Creating, creativity and AI

Current machine learning models are advertised to create complex, lifelike or painterly images from diverse inputs, such as text, sketches or photos. These models can be seen as a continuation to the recent years' developments within artificial intelligence, but in this article, I aim to broaden the discussion around machine learning, art, aesthetics and ethics.
How do these algorithms change the way we create and think of images? How, then, does it change our aesthetics?
Furthermore, as many of these models require substantial amounts of resources, I am interested in how this cost, both ecological and economic, affect our comprehension and use of these technologies.
The chapter builds on digital feminism and feminist phenomenology and words towards deepening the discussion around artificial intelligence, creativity and arts.

Introduction

Lately, there has been lots of discussion around machine learning algorithms that first started mimicking famous painters or producing photoreal images and have now transformed into a burgeoning industry of apps that can change the look of an image (from a tourist photograph to a Van Gogh-like painting of sci-fi-warrior princess), or create images based on text prompts with a large variety of styles and options.
The popularisation of these apps follows from recent decades' success in Artificial Intelligence (AI) research, primarily focused on various complicated machine and deep learning models. Many of these models have performed public stunts and feats such as winning the world's best players in Go (BBC, 2017)(footnote- new article where human beat again in go, because of machine learning), a board game that up to recent years was dominated by human players, selling artwork at a high price at auction and winning art competitions(Christie's, 2018; Roose, 2022), Moreover, machine learning has made breakthroughs in various

fields in science (Marsland, 2014; Hinzman, 2019) and has been hyped to be the new oil, or the new electricity (Lynch, 2017; Slotte Dufva & Dufva, 2020).

Even with these breakthroughs and accomplishments, AI is not without problems. Instead, the AI models present us with a multitude of challenges. Starting from racist and chauvinist biases (Devlin, 2017; Dieterring, 2019; McQuillan, 2019) and questions on the extensive use of natural resources (Hao, 2019; Crawford, 2021). Moreover, comprehension of what AI is is often ambiguous and filled with hopes and fears (Cave & Dihal, 2019; Dufva & Mertala, 2021), often leading to unrealistic and often dystopian visions of AI futures.

This chapter's focus is not on such fantastical sides of AI. Nor does it focus on the hypothetical AGI (Artificial General Intelligence), a human-like intelligence with superhero qualities. Although the fantasy side of AI and AGI are discerned briefly, as they do affect our thinking of the current structures and future possibilities. Be that as it may, this chapter centres around the current crop of machine-learning models that can produce images and mimic different artists and styles. At the moment, there are a few such models, like Midjourney, Stable Diffusion and Dall-E2, and more that will surely come. However, this chapter does not try to open the exact technological details behind these models but instead discusses the meaning of these AI models from cultural, political and ecologic viewpoints.

Furthermore, this chapter focuses only on the easy-to-use and readily available models, apps, and services that turn text prompts into images. The main focus is on what creating with such models is and what it means to culture, creativity and possible futures. It should be noted that artists have used AI for a long time, and there are tools that afford the artists more control and involvement in the process, and because of that, there is a rich culture of AI art. Therefore, this chapter does not comment on artists' work on AI or what AI means to art. (To read more on AI art, see, for instance: (Slotte Dufva, 2023; Manovich, 2018; Manovich, 2019; Zylinska, 2020).

As a prompt engineer seems to be the next hot job in AI (Woodie, 2023), this chapter asks whether the easy-to-use AI generators will transform visual culture. Moreover, in which ways might their popularisation

affect our lived, experienced world? In many ways, the easy and cheap AI generators seem to be yet another trendy cool filter to play with. However, many hidden costs and challenges are associated with them. Questions of copyright and privacy, for instance, are currently highly relevant (Edwards, 2022 ; Ouchchy et al., 2020), as are questions of data, for instance, how it is collected, analysed and categorised(Kaplan & Haenlein, 2019; Baio, 2022 ; Knight, 2017; Devlin, 2017).

Furthermore, as mentioned earlier, the machine learning algorithms are not sentient; there is no AGI. Therefore, AI does not see images similar to humans; indeed, it does not see images at all or understand the images in the same manner. For AI, the vast collection of images is just a mathematic question of calculation probabilities within the given data. An image is not an image but a collection of binary data. Therefore, questions of who is collecting, categorising and giving labels and meanings to the images and in which way become quite significant.

Moreover, there are questions of the neutrality within machine learning, as it is often portrayed as a neutral, objective, universal thing, but can it really be it? Naturally, there are also questions about the use of energy and resources when training AI. What is the material cost of machine created image? Furthermore, in which way is it made visible and comprehended?

In this article, I look at and discuss these issues within the framework of digital feminism and feminist phenomenology. The idea behind this is that such theoretical background hopefully twists the technological discourse into another position; I am not interested in the correct minute details of machine algorithms or digital networks; for me more exciting and crucial is to think about how these technologies may change our opinions, culture, or society. As an artist and researcher, feminist phenomenology allows for a process based on experiencing these machine learning algorithms, both in artistic processes and as embodied being in the middle of it all. Moreover, feminist phenomenology allows and requires the positioning of the embodied" I" into this digital and physical, post-digital entanglement. That said, it is crucial to mention that I cannot but look at the landscape of AI from the position of a white male researcher within a nordic university. I hope that conscious

acknowledgement of my position hopefully allows for a critical introspection of that position.

Digital Feminism

"One of the annoyances of constant declarations of the all new, of technologically given revolution, is the rise of a kind of jadedness towards the future (that's the sensibility of the post-digital if you want to give it a name), an incredulity towards the meta-narrative of technological alteration that comes at the same time as this narrative is established, normalized, has even become a genre." (Bassett et al., 2019. p.53)

Basset, Kember and O'Riordan argue in their polemic book Furious (2019) that the whole construct of digital technology, from the technological to the cultural level, is riddled with one-sided, overly masculine, heteronormative, white, western worldviews and discourse. They call for a feminist re-evaluation of the digital assemblage to enable more democratic, sustainable relationships and futures towards digital technologies.

