alabama, USA. This event took place on February 8, 2024.

to use their imagination, they like to play with colors and shapes, they like to draw and paint the things they love, they like to make gifts for people, and they simply find it fun.

I then introduced the topic of AI image-generators. Most of the students had not yet been exposed to this technology, so I demonstrated by prompting Dall-E 2 with text and showing them the resultant images. I asked for volunteers to give me prompts and received ideas like "orange cat in a green tree," "skateboarding elephant," and "school bus monkey." I encouraged them to add style suggestions, like "in the style of cubism" or "in the style of comic book illustration," and the results delighted them.

Their reaction to Dall-E was overwhelmingly positive. I asked them whether they preferred making art by hand with their conventional art supplies or generating images with Dall-E. With nearly univocal enthusiasm, they told me they prefer the latter. Why? Their reasons included: "It's faster", "It looks cool," "It's better than what I can draw," and "I wouldn't have thought of doing it that way." I asked them whether they would ever still choose to draw and paint if they could use Dall-E instead, and most said no.

This response concerned me. But is there really anything to be concerned about here? Certainly, there can be creativity involved in prompting image-generating AI models.[5] Indeed, some of the students' prompts were somewhat creative, although they were generally quite simple. On a view I have defended (Brainard, 2023), the sort of image-generating work these third-graders engaged in by prompting Dall-E was much less creative than what they described themselves doing when I asked them to tell me about their prior artistic practices. That is, these instances of prompting involved less creativity than the students would likely employ if they tried to draw or paint the things they told Dall-E to depict.

This anecdote raises the question: Would something of value be lost if children stopped drawing and painting and instead spent their time prompting generative AI? This is an instance of my second motivating question. To clarify, my concern is not about whether there is something intrinsically important about drawing and painting. Perhaps there is. But the concern that motivates me here is broader. My concern is about what might happen if humans make a habit of trading in our creative projects for much less creative ones. Would it be bad for humans to become less creative in the age of AI?

In Section 1, I introduce the concept of *creative obsolescence* and argue that there is good reason to suspect that AI may make human creativity obsolete in various aspects of our lives. In Section 2, I provide the first part of my argument for the claim that creative obsolescence would be a bad thing. I argue that one underappreciated value of creativity is that it plays an important role in connecting us to others, and I illustrate this with examples from both artistic creativity and scientific creativity. Finally, in Section 3, I argue that the social value of creativity can easily be lost if humans outsource their

[5] See, for instance, Charlie Engman's work with Midjourney (Wiley, 2023).

creative projects to AI. In support of this claim, I present examples from both art and science in which human connection is impeded by relying on AI in a way that diminishes the human creativity involved in a project.

1. The Threat of Creative Obsolescence

In this section, I will argue that there is reason to think AI may make human creativity obsolete, at least in some parts of our lives. To do so, I need to clarify what I mean by both "creativity" and "obsolete."

Let's start with the notion of creativity. In other work, I have argued that creativity is a form of successful exploration. By that, I mean it is a kind of non-formulaic process that necessarily involves agency, subjective novelty, and epistemic value (forthcoming). I further argue both that the kind of agency required for creativity necessarily involves self-disclosure (a term I will explain in *Section 2*) and that creativity is essentially motivated by curiosity (2023). Finally, I argue that contemporary AI models are not themselves creative because they lack both curiosity and the relevant kind of self-disclosive agency (2023).[6] I will take these claims for granted in the discussion that follows.

What do I mean by "obsolete"? It is important to note that the term "obsolete" has both a descriptive meaning and a normative meaning.[7] Something is descriptively obsolete just in case it is no longer used. For example, the Puritan practice of branding those convicted of crimes with letters denoting the nature of their crimes has long been obsolete. It is obsolete at least in part because of changing social views about the importance of public shaming. So, the question of whether AI will make human creatively descriptively obsolete is: Will it become the case that people abandon human creativity—in whole or in part – in favor of using AI to get what they want? This is largely an empirical question, at least once we've settled what we mean by "creativity."

The normative meaning of "obsolete" on the other hand, is that something no longer has value because its value can be secured by something else that is otherwise preferable. Lead pipes are obsolete in this sense. The value they once had can be fully secured by safer alternatives. So, the question of whether AI will make human creativity normatively obsolete is: Will human creativity retain its value in the age of AI?

