Exploring the Intersection of Art, Human Creativity, and AI

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Since the early 2000s, computational informatics has increasingly entered the artistic sphere, traditionally a human monopoly. Generative artificial intelligences follow creative processes that are seemingly similar to human ones: they learn from existing works, grasp stylistic canons, and ultimately generate a new artifact that is aesthetically pleasing. Some of them have passed the Turing test, which may lead to the claim that we have reached a point where machines are capable of thinking, feeling, and knowing, thus undermining human beings from their domain in art and all creative fields. However, this perspective of exalting computational creativity has several critical points that can be refuted through contributions from fields such as philosophy and neuroscience. Art and culture have a symbolic value that cannot be generated by computational processes: they help define the Umwelt through which humans experience the world; they reflect the worldview of an era and a society; they attribute meanings to existence and reality. Therefore, it is challenging to summarize a work of art through computational models, as it contains a dimension of meaning that goes beyond form and cannot be exhausted through the logic of language, words, or computer signs. Finally, creativity is a much more complex process than simple learning and reshuffling of data: it is an ontological characteristic of human beings and is the result of millennia of evolutionary processes, which have led humans to develop conscious minds that - through a complex relationship between sensory perception, neural networks, and emotions - enable reasoning and creative thinking. The case of musical composition illustrates the gap between human creativity and artificial creativity: computational algorithms are to be seen as new mediums that open up new expressive possibilities for artists, but they cannot completely replace the human element in the creative process.

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As artificial intelligence starts permeating every field of human life, concerns about its repercussions over mankind start rising. We stand at the brink of a transformative technology that is leading to a significant shift in human society, and whose consequences remain challenging to foresee. Concerns for the impact of this new medium also extend to the realm of the arts.

Artificial intelligence (AI) has a range of applications in arts, including collections, archives, and research. Beyond these domains in which AI technologies appear to face minimal opposition, the situation is markedly different in the realm of art production. On one hand, a growing number of digital artists are beginning to contemplate the creative possibilities offered by computational systems; however, these technologies are met with scepticism not only from the general public but also from certain experts within the field. It seems that AI is bound to outperform humans in artistic practice. As AI develops, machines increasingly mimic human behaviours, convincingly appear to replicate human thinking, understanding and creatively responding to external inputs. In certain cases, they even seem able to outperform humans. Can a fully automated machine learning algorithm or AI replicate all aspects of human creativity? Will art generated by AI reshape the meaning of creating authentic art for human beings?

Can Machines Think?

Humans often attribute human characteristics to machines to understand their operations and predict technological developments. This tendency can obscure the fundamental differences between machines and humans. Attributing artistic potential to AI means anthropomorphising the machine by ascribing it human traits like creative thinking. This represents a significant error, as it diminishes the complexity of human beings and undermines the symbolic value of art production. Nowadays AI trains on standardized

processes, which may reduce art to an empty form, excluding its potential resonance and emotional impact. To date, AI still relies on human input, meaning that it lacks the capacity to autonomously generate any form of art. Furthermore, even if AI were to achieve the ability to produce art independently, the resulting creations would likely represent a distinct type of art, characterized by its own unique logics and forms, differing fundamentally from human-generated art. While this may represent a potential area of research for understanding reality, there are no assurances that we will be able to fully comprehend these algorithmic arts.

In 1950, Alan Turing raised the question of whether machines could think as humans do. In the aftermath of World War II, the scientific community was discussing the potential development of machines capable of performing complicated tasks, such as cognitive processes. In 1955, computer and cognitive scientist John McCarthy introduced the term *artificial intelligence* to describe those machines that could imitate human behaviour. According to his definition: «Artificial Intelligence (AI) is the part of computer science concerned with designing intelligent computer systems that exhibit the characteristics we associate with intelligence in human behaviour – understanding language, learning, reasoning, solving problems, and so on».[1] Computer sciences were entering a period of constant development. Within a few years, new media and robotics pervaded the creative fields, including photography, painting, music, and texts. This altered humans' perspective of the world: «Over the past decade or so we have had increased access to new ways of representing and seeing the world, ways dependent on algorithmic interventions between the viewing subject and the object viewed».[2]

The pervasive influence of algorithms on contemporary life has led to the term *algorithmic turn*, highlighting the role of computer technologies in shaping the *habitus mentali*, as they influence how reality is perceived and represented, as well as the role of humans within the *Umwelt* and society. Likewise, art reflects these changes in the techno-sphere, in the ideas, and in the perceptual habits of a society. Every civilization has its

[1] J. McCarthy in: H. Zulić, (2019). How AI can Change/Improve/Influence Music Composition, Performance and Education: Three Case Studies. *INSAM Journal of Contemporary Music, Art and Technology, No*. 2, Vol. I, July 2019, 100–114.