In recent decades, feminist researchers have underlined various challenges in digital technologies and offered alternative ways of thinking and dealing with digital technologies, from feminist new materialist repositioning of agency in digital and dislocating the (hu)man from the center to posthumanist feminists who, for instance, consider the terms in which we become with, care and embody technology; how we live and think with the plethora of actants and materials involved in the digital.

There are naturally different ways to approach the digital/post-digital[1] world. For instance, Nancy Katherine Hayles uses the concept of digital assemblage (2017) where, whereas Donna Haraway discusses similar themes with the concept of critters (2016). Both Hayles and Haraway emphasise how living with digital technologies is not just a question of that technology or its implementation. Rather digital technology is involved in a more extensive dynamic and evolving system, where machines, or humans, are just one part of the system.

In thinking AI, or more specifically, machine learning algorithms, re-thinking, re-evaluating and repositioning them are critical tools that accommodate the discussion -and thoughts to flow into alternative lines of thought. In this article, at least, the point is to become aware of the meta-narratives within digital technologies and AI in particular, and the normative nature of these technologies. It is, paraphrasing Haraway, important to think how the thoughts along AI are formed, as is to think how the thoughts forming thoughts along AI are formed. Or as Haraway herself formed this more eloquently,*"It matters what thoughts think thoughts. It matters what knowledges know knowledges. It matters what relations relate relations. It matters what worlds world worlds. "* (2016, p.35).

As Basset, Kember, and O'Riordan discuss (2019), the digital is often set into a futuristic hopeful narrative, where digital is discovered, not too much alike Plato's theory of timeless, absolute, unchangeable ideas (Plato:Republic); digital, and digital futures are thus often seen in objective and deterministic, something that is coming instead of being intentionally made. AI, being a set of digital technologies, lies naturally within this framing of digital, and many studies have highlighted how discussions of AI are often set into questionable narratives (see, for instance: (Cave et al., 2019; Cave et al., 2019; Chuan et al., 2019; Johnson & Verdicchio, 2017; Ouchchy et al., 2020; Dufva & Mertala, 2021)). The outcome of all this is that even though there is a much discussion of the ramifications, legalities and socio-economic and cultural changes brought by AI, there is not much discussion where the whole positioning of AI would be questioned or discussed; the what worlds world worlds bit. Therefore, this chapter tries to map the worlding world of AI in order to gain a longer-term perspective of AI and its use in culture.

Feminist Phenomenology

"Instead, our claim is that we need robust accounts of embodied subjects that are interrelated within the world or worlds they inhabit, which is not to revive the vestiges of a humanism that puts humans at the center. Rather, we are reformulating the common understanding of

the decentered subject as multiple rather than singular." (Fielding et al., 2017)

Whereas concentrating on the intricate manifold (cultural, political, economic, societal) connections between AI algorithms, human and non-human actants, and hardware running AI, the material costs of it all are undeniably significant; this article wants to include embodied phenomenological experience into that framework; How AI feels, how using AI feels, what kind of embodied knowledge does AI manufacture. Plain simply, using AI to create an image or just looking at an AI-generated image is an experience: it feels like something. For many artists working with AI, the experience may be complex and extensive. In such processes, the embodied experiential knowledge gathered by the artists him/herself may be essential in the artmaking process and evolution of the artwork (Slotte Dufva, 2023). However, it may be debated whether writing a prompt and waiting for the machine to generate images can involve similar experience and knowledge. Nonetheless, this chapter asserts that even though the experience probably is not the same as artists spending many hours with their craft, prompt writing and AI image generation is a lived, sensed, embodied experience, accumulating something into our world.

Merleau-Ponty calls the embodied sensibility as flesh and points out how the thought not only emerges from the abstract mind but from a situated overlapping of embodied praxis, ideas and the world (2012). In other words, when thinking of what creating with AI is, there is a need for interrelational, embodied sensibility and inhabiting the boundaries between one's inner world of thinking and feeling and the outer experiential world.

Employing phenomenology in such a complex digital assemblage as AI might feel inadequate as the complexity of the cultural and socio-economic structures and power struggles within AI might be lost. Moreover, phenomenology has for a long time been critiqued how it has failed to account for the multiplicity in the ways a subject can be embodied and the multiplicity of the subject: Phenomenology sees the subject from a seemingly neutral universalist point of view, which often translates into heteronormative, white, western, male perspective.

Feminist phenomenology aims to tackle the inherent challenges of such universalism and the exclusion of complex socio-economic and cultural structures without discounting the significance of embodied knowledge and experience:

”we are reformulating the decentered subject as a point of view that moves away from the internal perspective of a singular subject in order to resituate it on the boundary between the inner realm of thought and feeling and the experiential and exterior world of political, social, and ethical forces and acts.”

(Fielding et al., 2017).

Naturally, ways to implement feminist phenomenology are varied, as the areas feminist phenomenology ties into are broad, to say the least. To some extent, feminist phenomenology leans into posthuman and feminist new materialist thinkers, for example, in broadening the subject into the transformative Other, seeing the dynamic balances between internal logic and outside forces, extending interrelationality to non-humans and recognising the vital agency of matter. Moreover, feminist phenomenology wants to extend the new materialist thinking by considering the world within the matter as a vital point of view to comprehend the living phenomenal being better. As such, feminist phenomenology expands Merleau-Ponty’s concept of flesh (2012) into more-than-human flesh and asserts that ”the phenomenal subject “is not a mosaic of just any visual and tactual sensations” because there must be someone there to make sense of them, someone to gather the varied points of view” (p.xv).

Thus, central to feminist phenomenology is that it aims to rethink the human subject(s), to displace them from the center, to not only think in terms of plurality and interrelationality but also from the aspects of embodied understanding as both inner realms of thinking and feeling and the exterior world of socio-economic, political, cultural and ethical. As such, feminist phenomenology offers an exciting and intriguing theoretical framework to think about AI and its possible futures.