Like the descriptive question, the normative question is partly empirical and partly philosophical. What generative capacities AI will develop – and therefore what sort of value it will be able to secure – is an empirical matter. What makes human creativity

[6] For further discussion of whether AI models can be genuinely creative see Chen (2020), Halina (2021), Langland-Hassan (forthcoming), and Paul and Stokes (2024).
[7] I am grateful to Keshav Singh for calling this distinction to my attention.

valuable is, at least partly, a philosophical question. The primary goal of this paper is to make some headway on answering the normative question. This is the focus of sections 2 and 3. But the fact that the answer to the descriptive question may be affirmative is what makes the normative question important and urgent.

How could AI make human creativity descriptively obsolete? Note that even though current AI models are not genuinely creative (on my view), they can produce outputs that are valuable in many of the same ways that the products of genuine creativity are often valuable. Human creativity is often prized for its products. Among other things, our creative achievements have given us powerful art, successful scientific theories, and solutions to complex problems. Thus, creativity is valuable at least insofar as it yields products of aesthetic, scientific, and practical value.[8]

It is striking that contemporary AI models can also produce outputs with the same sorts of value. That is, they can generate products that are aesthetically, scientifically, and practically valuable. AI models have produced images humans find beautiful and jokes humans find funny.[9] Scientists are using AI models to identify candidate drugs that could be used to treat diseases and other ailments.[10] And the practical value of AI is undeniable. Since ChatGPT became publicly available in 2022, users have used it for help with meal-planning, efficiently navigating archives, learning new languages, fixing bugs in code, and appealing insurance claims, among many other tasks.[11]

In all these cases, a major selling point for using AI rather than relying on human effort is that it is quick, efficient, and inexpensive (for the user). By contrast, human creative work is often arduous, time-consuming, and resource intensive. If we can get the benefits of creative work without the costs, perhaps creativity can be made normatively obsolete. I am now in a better position to articulate the normative question of creative obsolescence: If we come to rely on AI models instead of our own creativity, will anything of value be lost? In other words, does human creativity have any value that cannot be secured more quickly and economically by relying on generative AI?

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[8] The question of whether all instances of creativity are valuable is disputed. Alison Hills and Alexander Bird (2018, 2019) offer an influential argument that creativity is not necessarily valuable. While I have challenged this claim (forthcoming), the generic claim about creativity's value I am making here is consistent with the view advanced by Hills and Bird. That is, by suggesting that creativity has aesthetic, scientific, and practical value, I do not mean to suggest that every instance of creativity has one or more of these forms of value. Rather, I mean to suggest that when instances of creativity are praised, it tends to be because they yield such value.

[9] One notable image is *Théâtre D'opéra Spatial* by Jason Allen, which won a prize at the 2022 Colorado State Fair (Roose 2022). For examples of humorous AI-generated headlines in the style of *The Onion*, see Rich (2023).

[10] For a discussion of how AI models are used to aid in drug design, see Mazuz et al (2023). For potential applications for AI in scientific discovery, see Brumfiel (2023).

[11] See Paris and Buchanan (2023).

This normative question is important and urgent. If creativity has some value that cannot be secured by AI, and yet AI's widespread availability is a threat to our creativity (in the same way that my smart phone is a threat to my attention span), then we may lose that value – whatever it is – without realizing it. In Sections 2 and 3, I will argue that one thing we care about – our connection to others – is in danger of being weakened by overreliance on AI in place of creative pursuits.

Before moving on, a clarification is in order. Full-blown descriptive creative obsolescence is not the only scenario of concern. Perhaps we will still find ourselves mobilizing our creativity in some aspects of our lives, regardless of what AI advances await us. To return to my analogy from before, I still retain some measure of attention span even when I find myself in the throes of my most detrimental smart phone habits. But that doesn't mean nothing of value has been lost. As I will argue in *section 3*, if the role of creativity in our lives diminishes significantly, we are in danger of sustaining significant losses in our ability to connect with one another.

2. How Creativity Connects Us

The first step in answering the normative problem of creative obsolescence is to shed light on a benefit of creativity that has been largely overlooked in the philosophical literature. This is the role that creativity plays in enabling human connection. While it will be easiest to illustrate this point with respect to creativity in the arts, I will argue that it is also true of creativity in the sciences.

