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Contents

AI? PREDICTIVE MEDIA. ART.

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ABSTRACT

In this paper, I shall explore the relationship between predictive text2image technology and art. To do this, I shall navigate the discursive landscape that facilitates the consideration of this cultural phenomenon within a rational framework. This is necessary because public discourse is mostly dominated by unrealistic expectations resulting from identifying this technology as "Artificial Intelligence." The theoretical frame is posthumanism, which affords us the necessary intellectual tools to scrutinise the genesis of what Manovich calls "predictive media." Equipped with the appropriate terminology, I will explore the process of the creation of images with a special focus on prompt engineering and curation to showcase the collaborative effort of the artist and the application. Furthermore, I shall refer to the competitions (Sony, Főfotó) wherein this technology plays a consequential role, to traditional art forms that share some crucial features with this technology, and some concerns related to predictive media will be raised. Through this analysis, I argue that contrary to early responses, predictive media applications bear the hallmark of art, and their creators rightfully merit the designation of artists.

#predictive media, #T2I, #prompt engineering, #posthumanism, #visual culture.

INTRODUCTION

In this paper I explore the realm of text-image generation from the perspective of whether the creations may be seen as artworks. Applications such as DALL-E, Midjourney, Stable Diffusion, Nightcafé Studio, and others, made publicly accessible since 2022, serve as crucial reference points in this exploration. I begin by presenting Hungarian reactions to these applications and show that these discourses problematise the relationship between image generation and the more conventional forms of artistic expression, probing into the ethical dimensions. Then I shall cast light on a possible theoretical framework in which this new phenomenon can be described, which will be followed by the presentation of the creative process.

When describing T2I applications, I avoid using terms such as "Artificial Intelligence" to ensure clarity and precision, as this expression can be misleading. The applications under discussion do not rely on genuine intelligence but rather enable predictive generation of pixels. These applications statistically predict the next pixel without understanding the composition of pixels into complex entities like humans, cages, or birds. This avoidance of anthropomorphism aligns with the goal of fostering a discourse suitable for understanding this new phenomenon. Lev Manovich, a proponent of the predictive methodology as a paradigm shift in contemporary text-to-image applications, suggests the term "predictive media" (Manovich 2023, 9) as the most precise descriptor, a phrase with which I agree. In this context I shall argue that it is possible to find room for predictive media, synthetic image generation in the artworld. It is imperative to note, however, that I drafted this paper in November 2023. Given the rapid developments in the field of synthetic image generation during this interim period, this paper strives to capture and elucidate an evolving process..

ARTISTS' REACTIONS

As is customary with new phenomena, the advent of predictive media naturally sparked various associations, including the rhetoric of fear. In the public discourse, akin to the advent of photography, initial concerns arose, questioning its artistic merit and the role of artists in

[1] *All translations of Hungarian sources are mine unless indicated otherwise—Zs. A.*

visual culture. In the next part of the essay, I shall consider reactions of Hungarian artists to the emerging technology.

To begin, let us consider István P. Szathmáry's view that artificial intelligence is killing art:

Of course, the useful idiots of misguided progression can now raise their flags high about what a democratisation it is to be Picasso or Basquiat with a few clicks. But there is one small beauty spot here: without the life stories of the real Picasso, Basquiat and Kim Jung Gi, full of struggles, not to mention tragedies and countless hours of work sacrificed to the pursuit of mastery, the masses who rely on AI would wait in vain for the stolen beauty to be embodied on their screens. (P. Szathmáry 2023)[1]

This article was not published in a tabloid or private blog but in a reputable online newspaper, underscoring its gravity. The publication date, January 2023, approximately three quarters of a year after the public unveiling of predictive media platforms, is crucial. Upon initial perusal, the reader is struck by the evident vehemence pervading this excerpt. While the article maintains a more balanced tone elsewhere, the anger here is undeniable. The author perceives a looming threat to the venerable traditions and exceptional talents of international and Hungarian graphic art and painting. The concern in the rest of the article is that generating illustrations, for instance, for a book, might become a more economical alternative to compensating serious artists. Though this is a legitimate concern, the quotation above is radically different in tone than the rest of the paper.

This indignation is further fuelled by the notion that the democratisation of artistic practice allows the creation of an artistic product devoid an authentic life trajectory. Generative platforms seemingly subvert this necessity, enabling art to manifest without the expected life trajectory, preparation, experience, or knowledge. This paradigm shift raises ethical concerns, suggesting that artists can be supplanted by synthetic technology with a click or two. However, the very construction of artistry implies the implausibility of this theoretical substitution, for algorithms lack the essence of an artist-concept, rendering their products ineligible for the esteemed status of true art.