Defining Artificial Intelligence

Man-made intelligences have fascinated us for a long time. For instance, greek mythology had Talos, a bronze giant that guarded Crete, medieval alchemist Paracelsus claimed to have manufactured an artificial man, and in the 1900th century, we have Mary Shelley's Frankenstein. However, the concept of AI, as we comprehend it now, appeared first around the 1950s, almost along with the birth of the digital computer (Kaplan & Haenlein, 2019). As AI found its way more and more into the mainstream, the definitions of AI and the whole concept of AI became increasingly convoluted. As mentioned in the introduction, this chapter focuses on the current developments of machine learning algorithms and the future they might bring along. This means that most questions of AGI are outside the scope, as is the diverse set of fantasies and dystopias attached to AGIs or other formations of "super-AI's". However, I feel it is crucial to map out some perspective to AI, as AI has not just miraculously appeared; Instead, it has always intrigued humans, and in the last 70 years, it has been intentionally developed into defined directions. Moreover, as many studies have shown, it seems to be impossible to separate fantasies around AI from what AI really is (Dufva & Mertala, 2021; Cave et al., 2019; OpenAI, 2023; Williamson & Eynon, 2020). Beyond AI fantasies, there is a tendency to contrast the intelligence of AI to that of human intelligence, and much effort is put into developing AI that can trick people into thinking of AI as a conscious entity (Bridle, 2022; Hayles, 2017; Fjelland, 2020).

A considerable portion of AI processes are hidden; we perceive only the user interfaces, ever-listening smart assistants or just the outcomes of the AI processes: images, music, and text. Similarly to other digital technologies, AI portrays a sense of magic, of something complex and almost unbelievable happening in a matter of seconds right before our eyes. As such, it is a model example of science fiction writer Arthur C. Clarke's third law:" Any sufficiently advanced technology is indistinguishable from magic." (1962). This dazzling magic show nature of AI is nothing new; instead, fooling people has been one of the main goals of AI for decades (Weizenbaum, 1966).

Moreover, on the technological level, many of the training processes and outcomes of current AI models are black boxes, unclear even to the

programmers and researchers of those models (Ajunwa, 2020). Because of this, AI models can break and malfunction in surprising ways, which in turn makes relying on these models questionable (Xiang, 2023). The black-box nature of AI results in a doubly hidden or abstracted AI, where the inner workings of AI are unknown and otherwise hidden behind simplified UI; no wonder it may seem like magic.
That said, this chapter's primary comprehension of AI is the current models and products that operate within the framework of narrow artificial intelligence, meaning algorithms that are capable in some area, but cannot expand that capability to other fields, i.e. they are not "aware" or "conscious", instead they are sophisticated sets of thousands of lines of code and a mountain(s) of data (Fjelland, 2020; Kaplan & Haenlein, 2019). More importantly, this chapter wants to think of AI as a landscape or atmosphere that surrounds us and affects our thinking. How does AI affect or participate in worlding (Anderson & Harrison, 2010; Haraway, 2016) in performing, or setting up the world," the context or background against which particular things show up and take on significance: a mobile but a more or less stable ensemble of practices, involvements, relations, capacities, tendencies and affordances." (Anderson & Harrison, 2010, p. 8). As such, this chapter is not interested in the different variants of machine learning algorithms or the technological underpinnings, but rather how AI is intertwined with other things: beings, cultures, ideologies, politics and how these things are experienced and sensed. How, then, does that experience and the mesh of things participate in our future thought processes of creating, creativity and AI?

The desert of the real

"If once we were able to view the Borges fable in which the cartographers of the Empire draw up a map so detailed that it ends up covering the territory exactly [...] this fable has now come full circle for us, and possesses nothing but the discrete charm of second-order simulacrum [...] It is the real, and not the map, whose vestiges persist here and there in the deserts that are no longer those of the Empire, but ours. The desert of the real itself." (Baudrillard, 1994)

Current AI models can create quite compelling images based on a text prompt. The models can also be used in other ways, using their own image as a prompt and iterating the generated images, for instance. However, the text prompt is currently the most accessible for users as several apps and websites are dedicated to prompt-based AI generation. Furthermore, prompt engineering has now trended as a hot new profession or skill (Bradshaw, 2022; Eliacik, 2023). The above is an image created by the author in Stable Diffusion (with a current version on 21.11.2022) with a prompt:" A Maltipoo by Caspar David Friedrich". Stable Diffusion is one of the many AI models which one can use to generate images, usually from a text prompt. Stable Diffusion's current training set consists of billion images[2], an English subset of the much-used LAION-5b database. (Beaumont, 2022).

LAION is a german non-profit organisation that focuses on making large-scale datasets available to the public. The images are gathered by crawling the available images and their metatexts from the internet. As such, LAION has gathered images from virtual museums and national databases and from individual artists' websites and hobbyist art forums and platforms. However, not all the images are included, as the organisation says disturbing images are filtered out.1 Images in the LAION 5b database are paired with texts found in the images' metadata and parsed together by a trained model (Alford, 2022). The whole process is a vast automated process of many trained models working together with terabytes of images and data.