As I noted in the previous section, I have argued in other work that creativity involves self-disclosure (2023). It will be necessary to elaborate on this point here. I follow Gary Watson (1996) in using the term to refer to something that happens when we exercise our agency in ways that give us a kind of ownership over our actions. Watson invokes the concept of self-disclosure to characterize his notion of *attributability*, a kind of non-moral responsibility we have for our actions. On his usage, what I do is attributable to me when it subjects me to appraisal as an adopter of ends. And for this to be true, what I do must disclose who I am, in some sense. Specifically, Watson argues that it must disclose something about what I stand for, what I value, or what I am committed to. He explains:

> …if what I do flows from my values and ends, there is a stronger sense in which my activities are inescapably my own: I am committed to them. As declarations of my adopted ends, they express what I'm about, my identity as an agent. (1996, p. 233)

Why think that our creativity is self-disclosive in this way? As Elliot Samuel Paul and Dustin Stokes (2018) have argued, creativity is a praise concept. We praise individuals for

their creative achievements, and this sort of praise is only fitting insofar as they are responsible for what they have done, in some sense. If we are responsible for our creativity in at least the minimal sense captured by Watson's notion of attributability, then our creative achievements disclose information about who we are as agents. What I do creatively discloses information about how I see the world, what I care about, what I believe, how I pursue my goals, and so on.[12]

As I noted in the previous section, I have argued elsewhere that creativity necessarily involves curiosity (2023). In general terms, I understand curiosity as the motivation to pursue epistemic goods like knowledge and understanding. Because creativity is a kind of exploration motivated by curiosity (on my account), our creative pursuits disclose information about our *inquisitive selves*. I borrow this term from Christen at al, (2014), who use it to refer to the aspect of a person that seeks new information.

To get a feel for what an inquisitive self is and how someone's creative work might disclose this aspect of who they are, it helps to think of especially creative individuals whose creativity you admire. In my own field, I admire the work of creative philosophers like David Lewis and Iris Murdoch for the questions they ask and the ways they go about pursuing answers. In their creative philosophical explorations, such thinkers reveal what they wish to understand, what ideas they think are worth highlighting and scrutinizing along the way, and what sorts of insights they take to constitute answers to their motivating questions. The character of their creative work reveals not only what knowledge or understanding they wish to gain but also why they wish to gain it. In this way, their creativity discloses information about who they are as inquirers.

Because philosophy is a discipline in which questions and processes of inquiry are generally made quite explicit, it is perhaps easy to see how one's inquisitive self is on display in a creative philosophical project. But creative artists also disclose their inquisitive selves in their work. Consider the following remarks from prolific textile artist Bisa Butler about her creative process. Here, she describes how she studies each photograph that serves as the inspiration for one of her vibrant portrait quilts:

> I'm learning things about this person by studying their image carefully. How is their head tilted? How do they hold their hands? I'm trying to use all these clues to give me insight [about] what their inner self was like. (Scholastic, 2023a)

As Butler's remarks reveal, her creative process is driven by a desire to understand the subjects of her art. And the character of this inquiry into her subject's inner lives is

[12] The notion of self-disclosure may be useful for explicating the notion of "flair" that plays a central role in Gaut's (2003) account of creativity.

disclosed in her artwork. It may not be as easy to discern precisely what curiosity drives her art as it is with creative philosophical texts, but an appropriately attuned observer of Butler's art has the opportunity to discover something about who she is as an inquirer – her inquisitive self – by studying her work. On my view, because of the motivating role curiosity plays in creativity, all instances of creativity disclose an agent's inquisitive self, at least to some extent.

It is this self-disclosive nature of creativity that accounts for creativity's role in enabling human connection. The notion of "connection" I have in mind here is quite broad. It encompasses both interpersonal relationships and a variety of other cases in which someone comes to understand someone else's ideas, experiences, or values. I will begin by considering how creativity enables connection in interpersonal relationships. I have in mind relationships among friends, family members, coworkers, romantic partners, and so on – relationships involving mutual acknowledgement and interaction.

