~~Is AI creative?~~ Are YOU creative with AI?

Filippo Carnovalini
Vrije Universiteit Brussel
Pleinlaan 9, 1050 Brussels, Belgium
filippo.carnovalini@vub.be

Extended Abstract

With commercial Generative AI rapidly becoming widespread, the general public has found novel ways to generate text, music, and visual artwork. Especially with visual art, we have also witnessed backlash towards both the companies offering these systems and the people using them, with many artists calling for a ban on AI, and arguing that those that use AI are not the authors of their works, but rather a *commission client* at best.

To see if that is the case or not, I will use the Creative Systems Framework (CSF) (Wiggins 2006) to formally look at the *union of AI tool and human user* as a co-creative system. Let us take for example an image generation model (e.g. a diffusion model) and what the typical usage might be. The user has a (vague) idea of what the image should be and writes a prompt. Upon receiving the output, they decide if they like it and if it fits their need, and if not, they cycle additional prompts until the result is satisfactory. This can be formalized as *Task-Divided Co-creation* (Kantosalo and Toivonen 2016): the AI system is missing the evaluation rules $\mathscr{E}$ (or at least any evaluation is submitted to the will of the user), while the human is missing, or not using, any transversal technique or rule $\mathscr{T}$. If the user further modifies the image offline (and possibly re-upload it in AI system later) it becomes a case of *Alternating Co-Creation*, where both the human and the machine make use of $\mathscr{T}$.

I think it is worth noting here that even a more autonomous generative system consisting of a single "run" button that generates different artworks each time, becomes a co-creative system as soon as a human looks at the results: looking at the result for even 30ms is enough to form an aesthetic judgement (Verhavert, Wagemans, and Augustin 2018), so this human-computer system can be characterized as a *Task-Divided Co-Creation* that takes a single step of transversal. Being less drastic, we could argue that the co-creativity happens once the human decides whether to discard the output or not, as that is the moment where the evaluation is externalized and impacts what the (remaining) output will be.

Going back to a more controlled prompt-based system, we can say something even stronger. When the user refines or inputs a new prompts, it is not only forcing the system to take a new transversal step, but it is also arguably providing a refinement of $\mathscr{T}$, as the generation will be guided by the prompt. We could be tempted to think the prompt adds new rules to $\mathscr{R}$ and therefore redefines $\mathscr{C}$, but that is just the deceptive metaphor of dialogue-like interaction with the computer. In reality, our prompt is digested by the neural network driving the way its nodes are transversed, and not changing the space that the system could generate within. In this instance, we could consider the human-computer system to be $\mathscr{T}_c$-transformational, using a mixture of Wiggins' and Kantosalo-Toivonen's formalization. Conversely, one could argue that the human can be inspired by the system's intermediate outputs to consider things they would not have initially thought of, resulting in $\mathscr{R}$-transformational creativity. In both cases, it is crucial to note that it is the human intervention that allows for the transformational creativity, which arguably the machine alone could not attain.

I argue therefore that usage of Generative AI systems can be seen as creative when we include the human in the overall system. But what does that mean for authorship? From a legal standpoint, in many jurisdictions only humans can be authors, but if we were to apply the same rules that apply to humans for joint authorship, then the authorship is shared unless one of the parts is only doing menial "amanuensis" work and the other is taking all of the creative decisions (Fritz 2024). Again, I would argue that neither part is doing mere compilation based on the other part's orders. Human evaluation is certainly a creative decision, but the transversal steps taken by the machine are not exhausted by the prompts, especially in the $\mathscr{R}_h$-transformational case described above. I argue that, despite what angry artists may say on social media, it is therefore fair to attribute authorship to the users of such systems, although this authorship should be shared with an entity devoid of that right.

References

Fritz, J. 2024. The notion of 'authorship' under EU law—who can be an author and what makes one an author? An analysis of the legislative framework and case law. *Journal of Intellectual Property Law & Practice* 19(7):552–556.

Kantosalo, A., and Toivonen, H. 2016. Modes for creative human-computer collaboration: Alternating and task-divided co-creativity. In *ICCC 2016*.

Verhavert, S.; Wagemans, J.; and Augustin, M. D. 2018. Beauty in the blink of an eye: The time course of aesthetic experiences. *British Journal of Psychology* 109(1):63–84.

Wiggins, G. A. 2006. A preliminary framework for description, analysis and comparison of creative systems. *Journal of Knowledge-Based Systems* 19(7):449–458.