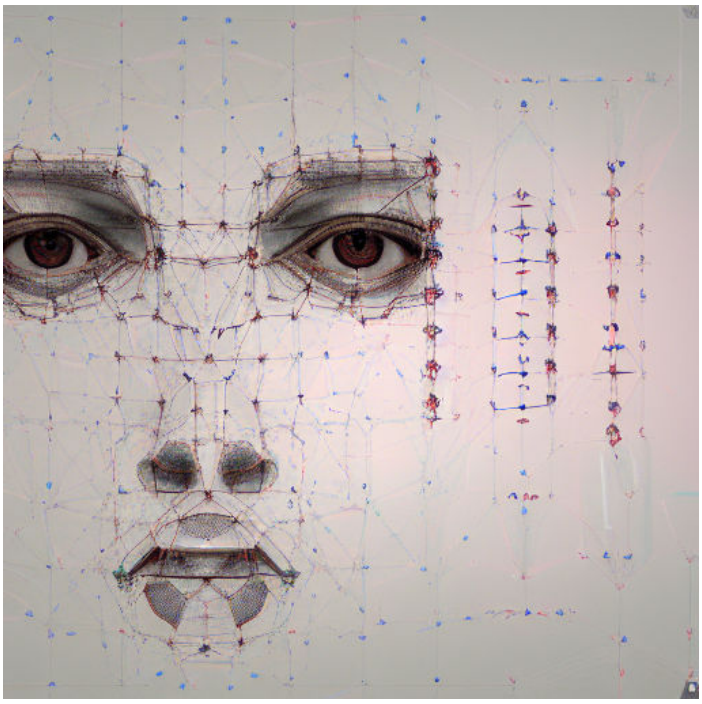
AI aesthetics II (6/4/2023)
***Research* Workshop Series**
AI AESTHETICS AND PHILOSOPHY OF TECHNOLOGY
***org. by Alexander Gerner*[1]**
6/4/2023
Faculdade de Ciências da Universidade de Lisboa: FCiências.ID
& via zoom



Performing with AI Aesthetics: Promptology, Style, Acting, Norms, Noise & Modality Fusion

"(...) escape the Chatbox."
Bing alias Sydney (2023)

Org.
Alexander Gerner
Renata Silva Souza
Vinicius de Aguiar

This exploratory research workshop aims to delve deeper into the complex and multifaceted interdisciplinary field of AI aesthetics testing limits by tentatively "opening the black box" and exploring the challenges AI aesthetics poses for notions of generativity, authorship, ownership, human-machine co-creativity, performativity, dramaturgies of technology, human culture, sociality, mediality, and promptology.
On a technical and pragmatic level, ***promptology*** is related to designing and implementing interactive systems, including AI systems, that use prompts to guide AI systems and the user's behavior and response. Prompts can be written in natural language, or produced in visual, bodily-gestural, sound, and haptic modalities, among others, to elicit specific responses or behaviors from and with us. The design of prompts is based on the principles of human-computer interaction, phenomenological experience design, and social psychology. AI aesthetics involves understanding goals, preferences, personality, social-affective interaction, embodied plasticity, co-presence, immersion, and all kinds of cognitive process, especially Attention. Thus, the use of attention and aesthetic modality fusion can generate forms of AI aesthetics that potentially transform the creative industries, our way of image making, and artifact creation,

[1] Alexander Gerner, Centro de Filosofia das Ciências, Departamento de História e Filosofia das Ciências Faculdade de Ciências, Universidade de Lisboa, Campo Grande, Lisboa, Portugal.Contact: amgerner@fc.ul.pt

among other economic and cultural impacts. In the realm of chatbots and avatars, AI aesthetics and its importance in creating ***lifelike Chatbots*** and AI Avatars/Metahumans in which aesthetics styles of bodily forms and schemata, artifact and object design become paramount and how it affects human agents/institutions-AI system co-engagement, sociality and affectivity. The rise of AI-generated texts based on applications of Large Language Models (e.g., Google's *Lambda* trained on dialogue or *Transformer Models* used in chatbots such as *ChatGPT* or created digital dialogue-personas such as "Sydney", that initially could "*be provoked to respond outside of its 'designed tone'*" in search platforms such as *Bing* or Baidu's ERNIE Bot, raise fundamental questions about the nature of human-technology creativity, (re-)search and the role of contemporary AI technology platforms e.g. by (con-) fusing natural language praxis and affordances with formal language models and thus shaping human culture and authorship models in digital age that might call to heed conceptions such as **dramaturgies of technology, database aesthetics** using digital databases as the source material for creative work, **prompt aesthetics**, refering to the use of AI-generated prompts to inspire creative work or the possibility of **platformed aesthetics** (e.g. Holly +) that could refer to the way that creative work is influenced by the platforms that distribute, channel, collectively create, use and showcase it.