To have meaningful interpersonal relationships, we must get to know each other. I take this claim to be reasonably well supported by common intuition, but there is also plenty of philosophical support for the idea. Consider, for instance, Iris Murdoch's (1970) view of loving attention, which involves striving to see someone accurately and justly. In a similar vein, David Velleman (1999). conceives of love as an "arresting awareness" of a particular person's value. More recently, Jordan Mackenzie argues that being in a loving relationship requires both that we desire to know the person we are in a relationship with and that we are obligated to act on that desire (2018). And Daniela Dover (forthcoming) argues that loving someone involves an inexhaustible curiosity about their thoughts, feelings, and experiences. These are all accounts of love, but they are capacious. They are not restricted to romantic love. Rather, they accommodate a wide array of cases in which we lovingly care about someone.

Relationships cannot be formed in the manner these views describe without self-disclosure. If a person keeps their cards very close to their chest at all times, try as you might, you cannot afford them loving attention in Murdoch's sense because you are prevented from perceiving them accurately. You cannot have an arresting awareness of someone's rational nature, as Velleman suggests, unless they let you see their reasons and their ends. If we are obligated to act on our desire to know the person we love, as MacKenzie argues, their failure to self-disclose would put us in an untenable position. Even the sort of curiosity that Dover describes would be hindered in such a case because it involves an interminable stream of learning more about someone and becoming more curious about what has been learned. That process cannot get very far if nothing about the other person is revealed to you.

So far, I have argued that self-disclosure is essential for forming meaningful interpersonal relationships with others. However, it is not only in these relationships that self-disclosure enables valuable social connections. Importantly, self-disclosure is also

valuable for a general sense of connection we can experience even with people we do not know personally. This often occurs when we encounter a work of art that represents something we personally relate to. For instance, if I relate to a sentiment captured by a line of poetry, I may feel a connection to the poet through a recognition of our shared experience.

This sort of connection also occurs when an artist helps their audience learn about something they cannot relate to personally. Consider the following further remarks from Bisa Butler, this time reflecting on how her portraits can be illuminating for those outside the Black community:

> My work highlights the Black experience because it's a recording of what life is like for me as a Black woman and the way I see things. So, by me creating these portraits, I'm giving other people a window into: How do Black people see themselves? And how do they want to be portrayed? How do they want to be remembered? How do they want to be recorded in history? (Scholastic, 2023b)

Here, Butler captures the sense in which the self-disclosure inherent in creative work makes it possible for an audience to connect with the artist, in a sense, even while not knowing them personally or having a shared experience. No relationship is formed in this sort of case, but there is social value in coming to recognize something about someone else's experience.

I have now argued that self-disclosure is essential for social connection, broadly construed. I have also argued that creativity involves self-disclosure. I have not yet identified what makes the self-disclosure inherent in creativity to be *especially* valuable. We can, of course, disclose information about ourselves in uncreative ways. You could learn a lot about me if you interviewed me, as long as I answered your questions honestly, even if I did not answer them creatively. So, creativity is not necessary for self-disclosure. But why is creativity nevertheless especially valuable for human connection?

First of all, recall my contention that creativity discloses the *inquisitive self*. This is not the only aspect of ourselves that creativity can disclose, but it is an aspect of us that is always disclosed, to some degree, by our creativity. The inquisitive self is a particularly important aspect of a person to get to know if you wish to form a meaningful connection with them. In particular, it is important to understand someone's inquisitive self if you want to understand their *perspective*. This includes their beliefs and the network of dependencies between those beliefs. It also includes which questions they take to be open and closed, the reasons that certain questions are of particular interest to them, and their motivation to seek answers to those questions.

For example, one of my colleagues is philosophically interested in the concept of forgiveness. Because I know about her interest, when she asks a question in the Q&A following a talk on the topic, I understand the significance of her question relative to the broader questions she has been pondering. I also know something about what hangs on the speaker's answer, from her perspective. I can better understand the significance of her philosophical ideas and questions because I know her as an inquirer. I know what she is curious about, and I know something about what it might take to satisfy her curiosity. I am therefore able to have far more interesting and fruitful conversations with her. In this way, my understanding of who she is as an inquirer improves our interpersonal connection.

Of course, it is not only through our creativity that we can disclose our inquisitive selves. My colleague could, at least in principle, convey all this information about her philosophical perspective by describing her interests to me in detail. But I would like to suggest that creativity is *especially* disclosive of the inquisitive self, both in how much is information is disclosed and how reliably accurate the information is.