The end result of Stable Diffusion (and many other similar products, as most of them use the LAION 5b-dataset) is that they can easily mimic the western art canon; it" understands" different styles, artistic movements and individual artists. In some cases, the mimicking has already gone too near the artists' actual work, resulting both in court cases and artists losing their contract work (Chen, 2023; Dafoe, 2023; Sharp, 2022)

Looking at the picture of the Maltipoo-dog, one can easily depict traces of Caspar David Friedrich's most famous painting," Der Wanderer über dem Nebelmeer" from 1818, the romantic era masterpiece of a man looking at a mountainous view, back to a viewer, wearing what to a

modern viewer looks like an evening dress. However, one of the issues with these models is that, as good as they are in their job to know artists' work and styles, they do not really know any of it. There is no history, as these are mathematical models based on pixel probability and text-parsing (A very sophisticated set of such). This means that the algorithms do not really look at the images but rather a filtered and often fragmented set of the images and text that is then processed further. The probability thus does not reflect probabilities in the actual data of images and texts, nor has it anything to do with the probabilities in the world around us. Instead, it refers to the probabilities created by the model itself. However, one of the results of the AI models is that the models tend to treat the prompt of" Caspar David Friedrich" as the lonely guy in the mountain wearing a full evening dress and, for instance, prompts involving Vincent Van Gogh as the guy with the swirly starry skies.

In his 1981 book, french philosopher Jean Baudrillard proclaimed that media has become so ubiquitous that it has transformed the perceived world; we do not longer live in the real world but in a hyperreal world where the real is deserted, and all we have is simulacra, copies that depict things that either have no original or that no longer have an original.[3] Baudrillard's idea of the simulacra and hyperreal has been largely debated and critiqued by feminist thinkers accusing, for instance, that the thought of the" real" fails to properly recognise the different realities brought for instance, by gender, race or age (Guignion, 2021; Toffoletti, 2014; Ahmed, 2006). However, Baudrillard's theory of simulacra and hyperreal can work here as a metaphor to comprehend the rather significant positional shift that happens with AI-generated images.

Looking at the white dogs in the example image, or any other AI-generated image, the idea of copies without original resonates in some sense. There is an eery feeling that these images could be placed somewhere in art history's continuum but actually do not belong there at all. Maybe a coincidence or not, the functioning of AI models is often depicted as latent spaces, as a giant map where (mathematically abstracted) images and texts of the datasets are positioned into the map

specified by probability calculations[4] (Andrew, 2022; Dommarumma, 2022).

Similar to criticism directed toward Baudrillard could be addressed to these AI models, as the algorithms manifest a world of universalism and heavy gender, race, age and other biases (Apprich et al., 2018; Devlin, 2017; Gault, 2019; Dieterring, 2019; McQuillan, 2019). However, fixing, solving or dealing with these issues is entirely different from arguing or developing a human-made theory. For instance, after the AI model is trained, it is sort of locked in, and it continues producing whatever it has produced. As said earlier, we are dealing with narrow AI, which means there is no awareness in the AI, nor is there a way to communicate with it. Maybe it is better to think of these image models more as a hammer than intelligence; There is no use in talking to a hammer in order to change it. It is a tool, not a companion (or not a very talkative companion). The only way to change the AI model is by altering the training algorithms (and/or datasets) and training again. Furthermore, even fixing the apparent biases in the datasets has proven to be more challenging than first thought, as noted by Kate Crawford (Crawford, 2021). Maybe as such, canonised western art history-related(?), inspired(?), calculated images become ubiquitous, and we create a new level of the hyperreal, a sort of hyperhyperreal?

However, these AI models, and the images generated with them, entangle quite a problematic field that crisscross, for instance, between individuals, culture, politics, sustainability and economy. A simple prompt by the user and a mimicked image of Maltipoo in Caspar David Friedrich's iconical landscape get mixed up by complex redoing of the world, where the image is no longer an image. Moreover, as the datasets pair an image with a small set of words, these models overwrite centuries of philosophy that deal with the reality and meaning of language and the challenges of translating the image to text and vice versa (See, for example, works by Plato, Locke, Kierkegaard, Benjamin, Bergson Wittgenstein, Heidegger, Derrida, and so on). Simply put, the image can not be represented by a few words or vice versa. However, philosophical analysis of the text-image pairs is out of reach for this chapter (and the author's expertise).

Location matters

Stable Diffusion has been developed by Machine Vision & Learning research group (formerly CompVIs-research group) at LMU Munich. However, it is publicized under a London/Palo Alto-based company, Stability AI, that, among Stable Diffusion, offers many other AI-based tools, headlining ”AI by the people, for the people”(Stability Ai, 2022; 2023). Furthermore, one of the lead researchers in Stable Diffusion is affiliated with Runway AI, a NY-based company that offers ”Everything you need to make anything you want” (Runway, 2023). The comparable ethos of future promises can be found with the main competitors to Stable Diffusion: OpenAI, a company that owns Dall-E2 and chatGPT, encourages to ”Join us in shaping the future of technology” and Midjourney, a self-funded research lab invites in ”exploring new mediums of thought and expanding the imaginative powers of the human species”. Moreover, kin to Stable Diffusion, both Midjourney and OpenAI has ties with Universities and research groups in Europe and the United States.

Furthermore, almost all of the people portrayed on these companies' websites seem to be men, which, while unfortunate, aligns with the latest tech industry reports stating that only 20% of the AI industry are women(AI, 2022; Tech,). ”*Silicon Valley is male, the vast majority of the leaders of the major platforms are male, and STEM and so forth are more male than ever.”* (2019, p.57) argue Basset, Kember and O’Riordan in their book, criticizing that the debates in digital technologies are dominated by young white men from the global north, suggesting that instead of Anthropocene, maybe we should be worried by Capitalocene or even Manthropocene (2019, p. 82). AI seems to follow a similar trajectory of male-dominated industry centered in the global north and firmly coupled to venture funding and big tech companies. Recently Stability AI raised 101 million dollars of venture capital (Wiggers, 2022), and OpenAI is negotiating a 10 billion funding from Microsoft (Matthews & Kahn, 2023) and publicly stating that it is expecting[2] billion dollar revenue by 2024 (Dastin et al., 2022). Midjourney states that they are self-funded; however, it is run by David

Holz, a co-founder of Leap Motion, one of Forbes ’30 under 30 and one of Fast Company’s most creative people (Forbes, 2014).