Moreover, the phrase "stolen beauty" not only implies that non-artistic creations are not artworks but that they are not genuine intellectual products of their supposed creators. They are perceived as stolen from the authentic artistic realm because generative models have learned everything from real, human artists. So, what really happens when a synthetic image is created is really theft.

Leaping forward in time to the July-August 2023 edition of *Digital Photo* magazine, published approximately six months after P. Szathmáry's article, image generation emerges as a prominent topic

of discussion. The editors engage photographers in insightful inter-
views on this subject. The photographers each express their opinions
in a short paragraph, and it becomes evident that outright rejection
is not the prevailing stance. One speaker whose insights I identify
with is Flora Borsi, a highly acclaimed and internationally recognised
photographer with a notable impact in the realm of technological
advancement and digital editing (Szemerey 2021).

Expressing her views on predictive media, Borsi pinpointed a critical
concern: the provenance of the images and the corpus on which AI has
been trained. In her words,

*my biggest problem is the source of the images, and what AI has been trained
on, the images based on that are all stolen, and no one has been asked to
use them, no permission has been sought. Because for me this is an ethical
boundary that I never want to cross, so as exciting as it is, I don't want to
touch it.* (Bánkuti 2023, 3)

Essentially, Borsi echoes P. Szathmáry's discourse of theft, akin to,
albeit from a different vantage point.

In so doing, Borsi shifts the identity of the transgressor from the
individual creator to the application's developers. She alleges they
illegally trained AI, and in the process stole intellectual property.
Through the metaphor of touch, she elucidates her personal stance on
the matter, highlighting the impossibility of embracing this technology
in her creative practice. This perspective offers a captivating glimpse
into the evolving ethical landscape, where the debate has expanded
beyond questioning the essence of art to critiquing the practices of
those who construct such applications. In this light, Borsi's position
underscores a nuanced critique of unethical actions without negating
or mentioning for that matter the essence of art itself.

In the current landscape, exemplified by Péter Szalai's October 2023
article in *Forbes* profiling Hungarian creator Dávid Szauder, a discernible
shift in rhetoric has unfolded. Szauder, lauded as the one "who has
mastered the art of manipulation and has perfectly found the place
of artificial intelligence in conscious creation" (Szalai 2023), highlights
this transformation. Essentially, within the space of less than a year, it
appears that the narrative has shifted in favour of predictive media
assuming its rightful position. However, it should be noted that the
rhetoric of fear still prevails in October 2023.

In approaching the applications crafted for the creation of predictive
media, widely accessible to all, one must adopt a historical lens and
embrace a precise vocabulary intertwined with a comprehensive and
theoretical framework. This endeavour becomes imperative as the
prevalent rhetoric, while often justified and occasionally amplified,
accentuates the inherent tensions defining a discourse entrenched in

the dichotomy of humanity versus technology. It is through grasping the essence of this tension that we unlock the potential for a discourse that transcends the confines of the still prevailing rhetoric of fear.

POSTHUMANIST PREMISES

It is evident that, until this point, the narrative, whether enveloped in fear or acceptance, has located the human being, particularly the artist, at the centre of contemplation. This perspective naturally culminates in a scenario where the position of the human/artist is tenuous and imperilled, weighed down by the escalating influence of technology in the dichotomy of the human/artist versus technology. However, the centrality of the human/artist is not an obligatory assumption, and it is precisely this assumption that the posthumanist approach seeks to problematise.

While acknowledging the truth in Nemes' (2018, 377) assertion that "in the case of posthumanism we cannot speak of a definite and coherent system of thought," it is feasible to discern three overarching and abstract common denominators within this diversity: "post-humanism," "post-anthropocentrism" and "post-dualism" (Ferrando 2020, 77). Drawing from these principles elucidated in Francesca Ferrando's *Posthumanist Philosophy* while problematising anthropocentric theories, posthumanist thought endeavours to place all other entities in their appropriate context by displacing humanity from the centre of attention. The objective of posthumanism, then, is to perceive the human being not as an exceptional, universalisable entity, but to comprehend humans through their interactions and collaborations with other entities, interconnected and interdependent, rather than existing in isolation. The posthumanist perspective provides a lens through which we can perceive the human/artist not merely as an operator of technology, but to comprehend human activity within the intricate web of technology interactions.