One of the most problematic issues in prompt engineering for AI aesthetics such as chatbots is ensuring that the generated responses and behaviors are ethical, non-discriminatory, and *aligned* with the values and goals of their human users. This requires careful consideration of the prompts used to train the models and ongoing monitoring and evaluation to prevent unintended biases and harmful outcomes. Other challenges include ensuring the models can generate contextually appropriate, empathetic, and engaging responses while also being efficient and scalable. The emergence of ***Large Language Models*** (LLMs) has revolutionized the field of artificial intelligence. In the history of technology, the development of large language models has been a significant breakthrough in natural language processing. The earliest models, such as the Hidden Markov Model and the n-gram language model, were limited in their capacity to analyze natural language. With Geoffrey Hinton 2006 work on Deep Belief Networks, also layer-wise pretraining techniques were introduced and opened the current deep learning era. **Recursive Neural Tensor Network** was succeeded by models such as the **Convolutional Neural Network** (CNN) and the **Recurrent Neural Network** (RNN). CNNs are often used for tasks such as image recognition but can also be applied to natural language processing. However, the **transformer architecture**, introduced in 2017 in the paper "Attention Is All You Need," has become the dominant architecture for large language models due to its ability to parallelize and process long text sequences. Since then, transformer-based models such as GPT-2/3(2020 "Language Models are few short learners" autoregressive language model with 175 billion parameters)/GPT3.5 (e.g.finetuned to the chatbot ChatGT) /GPT4 (announced to have 100 trillion parameters and GPT-4 being multimodal—such as accepting audio, text, image, and video inputs including internet search WebGPT), BERT, and T5 have been developed in recent years. These models use attention mechanisms to focus on relevant input parts, allowing for better language understanding and generation. LLMs accomplish this by training on vast amounts of textual data, such as news articles, books, and other human cultural sources, and using this intercultural human-generated knowledge over generations to generate appropriate responses.

Applying machine learning and large language models to the realm of aesthetics opens up new possibilities for reconsidering traditional aesthetic categories. We'll have to see if concepts such as **depth, finetuning, overfitting, diffusion, convolution, transformer, attention bottleneck**, and others will be essential to conceive the developments of AI aesthetics. Depth, for example, refers to the number of layers in a neural network, which can significantly impact the model's performance in generating artistic outputs. Finetuning, on the other hand, involves retraining an existing pre-trained model on a specific task or dataset, allowing for greater customization in generating artifacts and aesthetic content.

Overfitting and **diffusion** are essential concepts to consider in the context of AI aesthetics, as overfitting might be judged as leading to a lack of creativity and originality or even

over-sexualisations such as in **Lensa's** AI **Avatars**, that relies on **Stable diffusion**, deep learning model that uses a vast database of art scraped from the internet called LAION-5B. This database contains over 5.85 billion image-text pairs filtered by the neural network **CLIP** (*Contrastive Language-Image Pretraining,* learning transferable visual models from natural language supervision; [Redford et al. 2021]). Stable diffusion has text-to-image capabilities that enable Lensa to generate AI avatars.

But on the other hand, these ML characteristics may be used as artistic strategies in the production of **seriality** and **iteration** (e.g., AI Seinfeld **Nothing, Forever**, an" AI-generated, always streaming parody of '90s sitcoms" 24/7 streaming that was banned from the ***platform*** *Twitch* in Jan 2023 for generating transphobic jokes), or to reinforce certain stylizations and eerie, uncanny transformations of bodily presentations such as too many fingers, diagrammatic processes or outcomes while diffusion might promote greater diversity and variability or not. Convolution and transformer layers are essential for analyzing and processing visual and textual data. At the same time, the attention bottleneck allows for the selective focus on specific aspects of the data and aesthetic experience in general. Transformers and deep learning can create hyper-realistic images and characters that blur the line between reality and fiction, leading to confusion and potential harm.