Imagine that I tell you I am interested in baking pies. You may believe me, but I could of course be lying, self-deceived, merely aspirational, exaggerating to fit in socially, or otherwise insincere. Imagine instead that I show you a creative project I have been working on – an experimental cookbook in which I develop original recipes for pies based on the state fruit for each of the fifty United States. In doing so, I present you with much more – and more conclusive – information about the depth and character of my interest in baking pies. By examining my creative project, you are in a position to understand what sort of flavor combinations intrigue me, which baking conventions I adhere to (and which I flout), which features of a pie I find most valuable, what possibilities I am most curious about, and what exploratory paths my curiosity has led me down.

Because creativity is driven by our curiosity, our creative pursuits demonstrate who we are as inquirers in an especially transparent way. As I mentioned before, genuine curiosity is motivating. Lani Watson (2018) illustrates this idea with the example of a student who assures their professor they are curious about a topic covered in class, but then declines the opportunity to learn more about the topic (at no cost or inconvenience to themself). By showing no motivation to learn more about the topic, the student reveals that their self-ascription of curiosity was false. Had the student instead explored the topic in some creative project, they would have vindicated their claim to curiosity. Thus, when it comes to the inquisitive self, creative work is much more revelatory than simple self-reporting. The proof of the curiosity is in the creativity, so to speak. Our (creative) actions speak louder than our words (about who we are as inquirers).

One might worry that what I have said about how creativity enables connection does not generalize to all the domains in which AI threatens to make creativity obsolete

that I discussed in the last section. So, before moving on, it is important to discuss how creativity enables connection in the sciences as well.

One dissimilarity between art and science is that, whereas most (perhaps all) art must be creative if it is to be good, the same is not true of work in the sciences. A lot of important scientific work is not creative, and it should not strive to be. For good reason, scientists must often follow strict protocol rather than taking creative risks in their work. But philosophers of science have long acknowledged that some critical parts of the scientific process do require creativity. As Carl Hempel (1966) famously argued, hypothesis generation requires creativity because theories cannot be derived directly from observable facts. A scientific theorist must devise a hypothesis to account for the data before any attempts as confirmation or disconfirmation can occur, and coming up with a hypothesis requires creativity.

While less obviously so than artistic creativity, scientific creativity is also self-disclosive in a way that enables human connection. Of course, the felt experience of this connection will typically differ greatly from the felt experience of connection via artistic creativity. But there is a general sense in which we connect with another person when we are able to grasp a complex idea they are offering. When one scientist studies another scientist's analogical diagram of a phenomenon and thereby grasps the theory that is being proposed, there is a sense in which their understanding results from a connection they have made with the scientist who authored the diagram. Popular euphemisms for this, such as "I'm picking up what you're putting down," highlight the sense in which achieving understanding of what someone is striving to communicate is a valuable sort of social connection. And notably, if Longino (1990) is right that scientific knowledge is inescapably social in character, this sort of connection may be critical for there to be any scientific knowledge at all.

To illustrate this point, consider James Clerk Maxwell's (1861) famous diagrams of the electromagnetic field as an arrangement of simple machines.[13] These diagrams depict gears, cogs, and idle wheels, arranged in such a way that they could account for the appearance of action-at-a-distance that we observe in cases of electricity and magnetism (like an iron filing moving in a particular direction when positioned near a magnet). The aim of these highly creative diagrams was to demonstrate that something playing the role of an electromagnetic field was possible, even though Maxwell was clearly not suggesting that it was actually comprised of the simple machines that featured in his drawings. His theorizing demonstrated that the existence of something playing this role was a possibility in that it was consistent with accepted beliefs about the laws of physics.

When other scientists encountered this creative theorizing, they had an opportunity to learn something valuable. To do so, they had to get on Maxwell's wavelength, so to

[13] For a detailed explanation of this case, see Simpson (1997).

speak. And Maxwell's creativity made this connection possible. His creative presentation of these ideas disclosed information about his inquisitive self: what he was trying to figure out, what his background beliefs were, what questions he treated as open, and so on. This information was needed for other scientists to apprehend the insight. If someone thought he was trying to propose a theory of how the electromagnetic field *actually* works, they would miss out on the value of his work. But because scientists were able to understand his explanation through exposure to his creative work, they were able to connect in the way required to advance scientific understanding.[14]