In the context of this paper, this implies that cooperation and interaction transcend the mere use of tools. It signifies a process where two entities in harmonious collaboration contribute to the creation of an artistic product. This collaboration entails the construction of a unique visual realm through the intertwining of one's own vision (human/artist) and that of the other (application), leading to the creation of a unique, special, and shared visual language.

PREDICTIVE MEDIA AND ART

This entails an exploration of the interplay between human creators and algorithms, harmoniously labouring to craft a genuine work of art. While investigating this collaborative process, it is worth drawing insights from artistic traditions akin to activities conceived as a symbiosis of human and technology—an examination of how

predictive-generative imaging finds its place within recognised artistic paradigms. Once I have charted the contours of creative collaboration and identified established artistic traditions, we can proceed to consider the matter from the vantage point of the resultant product of artistic endeavour.

CREATIVE COOPERATION

Considering art through the lens of artistic practice underscores the essence of creative collaboration. This collaborative process encompasses the construction of the prompt, the textual command, the nuanced adjustments within the application, the curation of the final images and editing of the images. The prompt initiates the image generation, and its formulation determines the course of the process. The construction of this input, often termed "prompt engineering" in academic discourse, serves not only as the objective of the artistic process but also as an understanding of what the machine can interpret from the text, enabling appropriate image generation procedures.

An adeptly crafted prompt constitutes a vital facet of the artistic process. Jonas Oppenlaender succinctly encapsulates this by stating that:

together, this knowledge and the skills constitute the practice of "prompt engineering"—that is, the creative practice of writing effective textual input prompts for text-to-image generation systems. [...] For instance, knowledge of which aspect ratio to choose for a specific subject and an understanding of the system's training data and configuration parameters is key to produce high-fidelity images. (Oppenlaender 2022, 198)

However, the resulting image from a textual prompt may not always align with the artist's original intent. Thus, further refinement becomes imperative, a stage described as fine-tuning. This fine-tuning of the application may hinge on configuring filters or issuing supplementary text prompts, underlining the necessity of the hermeneutics of the medium, constituting an indispensable trait for effective co-creation.

It's important to acknowledge that even after formulating the appropriate prompt and refining it meticulously, the artist does not immediately obtain the final artwork. In truth, numerous iterations need to be generated before the artist attains an image deemed satisfactory. Essentially, by the time the artist reaches the final artwork, they must navigate through and discard a multitude of images, underscoring the significance of curation as an integral facet of the artistic endeavour.

Moreover, the creative process frequently extends beyond this point, often transitioning into a phase akin to what photographers term "post-production." This entails increasing the image's resolution and subsequently editing it. The journey towards creating a work of

art encompasses expertise, a creative trajectory, and a multitude of artistic decisions. It is essential to recognise that the algorithm serves as a collaborative partner throughout this process, augmenting and enriching the artistic outcome. As Cetinic and She (2021, 12) put it:

From the artist's perspective, the latent space is neither a space of reality nor imagination, but a realm of endless suggestions that emerge from the multi-dimensional interplay of the known and unknown. How one orchestrates the design of this space and what one finds in it, eventually becomes the major task and distinctive "signature" of the artist.

Within the workflow, even when considering the image-generating application as a cooperative and equal partner, a pertinent question emerges regarding the algorithm's substantial involvement in the image generation process, a facet that surpasses the creator's direct influence. It appears that the algorithm possesses some autonomy, as deploying the same prompt and parameters can yield diverse images. Consequently, a notable segment of the workflow operates beyond the artist's purview, defying their control and seemingly challenging the prospect of genuine collaboration. One might, however, argue that this dynamic is inherent in interactions between equals, where neither entity exerts dominion over the other.

PREDICTIVE MEDIA AND THE PRODUCT OF ARTISTIC ACTIVITY

When delving into the "autonomy" of the algorithm, specifically its indeterminate nature, within the present framework, we encounter two core inquiries pertinent to the resulting product: the matter of technological exposure and the matter of tradition.

On the one hand, a fundamental concern revolves around technological exposure—the artist, in a sense, operates under technological bondage, lacking insight into the internal machinations of the algorithm post-prompt issuance. While this holds a measure of truth, it is a truth explored through an attempted act of creation even when veiled in ignorance. This scenario parallels the notion that randomness, such as a cat walking across a keyboard, could potentially result in art. However, it is vital to acknowledge that exposure to technology has always been entwined with artistry. Art invariably takes shape in concert with the chosen materials and mediums—an interactive interplay where the artist assumes a role beyond the realm of an absolute master, engaging with the paint, materials, and tools. This essence holds true in photography, where the photographer need not possess exhaustive knowledge of every algorithm or file type contributing to the digital image.