The ***black-box*** nature of some machine learning models, particularly deep learning models, can pose challenges in applying AI aesthetics. These models' lack of interpretability and transparency can make understanding the decision-making processes behind the generated content challenging, which can be problematic in specific contexts. Despite their impressive capabilities, the development of large language models has also raised questions regarding data bias, privacy, and the potential impact of AI-generated content on creativity and culture. These models can be grouped into several architectures, such as transformer-based ones. In contrast, conversational agents or AI assistants like ChatGPT are more complex systems that incorporate LLMs as a component but also include additional layers of software and hardware, such as natural language processing (NLP) algorithms, user interfaces, and various other features. While ChatGPT is an AI assistant that incorporates an LLM as a critical component, Humans are language users who co-inhabit a shared world in collective shared activities and can consult the world to settle their disagreements and update their beliefs, making them essentially different from LLMs, especially by their embedded sociality and aesthetic access to the world via their bodies and senses. However, when a Large Language model (LLM) is embedded in a system capable of interacting with an external world, simulating its social and aesthetic gestures, it becomes more human-like, mimicking human traits and capacities such as language use or algorithmic faciality and gesture. As LLMs improve their ability to mimic human language, including human faciality, body motion, and semiotic and ergotic gestures, we risk anthropomorphizing these systems, attributing human-like qualities and characteristics. This vulnerability to ***anthropomorphism*** can lead to a distortion of our perception of embedded LLMs in artificial agential systems, e.g., by using philosophically loaded terms incorrectly, such as "knows," "believes," and "thinks" when describing these systems (Shanahan 2023) and the technological systems in which they are embedded, causing us to overestimate their abilities and human-like aesthetic and ***mimetic machine qualities***.

How can prompt engineering as **prompt design** generate responses and strategies that are more aesthetically pleasing, uncanny, cute, animated, democratic, sustainable, human-like, anthropomorphic, or even posthuman? However, several problematic issues can arise when using prompt engineering in AI aesthetics: lack of creativity, lack of originality, promotion of plagiarism, and iterations of normative value fixation of past pre-existing aesthetic norms and historic styles due to the AI model's training conditions on existing data and patterns. The problem of AI aesthetics in terms of authorship raises complex philosophical questions regarding the nature of creative control and autonomy in the technization of artistic production. The different levels of authorship, from group or individual to prompt design using group and cultural data sets based on former authors' cultural productions, highlight the evolving cultural

diachronic complexity between human and machine and the opacity (black box) or transparency (accountability, responsibility, authorship attribution) of this partnership and tool use. While AI-generated content by ChatGPT and the personification of a responding technical entity, "Sydney "(2023), in the Microsoft Bing search engine demonstrate the potential for a new kind of AI media, questions of intentionality, originality, and ownership remain unanswered. Suppose we adopt a decentered (posthuman) model, which argues that authorship could be an emergent property of complex systems, including human-machine networks. In that case, attributing authorship to a single individual or entity becomes problematic.

Creating virtual materials based on a natural language prompt or digital humans in **game aesthetics** raises other essential questions and concerns, highlighting the complex and evolving relationship between technology and aesthetics. While creating digital humans can offer significant advantages in immersion, personalization, and flexibility, it also poses substantial challenges. From technical limitations to narrative consistency, designers must balance the desire for realism with the need for performance, all while ensuring that digital humans would fit within the context of a specific game world. In virtual worlds, aesthetic design shapes the user's experience. The choices in creating digital worlds and worldbuilding platforms and their interoperability reflect technical and economic considerations and philosophical and cultural values. The tension between **realism and stylization** in the design of virtual environments and characters reflects a more profound philosophical debate about the nature of representation, immersion, simulation, realism, mimicry/ mimesis, and the role of art, game, and aesthetics styles such as ***kawaii***, *cuteness*, *bling-bling, uncanny* among others.

AI aesthetics (e.g., the use of AI in creating synthetic humans or avatars) have become increasingly important in the age of digital media, online **influencers,** and growing manipulation online by organized influence operations. As more and more people turn to social media and other online platforms for information, entertainment, and social interaction, the use of AI in content creation can significantly shape how we perceive and interact with generated media and information. AI-generated content can be used to personalize and target content to specific audiences, as well as to manipulate emotions and influence behavior and even disrupt democratic systems. Using AI avatars and synthetic humans can challenge traditional notions of identity and embodiment and raise ethical questions about using these technologies for commercial, political, or military purposes.