[2] W. Uricchio, (2011). The algorithmic turn: photosynth, augmented reality and the changing implications of the image. *Visual Studies*, *26*(1), 25–35. https://doi.org/10.1080/1472586X.2011.548486.

own mental habits that permeate every aspect of it and it is reflected in artistic production and forms of representation.[3]

October 25th, 2018 marks a pivotal day in the history of art. For the first time, An AI-generated work, *Portrait of Edmond Belamy*, was auctioned at Christie's in New York. Created by the French collective Obvius, this painting is part of a series depicting an imaginary family. All of these pictures have been depicted through a generative adversarial network using a database of over fifteen thousand portraits created between the XIV and XX centuries. Nowadays, the dilemma of the relationship between art, creativity, and artificial intelligence becomes the subject of reflections that go beyond the artistic or aesthetic debate. Between 2021 and 2022, various companies launched generative algorithms that can analyse enormous datasets of cultural materials and generate a new cultural product – whether images, texts, music, or anything else.

Artificial Intelligence, Computational Creativity and Musical Composition

Among various artistic forms, musical composition has been one of the first creative domains in which machines have been entrusted with the artistic process. The early integration of sonic arts within computational frameworks can be attributed to the multidimensional nature of sound matter. Sound is closely linked to experience, perception, and memory, and is connected to the space-time dimension and the materiality of its source. It originates from a source and propagates through space via sonic waves. It is ephemeral, fading immediately after being produced. Each sound event is unique, existing only in the *hic-et-nunc* and remaining in the memories of those who experience it. To address this, various systems have been developed to capture and preserve sound, allowing for the recording and reproduction of music across different times and spaces. Christoph Cox reconstructs the evolution of systems for capturing and recording sound in the second chapter of his essay *Sonic Flux,* noting that in ancient times biological memory was the only means of sound capturing and recording.[4] In Europe, the memory-based system lasted until the Middle Ages, when a new method of sound capturing and recording led to the establishment of a written music notation system. The socio-

[3] Cfr: E. Panofsky, *Architettura gotica e filosofia scolastica* (1950), ed. it. a cura di F. Starace, Abscondita Milano 2014, p. 11.
[4] Cfr: Cox, *Sonic Flux: Sound, Art, and Metaphysics*. Regno Unito: University of Chicago Press, 2018, p. 49.

economic and political changes that occurred in Europe throughout the following centuries entrenched this system in musical culture and promoted the spread of musical scores.[5] Cox underlines the importance of the score, asserting that its institution «gave music the form of fixed, exchangeable objects: musical works».[6] It transformed music into fixed, exchangeable object. This innovation brought the institution of a copyright legislation, recognising to the composer the intellectual property of his work. The stabilisation of music as fixed entities reduced dramatically the variability typical of oral traditions and memory. The score also solidified musical authorship, creating a distinction between the composer and performers.[7] In the late XIX century the phonography emerged as the ultimate mode of sound capturing. It enhanced the features of the written system through technologies like wax cylinders, phonograph records, magnetic tape, digital recorders, compact discs, MP3s, and audio streaming. This system embodies the mechanical essence of written memory, acting as an external extension of human cognition. This process amplifies the quality of written memory by detaching sound from its source[8] and «allows for spatial and temporal deterritorialisations and virtualisations that amplify and outstrip those of written memory».[9]

The necessity to preserve music in a form that could transcend time and space has resulted in a written code that captures musical works. This universal codification, as well as sound strict interplay with mathematics, has made sonic arts among the first to be electrified by new technologies, and yet to be transposed in algorithms.