The ethos these companies promote closely resembles what Richard Barbrook and Andy Cameron have named Californian ideology, ”an amusing cocktail” of right-wing neo-liberal politics, the hippie movement and technological determinism (1996). Moreover, the ethos can be linked to what Evgeny Morozov has dubbed as solutionism (2014), meaning optimist and overtly simplified solutions to difficult and complex problems. Furthermore, both Californian ideology and solutionism point out that rising problems and unwanted processes are often offshored to third-world countries or managed in countries that are most beneficial for the companies. The promising future, thus, is a future for the selected few.

The ”male silicon valley” ideology might be difficult to sense from an image of three Maltipoo dogs. However, the weird, almost uncanny resemblance to Caspar David Friedrich’s ” Der Wanderer über dem Nebelmeer” might be at the center of it all. Janelle Shane, who has for years followed the weird behaviours of AI in her blog (Shane, 2023), highlights that even though many of the examples she uses are funny, using and trusting AI models may have drastic consequences in the real world: Automated factories or self-driving cars can not afford a single mistake (Kurenkov, 2021). Hito Steyerl, a german artist and researcher, has dubbed our allowing and trusting nature towards AI as stupid AI, stupid because AI is not intelligent, and we should not be this stupid (Crawford & Steyerl, 2017). Whereas AI-generated images are not driving cars or running factories, they still take part in what could be called performing a particular world. The data used to train the AI, the way it is displayed and promoted to the user interface and examples images, AI-generated images perform a specific set of values and aesthetics. These values and aesthetics are, even in the case of AI, still in some sense derived by the people that create it (and the subculture, culture, society, economy, etc., the people belong to).

While the number of mistakes (three dogs instead of one, weird proportions in the dogs) seems to diminish over each new version of an AI model, the weird and uncanny is with us, shaping how we think

about images and augmenting the art history iteration after iteration. For Marco Dommarumma, a german artist and researcher, the uncanny images are not harmless; instead, he sees them as" soft propaganda" for the global north. Dommarumma argues that these images are, in fact, paving the way for these probability models to sell the ideology of prediction and control (2022). Coincidentally, control and prediction are, maybe not the main points, but occurring themes in Richard Barbrooks and Andy Cameron's Californian ideology (1996).

Matter matters

The initial training of Stable Diffusion required 256 units of Nvidia A100-GPUs, speciality-built computers for processing AI algorithms. Each unit currently costs around 15 000$. Moreover, the training took over 150 000 hours of computer time, rented from tech giant Amazon's cloud costing around 600 000$. Thus even though Stable Diffusion is an open source and available to all, creating models with Stable Diffusion is problematic as the hardware, and capital requirements are so high.

" The mining that makes AI is both literal and metaphorical." (p.31), writes Kate Crawford in her book Atlas of AI (2021). She means that similar to the algorithms that mine data, often in questionable circumstances, AI requires physical mines too, which too often operate in indisputably terrible circumstances. As such, the AI image generators are not only entangled and act within culture, politics and economy but also in the exploitation of the planet's material and energy resources. On top of that, it often is entangled with corrupted corporations, states, war, criminality and unfair treatment of workers.

According to Crawford, a massive assemblage of exploitation of human labour, natural resources and concentrations of corporate and geopolitical power is needed to provide the user with the simple interface of AI (2021, p.32). Moreover, the need for resources is growing faster and faster all the time, while at the same time, the lifecycle of AI products is only shortening, and the mounting of e-waste creates even more enormous junk piles dumped in third-world

countries. Crawford notes that it is vital to comprehend that AI is all this, not only fancy websites and uncanny images.

Whereas the costs of composing a short prompt with a smartphone app might not be much, it nevertheless participates and necessitates the use of the massive exploitative assemblage of AI. However, the assemblage of AI is so fragmented, distributed and hidden that playing with AI prompts and generators while, for example, waiting for a bus or standing in a supermarket queue, that grasping the total cost of AI is challenging, if not impossible.

For many 20th-century phenomenologists, like Martin Heidegger and later Maurice Merleau-Ponty, doing something was the essential way of existing in the world (Heidegger & Hermann, 1967; Merleau-Ponty, 2012). We create, strengthen and construct meaning to our life and world through doing. Building on their phenomenology, Finnish craft researcher Seija Kojonkoski-Rännäli divides the doing into basic intention, the direct contact we have with the material and physical world, and instrumental intention, where we build something with the help of machines (1996). For Kojonkoski-Rännäli, instrumental intention breaks our contact with the world, separating us from the world around (and within) us, whereas basic intention strengthens our belonging to the world and thus increases our ethical and aesthetic attachment to the world around us. Thus, doing is not only a creation of an artefact or world but a fundamental way of living and finding meaning.

In my earlier work, I have argued that by connecting to the digital assemblage through coding (the basic building block of software), we might be able to create basic intention, a sort of comprehension or belonging to the digital around us (Dufva, 2017). Later, together with researcher Mikko Dufva, I suggested that creative digital making affords us a certain sense of the digital assemblage, that even though one does not understand the whole assemblage or all the technical intricacies of digital technology, one can create a feeling, a sense of it (2019). We called this as digi-grasping, loaning from Merleau-Ponty's concept of grasping: comprehending something before rationally knowing it.

However, with the introduction of the current AI models and easy prompt-style interfaces, such grasping becomes far more challenging[5]. It might be that if AI-image generation becomes a commonplace method of generating images, we are at risk of losing a certain kind of comprehension and belonging to the world. Image as a direct representation of something genuine, evidence of something or symbol of something is, of course, a naïve idea, but AI models participate in accelerating such a loss of meaning in images. Images, styles, and situations in the images they depict may become even more fragmented, synthetic manifestations produced and consumed in seconds. Perhaps in saving time from the creation of an image, we lose the thought and embodied processes of making something. Moreover, with text-to-image prompts, we might simplify our imaginations to a set of prompts and surrender it to an algorithmic valuation of fragmented bits and optimized probability fractals of collective images and texts in the internet.