Throughout art's evolution, a "black box" of technology has always been present, interwoven with the creative process rather than standing apart from it. This technological enigma is inherently part of artistic practice, and coexisting with it is an integral facet of artistic activity. Yet, as previously underscored, the artist's role does not dwell in complete ignorance but thrives within the realm of comprehensible knowledge. Just as artists possess a grasp of the materials and tools within certain confines, they incorporate these known elements into the creative process. As Caramiaux and Alaoui (2022, 15) claim "the complexity of AI as a material, and the difficulty of predicting its outcome, seems to be a fundamental element of the expressiveness of the technology."

Exposure to technology opens another interesting perspective. One problem, characteristic of predictive image generation, is that no matter how many times the same prompt is fed into the application and all other parameters are kept, the application always generates different images. A kind of indeterminism thus characterises image generation, which, like technological exposure, can be a problem in terms of curtailing the creative power of the artist. However, artists working with imaging applications see this phenomenon differently. In their interviews with artists, Caramiaux and Alaoui (2022, 15) point out that "the non-deterministic nature of AI leads to errors and accidents that can have a critical role in the creation of an art piece." Thus, indeterminism emerges as a liberating force for creators rather than evoking regret for the lack of absolute control over the creative process. Within this interplay, the artist and the algorithm stand as equal collaborators in crafting the artistic product.

To comprehend this, let us turn to the insights of Kieran Browne, who elucidates referring to Levi-Strauss's concept of the bricoleur, who "need not understand or make their tools, they redefine them for their own purposes. For most artists working with contemporary AI, this is standard practice" (Browne 2022, 132). The crux therefore lies in recognising that within creative collaboration, exhaustive knowledge of every facet of the Other is not a prerequisite. Rather, the essence of art is found in the creativity imbued within collaboration and the judicious application of art for one's distinct objectives.

The judicious application of technology, avoiding absolute dominance, holds significance from another vantage point. In terms of the product's non-deterministic design, a connection can be drawn to well-established artistic traditions that inherently integrate this characteristic. One notable instance is stochastic art, an artistic approach where randomness and indeterminism form foundational artistic principles. Numerous concrete examples within this artistic realm exist, but I shall highlight only one. The exceptional aleatoric conceptual paintings by András Wolsky, a Hungarian artist, painter, exemplify this emphasis on randomness. In essence, chance and indeterminism need not stand in opposition to art; rather, they can coalesce to enrich its essence.

PREDICTIVE MEDIA AND THE ARTISTIC COMMUNITY

Even if we understand the collaborative effort of the creator and the application, there remains the question whether predictive media can be considered art. Evidently, this age-old question, i.e. what makes art, has eluded a definitive answer and has been a subject of contemplation since Plato. It might be more straightforward to assert that art obtains its definition from the collective agreement within the artistic and aesthetic communities. So, in this section I shall present two examples that prove that predictive media can find its way into the art world.

The first case provides evidence that even without comprehensive information, the artists' community recognised an image produced through predictive technology as an exceptional photograph. A notable example is the winner of the Sony World Photography Awards 2023 (Sony 2023), which was an image generated by Boris Eldagsen, a photographer from Berlin, utilising the DALL-E application. Upon winning, Eldagsen declined both the award and the prize money, declaring the work an experiment, and highlighting the necessity of establishing a distinct category for image generation. Eldagsen termed his activity and the distinct category "promptography" (Eldagsen 2023) emphasising the essential role of prompt engineering in the case of predictive media. In the context of this study, what is important is that the image, "PSEUDOMNESIA | The Electrician," was regarded a photograph of artistic value by the competition's curators and jury members, essentially a distinguished community of photographers. The fact that they were unaware of the image's creation mechanism is less intriguing from this perspective than the product gaining recognition from the artistic community.

In the second case, exemplifying the standpoint of photographic artists towards generated images, I will mention a 2023 contest organised by Hungarian gallery, cafe, and photo shop Főfotó. This competition specifically welcomed generated images that mirror the style of prominent figures in Hungarian photography history (Izing 2023). It is important to note that this does not signify an outright acceptance of generated images as art within the artist communities, but rather represents a potential step in that direction.