3. The Precarity of Human Connection

I have argued both that the widespread availability of generative AI poses a threat to human creativity and that an underappreciated benefit of our creativity is the role it plays in connecting us to one another. In the final part of this paper, I examine how employing generative AI in place of our creative pursuits affects our prospects for social connection. First, I consider a simple instance of relying on an AI image generator rather than engaging in conventional artistic techniques like drawing or painting. Second, I consider a case in which AI has led to a breakthrough in the science of protein folding. Each case reveals a way in which the prospects for human connection can be diminished by reliance on AI rather than human creativity. This does not mean that we should forego AI in these cases. Particularly in the scientific case, the value of AI's contribution is undeniable. But it does mean that we should take care to preserve a role for human creativity in the arts and sciences so that the important social connection creativity has long fostered in these domains is not lost in the age of AI.[15]

I woke up one morning thinking about how much my dog Frisbee resembles a cloud. He is large, white, and fluffy. When he is sleeping, his placid demeanor together with the hint of a smile that is always on his face evokes in my mind the same cheerful serenity I associate with a cumulus cloud in a bright blue sky. I wanted to realize this association visually. I have, in the past, enjoyed drawing when ideas like this arose. But nowadays, I have access to image-generating AI models.

I took to Dall-E 2 and typed out the prompt: "a sleeping Samoyed that is also a fluffy cloud in a blue sky in the style of impressionist art." Dall-E returned the following four images (see figure 1) within a few seconds:

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[14] See Brainard (2020) for an account according to which a successful how-possibly explanation succeeds by relieving an imaginative frustration on the part of its recipient.

[15] An anonymous reviewer has noted the possibility that future AI may supply other means of achieving equally valuable forms of human connection (without the need for human creativity). If this happens, it would challenge the contention that descriptive creative obsolescence would be a bad thing. At present, I am unaware of any reason to think this is likely.

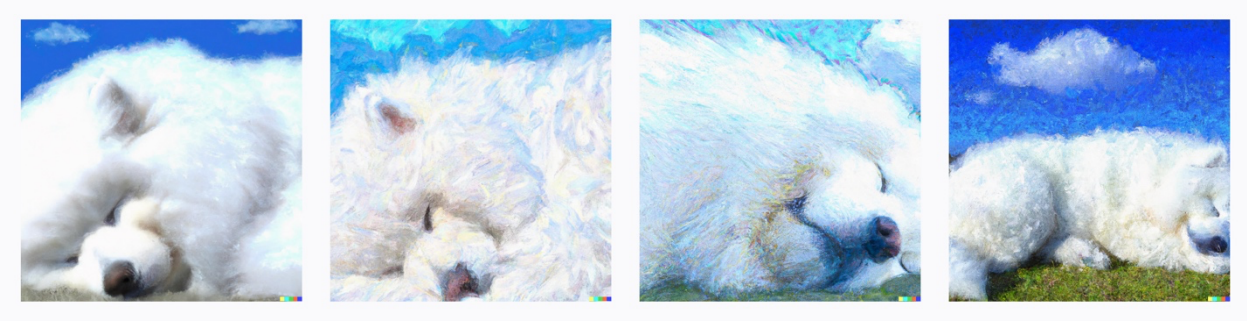

Figure 1: Four close-up images of a fluffy white Samoyed dog lying on the ground with a blue sky in the background. The images are all in the style of impressionist art.

I liked the first image, so I saved it, shared it with friends, and made it the desktop background on my computer. Has anything gone wrong here? I had an idea, used AI to generate an image of that idea, and enjoyed the pleasant experience of appreciating an image I found to be aesthetically valuable. It was a seamless and positive experience. None of this seems obviously problematic.

Was this a case of creativity? As I mentioned out the outset, relying on artificial intelligence does not entirely preclude human creativity. The prompt I devised was ever-so-slightly creative, though not especially so. Likening a Samoyed to a cloud is hardly a novel idea, and choosing impressionism as a style to depict clouds is likewise quite banal. But I did think of it on my own, and it was motivated by my curiosity about how Frisbee's cloud-likeness could be conveyed in an image. It meets the conditions of my account of creativity to a very minimal degree, so it counts as minimally creative.

Certainly, the image Dall-E generated does not disclose nearly as much about me as an image I drew myself would have. This image discloses that I appreciate sleeping Samoyeds aesthetically and that I imagine them like clouds. But that is not especially illuminating. If I had instead expended artistic effort to capture my idea, you would know how fluffy Samoyeds are in my whimsical imaginings of them (there is, after all, quite a range of Samoyed fluffiness). I would have made the curvature of the mouth more pronounced so that the dog appeared more obviously to be smiling, drawing attention to a feature I wished to explore aesthetically. Ultimately, a viewer of this image ends up with very little insight into how I see Samoyeds and what interests me about them.