Media theorist Jussi Parikka suggests that instead of thinking of media as a part of human sense, or flesh in Merleau-Ponty's terms, we should consider them as extensions of the earth (2015). As such, AI processes partake in transforming earth's resources into infrastructures and devices while consuming gas and oil reserves into the energy they need. Crawford sums up:*" Artificial intelligence, then, is an idea, an infrastructure, an industry, a form of exercising power, and a way of seeing; it's also a manifestation of highly organized capital backed by vast systems of extraction and logistics, with supply chains that wrap round the entire planet. All these things are part of what artificial intelligence is." (2021, p.18-19).*

Going forward, a challenging question is how to change these processes so that they would be much less harmful to the earth and benefit all instead of a selected few in the global north. Another dimension to creating with AI and other complex distributed digital processes is how and what kind of connection we create through making with them.

To conclude

Considering these text-to-image AI models from these positions of the" real", location and matter reveals a disturbing landscape of late capitalism and exploitation. Stability AI, the" AI by the people, for the people" company that is at the same time handling a plethora of court cases for copyright infringements and projecting to gain billion-dollar profits next year, is a troubling sign of more of the same than anything else. Barbrook and Cameron condemn that although it seems to offer radical rhetoric, the Californian ideology is essentially pessimistic about creating real social change and instead offers a rather gloomy and repressive vision of the future (1996). Decades after the publication, many researchers, including Evgeny Morozov (2014), have noted the same.

Basset, Kember and O'Riordan state that digital feminism is impossible without awareness of the planet's ecological limits. Moreover, they question:" how to refuse the apparent escapes offered by the technological; open sky, informational plentitude as light and air, calculations costing the cloud that consistently underplays its material load in favour of the algorithmic benefit." (2019, p.124). Grasping the assemblage of AI thus becomes a crucial skill to drive AI into being genuinely by the people, for the people.

Crawford writes that we should not consider AI models Artificial or Intelligent. For Crawford, there is nothing artificial in AI; instead, the exploitation of people and the earth is very real and has damaged the planet for decades. Neither does Crawford see any intelligence in AI; instead, the algorithms are man-made and inherently and intentionally ideological and political. (2021). Thus, the prompt-generated images could be seen as more as a representation of the cruel exploitation of both earth and the people living in it than mostly harmless renditions of western art history's masterpieces.

Without the knowledge of how the AI models are generated and distributed, prompting an image might seem harmless; however, the making process challenges in other ways. By making image generation fast and effortless, one loses the process; one loses embodying the space-time of the activity of making. Instant birthing of images might denote the meaning of the making. Writing, drawing, and painting are processes that involve and require time; by side-stepping the process

altogether, the danger might be that we get nothing in return. It is more of the same, and more importantly, instead of a fresh way to see the world or be in the world, making may become meaningless. Philosopher Alexander Galloway wrote in his recent blog post that, in his view, the real danger of AI is that it might become so normal that it just drowns out and muddles everything (2023). However, to end on an optimistic note, it might also be that the AI images become the new stock photos or clip art, a set of awkward images that only faceless corporations use, thus creating a new aesthetic appreciation for hand-made images. And by this, I do not mean some romantic wish to go back into a simpler time (if ever there was one), but rather a new way of seeing and making that may involve digital algorithms but in a painstakingly time-consuming way.

Footnotes

1 There have been some debates about whether we should use digital or post-digital. Here I use both, as I think they essentially focus on the same thing in similar ways. For more, see, for instance: Basset et al. 2019. Slotte Dufva, 2021

2 Recently, it was reported that the openAI, the developer of the currently popular chatGPT, had outsourced the data review process to underpaid workers in Kenya. (https://www.vice.com/en/article/wxn3kw/openai-used-kenyan-workers-making-dollar2-an-hour-to-filter-traumatic-content-from-chatgpt)
LAION-5b datasets have filtered out harmful content by its trained model, which the company says will filter out the most disturbing images.
https://laion.ai/blog/laion-5b/
https://openreview.net/forum?id=M3Y74vmsMcY
3 Baudrillard's theory was also hinted at and present in the movie Matrix (1999), one of the most popular AI-themed dystopias. Furthermore, in 2002, Slavoj Žižek referenced both Baurdillard and Matrix in his book "Welcome to the Desert."

4 In AI models, the term probability does not mean the probability in the real world but the fabricated probability in that dataset and AI model.
5 It should be noted that artists engaging with AI in their terms, own data and modified algorithms probably still pertain to a kind of sense of the assemblage. For instance, see (Slotte Dufva, 2023)Ahmed, S. (2006). Queer Phenomenology: Orientations, Objects, Others. Duke University Press.

References

Ajunwa, I. (2020). The "black box" at work. Big Data & Society, 7(2), 2053951720966181. https://journals.sagepub.com/doi/full/10.1177/2053951720938093

Andrew. (2022). How does Stable Diffusion work? - Stable Diffusion Art. https://stable-diffusion-art.com/how-stable-diffusion-work/

Alford, A. (2022) LAION Releases Five Billion Image-Text Pair Dataset LAION-5B. https://www.infoq.com/news/2022/05/laion-5b-image-text-dataset/

Apprich, C., Hui Kyong Chun, W., Cramer, F., & Steyerl, H. (2018). Pattern Discrimination. University of Minnesota press. https://doi.org/10.14619/1457

Baio, A. (2022) Exploring 12 Million of the 2.3 Billion Images Used to Train Stable Diffusion's Image Generator - Waxy.org. https://waxy.org/2022/08/exploring-12-million-of-the-images-used-to-train-stable-diffusions-image-generator/

Barbrook, R., & Cameron, A. (1996). The Californian ideology. Science as Culture, 6(1), 44-72. https://doi.org/10.1080/09505439609526455

Bassett, C., Kember, S., & O'Riordan, K. (2019). Furious: Technological Feminism and Digital Futures. Pluto Press.

