

Introduction¹

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In the contemporary landscape of rapid technological advancements, Artificial Intelligence (AI) has emerged as an important factor in reshaping practices, world-views, and expectations. One of the most intriguing and thought-provoking areas of AI's influence is its intersection with creativity. By deconstructing the cognitive processes involved in human creativity, researchers can design algorithms that simulate these processes. This involves machine learning, neural networks, evolutionary algorithms, and other AI techniques that enable computers to recognize patterns, generate new ideas, and refine them through iterative processes. Can AI's outputs—whether in painting, composing, writing, or other forms of artistic production—be considered genuinely creative, or are they mere reflections of the data and rules we feed into these systems?

The question of whether AI can truly be creative necessitates a reexamination of what creativity means. Creativity encompasses the generation of novel ideas, artistic expressions, and innovative solutions that push the boundaries of conventional thought. Traditional definitions often emphasize intentionality, consciousness, and emotional depth—qualities typically attributed to human minds. AI, with its computational prowess, algorithmic learning, and data-driven processes, operates differently from humans while achieving comparable results. For these reasons, the advent of AI challenges the traditional view according to which inventiveness is an inherently human attribute that distinguish the creator of machines from her ingenuous realizations. Nevertheless, the surprising upshots of neural networks and machine learning compel us to reconsider the essence of creativity as well as the relation between humans and their productions. To put it differently, AI's realization might contribute to renew the awareness of the available possibilities for world-making (see Anil Bawa-Cavia's proposal). This challenge motivates the recent research field of computational creativity. It refers to the study and development of algorithms and systems capable of performing tasks that would be considered creative if done by humans. This includes generating art, music, literature, architecture, urban planning, and problem-solving in novel ways. The field intersects with cognitive science, psychology, philosophy, and the arts, creating a rich tapestry of multidisciplinary theoretical and practical investigations.

¹ This introduction is the result of a collaboration between the invited editor of the issue and Chat GTP-4.

As we navigate the burgeoning field of computational creativity, ethical and philosophical considerations become paramount. While the potential benefits are immense, so are the concerns. First of all, the authenticity and value of AI-generated works are often debated. Can a machine's creation hold the same emotional and cultural significance as a human's? What does it mean for art, music, or literature if it is produced without human intention or experience? (see Ella Dawn McGeough's and Brendan Flanagan's contribution). While AI can analyze cultural data, it does not possess an intrinsic understanding of cultural meanings and values. Moreover, while humans create with a sense of purpose and meaning that goes beyond mere functionality, AI lacks the capacity to achieve a vision responding to the limitations and constraints experienced within a particular social context. In this sense, creativity often involves making ethical and moral judgments, a capacity that machines do not share with their creators and that prevent them from understanding the broader ethical implications of their productions. Furthermore, we might wonder about the negative effects of generative AI on human creativity. Will reliance on computational creativity tools diminish human creative skills, or will it augment and inspire new forms of human expression? For instance, we can worry about the consequences of humans' over-reliance on AI tools: depending too heavily on algorithms, they might abdicate the ability to think critically and inventively without technological assistance and guidance. This might lead to the homogenization of productions: as AI systems often generate outputs based on patterns found in their training data, in the absence of human criticism, evaluation, and feedback, this can affect content diversity and originality. While AI cannot replace human creativity due to several inherent limitations, understanding the balance between augmentation and replacement is crucial for fostering a healthy collaboration between humans and machines.

As the articles proposed in this issue argue from different perspectives and disciplinary backgrounds, AI is a valuable means for fostering human creativity by enlarging the sphere of possible experiences, interactions and inquiries. Risks aware collaboration and critical cooperation might, in fact, act as an important stimulus for rethinking established concepts, practices and world-views (see Renzo Filinich's and Christo Doherty's paper). With this regard, AI tools can serve as a source of inspiration, generating new ideas that humans might not have conceived. For instance, generative design in architecture can produce thousands of design alternatives, from which architects can draw inspiration. In this sense, AI can act as a partner that brings computational power and novel approaches to the table, while humans provide intuition, emotion, and contextual understanding. The fusion of AI and human creativity is giving rise to entirely new forms of artistic expression. Interactive installations, AI-generated performances, and dynamic urban environments are examples of how this synergy is pushing the boundaries of what is possible (see Roberto Bottazzi's article). Moreover, the widespread adoption of AI in creative fields may lead to cultural shifts in how creativity is perceived. Finally, it is

aesthetic judgment that undergoes a deep transformation while considering the surprising effects of machines' productions as well as their capacities for matching human tastes and captivating their interest (see Sebastian Rozenberg's contribution). Understanding and adapting to these shifts is crucial for maintaining the richness and diversity of human culture. In this regard, it is interesting to note the impact of generative AI on our notions of creativity. In particular, it has motivated the introduction of the idea that this faculty is not exclusive to organic life, but which can potentially also describe the behavior of some systems mechanics (see Betti Marenko's article). AI exhibited creativity forces us to rethink the relevant parameters that define what it means to be creative, while maintaining the traditional association between creativity and intelligence. The effect of the discovery driven interaction with AI is twofold: on the one hand, it allows us to understand in what sense a non-living system can be creative; on the other, it could open a window into human creativity and, more broadly, into intelligence (see Keith Tilford's essay).

As we advance into an era where the line between human and machine creativity blurs, the potential for collaboration and innovation grows exponentially, together with potential risks and dangers. By fostering a deeper understanding of how machines can augment and transform creative processes, we hope to pave the way for productive future experimentation as well as for active critical evaluations of the effects of interactions. As we navigate the uncharted waters of AI's rapid evolution, this special issue serves as a critical resource for understanding the philosophical, ethical, and practical dimensions of this transformative phenomenon.