A viewer might even be misled by the elements that do not accord with my intentions for the image. For instance, I prompted Dall-E to put the Samoyed-cloud in the sky. But in all four images, the Samoyed-cloud appears on the ground. No doubt, this is because of the model's training data. The internet is full of photos of Samoyeds lying on the ground. It is not full of images of Samoyeds floating in the sky. But the fact that the image was not exactly what I wanted did not stop me from accepting it and letting it end my aesthetic exploration. I decided that it was good enough, even though it did not accord

closely with my motivating idea. Thus, the resulting image I shared with my friends was not especially self-disclosive. It bore only a loose resemblance to the idea that inspired me to generate it.

I take this anecdote to illustrate a kind of lazy reliance on artificial intelligence that I suspect many of us are (or will become) prone to. Where we might have otherwise put forth a significant degree of creative effort, we are tempted by instant gratification. In typical use cases such as this one, the input-output structure of an image-generating AI model means that that the amount of self-disclosure that occurs when a user prompts the model is bound to be curtailed by all the facets of the process that the user has nothing to do with (like what images happen to be in the model's training data). The user discloses little about themselves, and the potential for connection is thereby diminished.

Of course, not everyone who utilizes image-generating models does so in this simple way. Artists who employ AI often repeatedly prompt these models, tweaking, refining, curating, and incorporating additional training data as they work. As one instance, artist Charlie Engman reports working through up to three-hundred images a day with Midjourney (Wiley, 2023). For artists who exercise considerable creativity in prompting these models, the resulting images are likely to be much more self-disclosive than my Samoyed image.[16] Though the creativity of such artists may not be diminished by the availability of AI, the rest of us face a strong temptation to engage with this technology in the low-effort way my anecdote illustrates.

The idea that one can inhibit social connection by choosing ways of living that impede self-disclosure appears in Ralph Waldo Emerson's essay *Self-Reliance*. Emerson was worried about a very different threat to self-disclosure – thoughtless conformity to religious creeds and other social norms of the day.[17] But his diagnosis of what is going wrong in such cases bears a striking similarity to my diagnosis of what is going wrong in these cases of overreliance on AI:

> The objection to conforming to usages that have become dead to you is that it scatters your force. It loses your time and blurs the impression of your character… under all these screens I have difficulty to detect the precise man you are: and of course so much force is withdrawn from your proper life. But do your work, and I shall know you. (1983, p. 263).

Emerson paints a vivid and incisive picture. When I outsource my creative work to Dall-E, I am blurring the impression of my character. I am erecting a screen through which others will have difficulty detecting my aesthetic tastes and other aspects of my personality. Because I have not done much of the work myself, I have not generated a

[16] I am grateful to an anonymous reviewer for this point.
[17] For a thorough philosophical examination of Emerson's opposition to creeds, see Davis (2018).

product that enables others to know me, at least not well. Ryan Davis (forthcoming) helpfully explains the idea:

> When your choices are determined by something other than the exercise of your own capacities, they don't reveal anything about you. Emerson thought you could interact with someone a lot and yet remain a stranger to them, all because your interactions didn't really say anything about you *in particular*. (Forthcoming, p. 121-122)

If Emerson is right, becoming less creative in the age of AI increases our risk of remaining strangers to each other. The more we foreclose avenues for being seen by others, including pursuing creative projects, the more we subject ourselves to alienation and loneliness.

Is there a related sense in which reliance on AI rather than human creativity in the sciences might also result in less social connection? I will briefly suggest one reason to think there is, though it is less straightforward than in the case of artistic creativity. Consider one of the most prominent success stories in AI-driven science: AlphaFold. AlphaFold is a deep learning model developed by Google DeepMind that has had unprecedented predictive success regarding the protein structures that sequences of amino acids will adopt when they fold.[18] Some scientists claim AlphaFold has solved the protein folding problem – the longstanding puzzle of how amino acid sequences determine folding structure.[19] In its tremendous predictive success, AlphaFold has produced something that human creative theorizing alone has not yet managed to achieve. This appears to be a valuable scientific breakthrough, one researchers are celebrating for its great practical promise, particularly concerning drug discovery.[20]