Baudrillard, J. (1994). Simulacra and Simulation (S. F. Glaser, Trans.). University of Michigan Press.

BBC (2017). Google AI defeats human Go champion - BBC News. https://www.bbc.com/news/technology-40042581

Beaumont, R. (2022). LAION-5B: A NEW ERA OF OPEN LARGE-SCALE MULTI-MODAL DATASETS LAION. https://laion.ai/blog/laion-5b/

Bradshaw, T. (2022). Is becoming a 'prompt engineer 'the way to save your job from AI? https://www.ft.com/content/0deda1e7-4fbf-46bc-8eee-c2049d783259

Bridle, J. (2022). Ways of Being. Penguin Books.

Cave, S., Coughlan, K., & Dihal, K. (2019). "Scary Robots". In. New York, NY, USA: ACM. http://dx.doi.org/10.1145/3306618.3314232

Cave, S., & Dihal, K. (2019). Hopes and fears for intelligent machines in fiction and reality. Nature Machine Intelligence, 1(2), 74-78. https://doi.org/10.1038/s42256-019-0020-9

Chen, M. (2023). Artists and Illustrators Are Suing Three A.I. Art Generators for Scraping and 'Collaging 'Their Work Without Consent. https://news.artnet.com/art-world/class-action-lawsuit-ai-generators-deviantart-midjourney-stable-diffusion-2246770

Christie's. (2018). The first piece of AI-generated art to come to auction Christie's. https://www.christies.com/features/A-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx

Chuan, C. H., Tsai, W. H. S., & Cho, S. Y. (2019). Framing artificial intelligence in American newspapers. Proceedings of the 2019 AAAI/ACM …. https://dl.acm.org/doi/abs/10.1145/3306618.3314285

Crawford, K. (2021). Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence. Yale.

Crawford, K., & Steyerl, H. (2017). Data Streams. https://thenewinquiry.com/data-streams/

Dafoe, T. (2023). Getty Images Is Suing the Company Behind Stable Diffusion, Saying the A.I. Generator Illegally Scraped Its Content. https://news.artnet.com/art-world/getty-images-suing-stability-ai-stable-diffusion-illegally-scraped-images-copyright-infringement-2243631

Dastin, J., Hu, K., & Paresh, D. (2022). Exclusive: ChatGPT owner OpenAI projects $1 billion in revenue by 2024 Reuters.

https://www.reuters.com/business/chatgpt-owner-openai-projects-1-billion-revenue-by-2024-sources-2022-12-15/
Devlin, H. (2017). AI programs exhibit racial and gender biases, research reveals. http://www.theguardian.com/technology/2017/apr/13/ai-programs-exhibit-racist-and-sexist-biases-research-reveals
Dieterring, A. (2019). Facial Recognition, Physiognomy, and Racism. https://medium.com/the-sundial-acmrs/facial-recognition-physiognomy-and-racism-ffc3d232a352
Dommarumma, M. (2022). AI Art Is Soft Propaganda for the Global North. https://hyperallergic.com/772848/ai-art-is-soft-propaganda-for-the-global-north/
Dufva, T. (2017). Maker Movement: Creating knowledge through basic intention. Techne Series - Research in Sloyd Education and Craft Science A, 2(24), 129-141.
Dufva, T., & Dufva, M. (2019). Grasping the future of the digital society. Futures, 107, 17-28. https://doi.org/10.1016/j.futures.2018.11.001
Dufva, T. S., & Mertala, P. (2021). Sähköä ja alkemiaa: Tekoälydiskurssit Yleisradion verkkoartikkeleissa. Media & viestintä, 44(1), 95-115. https://journal.fi/mediaviestinta/article/download/107302/62752
Edwards, B. (2022)Artist finds private medical record photos in popular AI training data set Ars Technica. https://arstechnica.com/information-technology/2022/09/artist-finds-private-medical-record-photos-in-popular-ai-training-data-set/
Eliacik, E. (2023). What Is AI Prompt Engineering: Examples, And More (2023). https://dataconomy.com/2023/01/what-is-ai-prompt-engineering-examples-how/
Fielding, H. A., Olkowski, D. E., Lee, K., Friedman, L., McCann, R., Bergoffen, D., Stawarska, B., Simms, E.-M., Tisawiiashii Manning, D., Daigle, C., Weiss, G., Schües, C., Halsema, A., Slatman, J., Fulfer, K., Flakne, A. N., Gardiner, R. A., Lee, E. S., Stoller, S., . . . Olkowski, D. E. (Eds.). (2017). FEMINIST PHENOMENOLOGY FUTURES. Indiana University Press.

Forbes (2014). David Holz. https://www.forbes.com/profile/david-holz/
Fjelland, R. (2020). Why general artificial intelligence will not be realized. Humanities and Social Sciences Communications, 7(1). https://doi.org/10.1057/s41599-020-0494-4
Galloway, A. (2023) Normal Science Alexander R. Galloway. http://cultureandcommunication.org/galloway/normal-science
Gault, M. (2019). Facial Recognition Software Regularly Misgenders Trans People. https://www.vice.com/en_us/article/7xnwed/facial-recognition-software-regularly-misgenders-trans-people
Guignion, D. (2021). Jean Baudrillard and Feminism: Sara Ahmed and the Necessity to "Forget Baudrillard". The Journal of Media Art Study and Theory, 2(1). https://www.mast-journal.org
Hao, K. (2019). Training a single AI model can emit as much carbon as five cars in their lifetimes. https://www.technologyreview.com/s/613630/training-a-single-ai-model-can-emit-as-much-carbon-as-five-cars-in-their-lifetimes/
Haraway, D. (2016). Staying with the Trouble: Making kin in the Chthulucene. Duke University Press.
Hayles, N. K. (2017). Unthought. University of Chicago Press. http://www.bibliovault.org/BV.landing.epl?ISBN=9780226447919
Heidegger, M., & Hermann, F.-W. V. (Eds.). (1967). Vortrage und Aufsatze (7). Vittoio Klostermann.
Hinzman, L. (2019). Zilic: Rare Disease Detection with Machine Learning. https://towardsdatascience.com/zilic-detect-any-disease-with-machine-learning-fdae88664148
Johnson, D. G., & Verdicchio, M. (2017). Reframing AI Discourse. Minds and Machines, 27(4), 575-590. https://doi.org/10.1007/s11023-017-9417-6
Kaplan, A., & Haenlein, M. (2019). Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. Business Horizons, 62(1), 15-25. https://doi.org/10.1016/j.bushor.2018.08.004
Knight, W. (2017). Biased algorithms are everywhere, and no one seems to care. https://www.technologyreview.com/s/608248/biased-algorithms-are-everywhere-and-no-one-seems-to-care/