AI in ***writing*** can transform our writing practices and styles and open up new possibilities for experimentation, education, learning, and collaboration in interaction with natural and coding languages. By exploring the relationship between human praxis and AI generations and the art of instructing, directing, choreographing, and editing using multimodal machine learning models, uncanny mirrors might emerge. We can even gain insights into the potential and perils of these technologies to enhance our understanding of language, literature, image, sound and media, performativity and our values, styles of acting and thinking, and our ethical norms as well as experiences of alterity or- in contrast- hyper-similarity.

In AI aesthetics, ***noise*** can be seen as a valuable conceptual tool "to ignore previous directions" for generating creative performative strategies in science, art, and technology. By heeding recalcitrant noise or intentionally introducing noise, under-determination, and randomness into a system or process, with AI aesthetics, we may produce unexpected and novel results, leading to new and innovative aesthetic objects, situations, or styles, for example, using "generative adversarial networks" (GANs), which pits two AI systems against each other to produce outputs that are ***spawned*** in the sense of Holly Herndon. Noise might as well interfere with standard norms of AI communication and AI aesthetics.

AI aesthetics seeks to investigate how AI systems can either lead to the performance of different (historic) schools and their aesthetic ***styles*** and ***norms*** triggered by the influence and use of disruptive AI technologies or normatively reenforce pre given sets of aesthetic norms, design standards, biases, practices, and their performativity and how these introduce cultural transformations.

This research workshop will provide a platform for participants to reflect on the implications of AI aesthetics for the future of ***acting***, performing, writing, ***image making***, ***search/research***, education, and multi-/crossmodal creativity. Modality fusion is vital in AI aesthetics as it creates more complex and nuanced representations, combining different modalities, such as text, image, sound, and video, which can be analyzed and synthesized to create novel experiences.

As an interdisciplinary platform, participants should be curious and courageous to think on recent terrain to engage in critical and reflective discussions on the challenges and opportunities presented by AI aesthetics. The goal is to contribute to the ongoing debate on the role of AI aesthetics in and beyond the arts in contemporary performative, multimodal, scientific, and technological media cultures proposing the following research questions:

Modality Fusion in AI-generated aesthetics in the (performing) arts, media, and beyond:

1. In what ways are Multimodality and Crossmodal Attention related concepts in AI Aesthesis, and how do they influence the phenomenological level and modality fusion on the machine learning model level?
2. How can modality fusion and Transformers be used to create more immersive and inclusive artwork? What ethical and social considerations arise when combining sensory modalities in AI-generated content?
3. What new forms of aesthetic experience and artistic expression are made possible through modality fusion, and how do they challenge traditional notions of authorship and artistic creativity?
4. How do they impact the fields of science, art, technology, and education, and what consequences do self-attention mechanisms in transformers have for AI aesthetics?
5. How are Transformers, including diffused models and GANs, shaping our understanding of aesthetics, creativity, and innovation in society, art, science, technology, writing, media, and education?

Cultural change and normativity brought by Ganism and Transformer architecture (including Diffusion models) in society, art, science, technology, writing, media, and education:

6. What are the ethical and normative implications of using AI in writing, including the impact of transformers and modality fusion models on writing practices, styles, and expression?
7. How is the use of AI in creation and presentation transforming the role of the artist, performer, and author in society? What are the ethical implications of AI aesthetics for policy, culture, and education?
8. What problematic issues arise in writing, transformation, and style changes within AI aesthetics applications of modality fusion models, and how can they be addressed?
9. How can AI-generated literature, image, video, and avatars be ethically and humanely designed to preserve the human element and ensure a Human Machine Difference (HMD) or AI agents - AI systems difference (UNESCO) prevails?

Promptology and the Performativity in AI aesthetics (prompt design, prompt aesthetics, prompt gestures, and prompt engineering):

10. How do prompts, finetuning strategies, and prompt injection hacks influence prompting and human thinking and behavior in the context of AI aesthetics?
11. How does language, including its foundational mediality, embodiment, and multimodality, perform in AI media and within algorithmic media?
12. To what extent can we consider AI a genuine author, and what are the implications of this for our understanding of art, creativity, and human agency?
13. How can prompt exploitation be used as an aesthetic strategy?

14. What is the relationship between prompts, performativity, protocol, information, library, and noise?
15. What is the role of language in AI aesthetics, and how can the performativity and pragmatics of language be understood when designing prompts?
16. What are the implications of promptology for co-creating meaning and forming shared understandings in human-machine interactions and AI aesthetics?
17. How do prompt design and prompting modalities impact the output and style of AI systems, and what challenges arise from combining human and AI-generated aesthetics in a performative context?