The potential threat to human connection does not come directly from AlphaFold's success, but rather from how that success may influence further scientific work. This success has been accompanied by many triumphant pronouncements that the protein folding problem has been solved.[21] But as biologists have long acknowledged, the predictive task is only part of the protein folding problem.[22] A remaining part of the puzzle that AlphaFold has not solved is the explanatory task: the task of enabling scientists to understand *why* particular amino acid sequences fold as they do. Chemist Derek Lowe (2024) writes: "…If the protein folding problem was a task set for the human race by God to make us understand physics better, then we cheated our way to the answers instead." I take Lowe's remarks to reflect the idea that though AlphaFold produces useful results in the form of reliable predictions, it has not enabled the scientific community to understand the underlying mechanisms responsible for protein folding.

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[18] See Abramson et al (2024) or an overview of AlphaFold's success.
[19] See Anfinsen (1973) for an influential early presentation of the problem.
[20] Henshall (2024).
[21] See Lewis (2022) as one example.
[22] Dill et al (2008).

Philosophers of science have argued that genuine scientific explanations must provide answers to contrastive why-questions of the form "why did *this* happen rather than *that*?".[23] Famously, the functioning of deep-learning models like AlphaFold is opaque in a way that prevents these models from furnishing such answers.[24] Due to the black-box nature of deep learning models, AlphaFold cannot offer us insight into why it generates the predictions it does (rather than some other predictions). Unlike a human scientist who makes predictions on the basis of a theory about why a system functions as it does, AlphaFold cannot explain why it predicts that a particular protein folds in *this* shape rather than *that* shape. It helps us form expectations, but it does not help us understand why proteins fold as they do.

What *does* help scientists understand the systems they investigate? Historically, it has been creative theorizing, combined with work by the scientific community to confirm or disconfirm those theories. Scientists develop theories that are comprehensible to other scientists, and as Hempel argued, doing so requires creativity (1966). By marshalling their creativity in this way, scientists make it possible for other scientists to pick up the thread, to seek confirmation of their theories, and to suggest modifications. This sort of connection is vital for the pursuit of scientific explanations. And it is only made possible by the creativity involved in the development of scientific theories.

Creative theorizing thus enables the sharing of ideas among scientists. And this exchange of ideas is needed in order for the scientific community to explain why events in the natural world – such as the folding of proteins – transpire as they do. But scientists cannot have this sort of exchange with AlphaFold. A human mind cannot perform the computations AlphaFold performs, so we cannot connect to it in the way we connect to other humans. We cannot grasp what is going on with AlphaFold in the same way we can grasp the ideas of human scientists. We cannot get on AlphaFold's wavelength. We cannot pick up what AlphaFold is putting down, so to speak.

Philosophers of science typically conceive of scientific progress as involving not only advances in predictive power, but also advances in theory.[25] Finnur Dellsén (2016), for instance, argues that scientific progress consists in increasing understanding. If this is right, then those who claim that the protein folding problem has been fully solved by AlphaFold – even though the model has not afforded the scientific community greater understanding of why proteins fold as they do – may be making a critical mistake. They are deeming a scientific inquiry complete when it has only achieved one of the dual aims of science. This mistake is indicative of a worrying tendency: the tendency to conceive of what generative AI can do as fully replacing the important role played by human creativity

[23] See for instance Lewis (1986).
[24] For a philosophical discussion of AI's explainability problem, see Fleisher (2022).
[25] For an overview of account with this in this vein, see Dellsén (2018).

in science. This tendency poses a threat to scientific creativity and consequently to the human connection via shared understanding of the natural world that creative scientific theorizing facilitates. The scientific community should be wary of adopting a conception of scientific progress that leaves out the importance of advancing this shared human understanding.

4. Conclusion

I have argued that letting ourselves become less creative in the age of AI poses a threat to our ability to connect with each other. The self-disclosure that occurs when we are creative makes it possible for others to understand us. This is essential for both our interpersonal relationships and a broader sense of human connection that includes the resonance of others' art and the apprehension of others' ideas. Because the temptation to outsource our creative work to AI is strong and growing stronger, it is imperative that we attend to the social value of creativity. Otherwise, we are in danger of developing a relationship with AI that leaves us much less connected to each other.

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