CONCLUSIONS

We have explored the discourse and framework conducive to viewing image generation as an art form, avoiding sensationalist and misleading terminology. As a theoretical foundation, I adopted the posthumanist approach, which provides a framework for taking artists and algorithms as equal collaborators. We have examined predictive media from both the process and product perspectives. Based on this we can conclude

that it is more fruitful to understand predictive media not in opposition to photography or painting, or even the hybrid digital art of the past and present, but as a distinct art form separate from traditional modes.

Discussing the impact of image generation on visual culture at this juncture presents challenges, primarily because the transition of image generation into the public domain is a relatively recent development. This complexity is heightened by the necessity to acknowledge that the initial enthusiasm surrounding this innovation may wane if the model of free access proves unsustainable. Furthermore, copyright issues must be overcome as well. In September 2023, OpenAI unveiled DALL-E 3 to the public, allowing visual artists to withdraw their images from the training corpus (Wiggers 2023). To avoid creator related copyright issues, the T2I application Tengr.ai, which launched in November 2023, built image editing into the process of image generation so that the product would be made by the human creator, i.e. user of the application (Tengr.ai 2023). However, it is evident that image generation already exhibits enormous potential across various domains. It stands to impact professions that involve visual content creation and offers fruitful applications within educational contexts. Moreover, it presents a compelling arena for experimentation and exploration in the realms of visual arts.

REFERENCES

Bánkuti, András. 2023. "Borsi, Kincses, Korniss és Szlukovényi a Mesterséges Intelligenciáról." *Digitális Fotó*, 23 (4) Július–Augusztus: 3–4.

Browne, Kieran. 2022. "Who (or What) Is an AI Artist?" *Leonardo* 55 (2): 130–34. https://doi.org/10.1162/leon_a_02092.

Caramiaux, Baptiste, and Sarah Fdili Alaoui. 2022. "'Explorers of Unknown Planets': Practices and Politics of Artificial Intelligence in Visual Arts." *Proceedings of the ACM on Human-Computer Interaction* 6 (CSCW2): 1–24. https://doi.org/10.1145/3555578.

Cetinic, Eva, and James She. 2021. "Understanding and Creating Art with AI: Review and Outlook." https://doi.org/10.48550/ARXIV.2102.09109.

Eldagsen, Boris. 2023. "Sony World Photography Awards 2023." Boris *Eldagsen* (blog). April 14. https://www.eldagsen.com/sony-world-photography-awards-2023/

Ferrando, Francesca. 2020. *Philosophical Posthumanism*. London: Bloomsbury Academic.

Izing, Róbert. 2023. "Tudsz olyat, mint Capa, Kertész vagy Brassai? Akkor eljött a te napod!" *Roadster* (blog). March 5. https://roadster.hu/fotos-ai-palyazat-fofoto/

Manovich, Lev. 2023. "Seven Arguments about AI Images and Generative Media." In *Artificial Aesthetics*, 1–25. http://manovich.net/content/04-projects/168-artificial-aesthetics/lev-manovich-ai-aesthetics-chapter-5.pdf.

Nemes Z., Márió. 2018. "Ember, embertelen és ember utáni: a poszthumanizmus változatai." *Helikon Irodalomtudományi Szemle* 59 (4): 375–94.

Oppenlaender, Jonas. 2022. "The Creativity of Text-to-Image Generation." In *Proceedings of the 25th International Academic Mindtrek Conference*, 192–202. Tampere: ACM. https://doi.org/10.1145/3569219.3569352

P. Szathmáry, István. 2023. "Lopott szépség – Így öli meg a mesterséges intelligencia a művészetet." *Válaszonline*, January 11. https://www.valaszonline.hu/2023/01/11/muveszet-progresszio-mesterseges-intelligencia/

Sony (blog). 2023. "Sony World Photography Awards 2023." https://www.sony.co.uk/alphauniverse/stories/swpa-2023-winners

Szalai, Péter. 2023. "Benne van a varázs… Ecset lett a mesterséges intelligencia egy magyar művész kezében." *Forbes*, October 9. https://forbes.hu/uzlet/szauder-david-mi-ai-muvesz-art/

Szemerey, Eszter. 2021. "„Szeretnék Halhatatlanná Válni a Művészet Által": Interjú Borsi Flórával." *Elle*, November 12. https://elle.hu/kultura/szeretnek-halhatatlanna-valni-a-muveszet-altal-7626

Tengr.ai (website). 2023. https://tengr.ai

Wiggers, Kyle. 2023. "OpenAI unveils DALL-E 3, allows artists to opt out of training." *TechCrunch+*, September 20. https://techcrunch.com/2023/09/20/openai-unveils-dall-e-3-allows-artists-to-opt-out-of-training