Kojonkoski-Rännäli, S. (1996). Kojonkoski-Rannali: The Thought in Our Hands: An. - Google Scholar. Clothing and Its Social. https://doi.org/10.1525/si.1991.14.2.165/abstract
Kurenkov, A. (2021). Janelle Shane on the Weirdness of AI – Skynet Today. https://www.skynettoday.com/podcast/ai-weirdness
Lynch, S. (2017). Andrew Ng: Why AI Is the New Electricity. https://www.gsb.stanford.edu/insights/andrew-ng-why-ai-new-electricity
Manovich, L. (2018). AI aesthetics. Strelka Press Moscow.
Manovich, L. (2019). Defining AI arts: Three proposals. AI and dialog of cultures" exhibition catalog. Saint-Petersburg: Hermitage Museum.
Marsland, S. (2014). Machine learning: an algorithmic perspective. Chapman and Hall/CRC. http://dai.fmph.uniba.sk/courses/ICI/References/marsland.machine-learning.2ed.2015.pdf
Matthews, J., & Kahn, J. (2023). Inside the structure of OpenAI's looming new investment from Microsoft and VCs Fortune. https://fortune.com/2023/01/11/structure-openai-investment-microsoft/
McQuillan, D. (2019). Towards an anti-fascist AI. https://www.opendemocracy.net/en/digitaliberties/towards-anti-fascist-ai/?fbclid=IwAR0hbe2rJz3s29SZl3Grn3wOcYyspK-tFWSkbCq7U8nP0w9SuVoVeVYr9eY
Merleau-Ponty, M. (2012). Phenomenology of Perception. Routledge.
Morozov, E. (2014). To Save Everything, Click Here. PublicAffairs.
Ouchchy, L., Coin, A., & Dubljević, V. (2020). AI in the headlines: the portrayal of the ethical issues of artificial intelligence in the media. AI & SOCIETY, 35(4), 927-936. https://doi.org/10.1007/s00146-020-00965-5
OpenAi. (2023). *Planning for AGI and beyond*. https://openai.com/blog/planning-for-agi-and-beyond
Parikka, J. (2015). *A geology of media* (46). University of Minnesota Press.
Roose, K. (2022). AI-Generated Art Won a Prize. Artists Aren't Happy. - The New York Times.

https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html
Runway (2023). Runway - Everything you need to make anything you want. https://runwayml.com/
Shane, J. (2023). AI Weirdness: The Strange Side of Machine Learning. https://www.aiweirdness.comSharp, R. (2022)He's Bigger Than Picasso on AI Platforms, and He Hates It. https://hyperallergic.com/766241/hes-bigger-than-picasso-on-ai-platforms-and-he-hates-it/
Slotte Dufva, T. (2021). Creative Coding as Compost(ing). In: Tavin, K., Kolb, G., Tervo, J. (eds) Post-Digital, Post-Internet Art and Education. Palgrave Studies in Educational Futures. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-73770-2_16
Slotte Dufva, T. (2023). Entanglements in AI Art. In Global Media Arts Education (pp. 181-196). Springer International Publishing. https://doi.org/10.1007/978-3-031-05476-1_11
Slotte Dufva, T., & Dufva, M. (2020). The itching back of a cyborg: Grasping AI systems. Research in Art Education, 1.
Stability AI (2023). Stability AI. https://stability.ai/
Stability AI (2022). Stable Diffusion launch announcement — Stability AI. https://stability.ai/blog/stable-diffusion-announcement
Toffoletti, K. (2014). Baudrillard, Postfeminism, and the Image Makeover. Cultural Politics, 10(1), 105-119. https://doi.org/10.1215/17432197-2397263
Weizenbaum, J. (1966). ELIZA—a computer program for the study of natural language communication between man and machine. Communications of the ACM, 9(1), 36-45. https://doi.org/10.1145/365153.365168
Wiggers, K. (2022). Stability AI, the startup behind Stable Diffusion, raises $101M TechCrunch. https://techcrunch.com/2022/10/17/stability-ai-the-startup-behind-stable-diffusion-raises-101m/
Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. Learning, Media and Technology, 45(3), 223-235. https://doi.org/10.1080/17439884.2020.1798995

AI, W. I. (2022). WAI @ WORK: Shaping the future of work for women in AI. https://www.womeninai.co/_files/ugd/432b09_8138459191634b5a9d194fa289bf2f10.pdf?index=true
Tech, W. I. Women in Technology Why are there so few women in Artificial Intelligence (AI)? - Women in Technology. https://www.womenintech.co.uk/why-are-there-so-few-women-in-artificial-intelligence-ai
Woodie, A. (2023). Prompt Engineer: The Next Hot Job in AI. https://www.datanami.com/2023/02/14/prompt-engineer-the-next-hot-job-in-ai/
Xiang, C. (2023). ChatGPT Can Be Broken by Entering These Strange Words, And Nobody Is Sure Why. https://www.vice.com/en/article/epzyva/ai-chatgpt-tokens-words-break-reddit
Zylinska, J. (2020). AI Art. Open Humanities Press.