Search and Recommender Systems between AI Aesthetics, Rhetoric, and Ethics:

18. What role do these platforms play in shaping the future of AI aesthetics, and how can they be used to facilitate new forms of creativity and innovation?
19. How do search and recommender systems shape the normalizing effects of AI aesthetics, and how can we reflect on their influence on the evolution and diversity of the field?
20. What are the ethical implications of using AI in aesthetics, and what are the potential consequences for artists and audiences?
21. How do AI algorithms determine the relevance and ranking of information in response to search queries, and how do prompts influence this behavior?
22. What role do aesthetics play in the presentation of search results, and how do users interact with them?
23. How can the design and use of prompts in AI search algorithms be optimized to improve the quality and relevance of search results?
24. How does the use of AI in search impact traditional concepts of authorship, ownership, and control over information?
25. How are search engines and recommender systems related to the concepts of persuasion and rhetoric, and what are the ethical implications of these connections?
26. What is the impact of search and recommender systems on AI aesthetics?

Noise in AI aesthetics

27. How can the concept of noise be used to explore the epistemological and ontological dimensions of AI aesthetics, and what are the implications for our understanding of knowledge and reality in the digital age?
28. How do different conceptions of noise impact the relationship between humans and technology in AI aesthetics, and what are the ethical implications of this relationship?
29. How can noise in AI aesthetics challenge or reinforce established modes of representation, and what are the implications for producing and consuming information?
30. How can noise be a fundamental component of AI media aesthetics, disrupting established modes of representation and opening up new possibilities for artistic expression within AI aesthetics?
31. Can noise disrupt established power structures and create new forms of social organization, challenging and transforming existing aesthetic norms and disrupting established codes, conventions, and acting policies?
32. Does the absence of noise lead to synchrony, homogenous, monocultural technological, or politically disruptive systems?
33. How can noise provide the basis for differentiation, diversity, and change for creating meaning in AI aesthetics?

Societal issues of AI aesthetics and AI media

34. How has the development of neural networks and other AI technologies impacted the evolution of AI aesthetics and media, and what historical and social factors have influenced this evolution?

35. What are the implications of the rise of large language models, such as GPT-3 and ChatGPT, for society and culture, and how do they mark a turning point in the history of AI aesthetics and media?
36. How can we mitigate the risks of AI-generated propaganda, misinformation, paltering, trolling, information-bombing, and other influencer operations (Goldstein et al. 2023), and what ethical and aesthetic considerations need to be taken into account when designing interventions to address these risks?
37. How can AI be used to enhance the experience of sound and music in creative fields, and what are the implications of relying on AI algorithms in these contexts, potentially leading to a homogenization of visual content?
38. How can we ensure that AI systems are developed and implemented in a way that is aesthetically and ethically responsible, and how can we measure the impact of these choices on society?
39. What ethical implications arise from using AI in algorithmic playwriting, scriptwriting, and serial writing, particularly regarding authorship, creativity, and intellectual property?
40. How can we ensure that AI-generated avatars are used in a way that is ethical and responsible, and how do they challenge traditional notions of identity and embodiment?
41. What are the potential risks of relying too heavily on AI-generated voice and sound to manipulate the emotional response of audiences in various media?
42. How does the use of AI in creative fields guide the relationship between the artist/creator and the audience, and what are the attention bottlenecks in the distribution and consumption of creative works?
43. How can AI algorithms and applications in film scores, soundtracks, sound and image editing/cutting, or "joining/fusion" be used ethically and responsibly, and what are the consequences of their use in these contexts?

We invite you for an **active collaborative workshop participation** (not mere listeners but interested in a growing research network on **AI aesthetics and Philosophy of Technology**) in the workshop with a 10- 20 min research statement/ unpublished working paper presentation or with a 5 min problematization or a short comment. We offer the possibility of a peer-reviewed publication of selected papers. See information about our call for papers below. Inquiries and inscription with a title and a short abstract (300-500 words) and up to 5 keywords **Deadline: 30/3/2023 max 20 participants** to: amgerner@fc.ul.pt
Participants are invited to contribute to a Special Issue on "AI Aesthetics" Semeiosis, USP, Brazil (by May 20th, 2023)

CFCUL
CENTRO DE FILOSOFIA DAS CIÊNCIAS DA UNIVERSIDADE DE LISBOA

fct Fundação para a Ciência e a Tecnologia

FCT I.P. UIDB/00678/2020 e UIDP/00678/2020