From a formalist perspective, therefore, the set of sounds that make up a melody can be scientifically analysed, regardless of any interpretation of music on a semantic level.[10] The possibility of mathematical rationalisation of sounds is what led to the invention of electronic musical instruments and recording equipment. In the late 19th century, Thaddeus Cahill invented the telharmonium, an electric organ regarded as the precursor to the synthesizer. A few years later, in 1910, the Italian composer Luigi Russolo created the Intonarumori, an instrument for sound and noise manipulation. In the 1920s, Leon

[5] Cfr: ivi, p. 51.
[6] Ivi, p. 52.
[7] Cfr: *ibid*.
[8] Cfr: ivi, p. 55.
[9] Cfr: ivi, p. 56.
[10] Cfr: F. G. Rubino, (2024). Composizione artificiale e creatività computazionale: lo stato dell'arte. *Oi Dialogoi*, (1), 17-31. https://doi.org/10.1473/oidi0002.

Theremin developed the theremin, while in 1928, Maurice Martenot introduced another electric instrument, the ondes Martenot. These instruments are often considered the first synthesizers in music history and contributed to the birth of electronic music.

From the 1950s, musical experiments of Avantgarde musicians pioneered what is universally considered electronic music. Within a decade, the first electronic computers began to spread: these new devices were soon employed in the musical experiments of those years.[11]

In 1974, the first International Computer Music Conference was held at Michigan State University, U.S.A. At that same conference the International Computer Music Association was founded. The primary goal then, as it remains today, was to bring together composers and promote research in computer music by integrating science, technology, and the musical arts.[12] However, for many years, AI systems for music composition remained on the fringes of music production. The digital breakthrough at the beginning of the XXI Century has spread algorithmic music into mainstream recognition. «With the rapid development of technology, artificial intelligence has enabled a faster flow of information, and thus faster ways of solving the problems we face in the digital world. Thus, the possibilities for developing newly advanced composer-software are much greater, as are the possibilities of its dissemination within the digital world».[13] Brain.FM (2003) and The Echo Nest (2005) had been among the first companies to apply AI to musical composition. Google introduced Google Experiments: Music in 2009, followed by Google Brain: Magenta the subsequent year. A notable step forward occurred in 2016, when AIVA (Artificial Intelligence Virtual Artist) was launched.[14] The latter is particularly interesting: this AI is designed for composing soundtracks for entertainment purposes such as video games, advertisements, and films. AIVA's algorithm trains on a database comprising over 30,000 musical compositions spanning music history. These

[11] Berz and Bowman (1995) in: H. Zulić, (2019). How AI can Change/Improve/Influence Music Composition, Performance and Education: Three Case Studies. *INSAM Journal of Contemporary Music, Art and Technology, No*. 2, Vol. I, July 2019, 100–114.
[12] Cfr: H. Zulić, (2019). How AI can Change/Improve/Influence Music Composition, Performance and Education: Three Case Studies. *INSAM Journal of Contemporary Music, Art and Technology, No*. 2, Vol. I, July 2019, 100–114.
[13] *Ibid.*
[14] Cfr: *ibid.*

data enable AIVA to learn concepts of music theory and music styles from which it can create mathematical models to represent music and generate original compositions.[15]

Despite continual updates, this AI system still depends on human inputs. Its founders assert: «along with the reinforcement of deep learning algorithm techniques […] AIVA is still only able to compose for piano, the orchestration, arrangement, and production of the music require human skills».[16] This observation raises questions regarding the accuracy of the Turing tests to which AIVA has been subjected. Apparently, it has been reported that it cannot be distinguished between AIVA's compositions and those created by humans.[17] Though, the reliability of these tests is questionable since human contribution remains essential for AIVA. Currently, computational systems are not entirely autonomous from human input, as they primarily analyse data generated by humans. Furthermore, AI has yet to demonstrate the capability to perform complex tasks; in the case of musical composition, these include orchestration, arrangement, and production.[18] AIVA facilitates human composers by automating repetitive tasks and generating extended melodies. As other contemporary generative AI systems, AIVA should be considered more as an innovative medium that assists composers rather than as an autonomous creative entity. It «still lacks that human creative element which is very important in art. Artificial intelligence is currently just a means by which composers can find new ways of composing. Its role is currently solely dependent on the human or composer».[19] Although machines may eventually perform complex actions autonomously in light of computational systems rapid advancements, it is incorrect to use the same criteria to define AI and human creativity. Furthermore, it is essential to underscore that, while drawing inspiration from the learning processes and data analysis mechanisms of human brain, the computational logic of AI functions according to mathematical models and algorithms.

Computational creativity is defined as «a subfield of Artificial Intelligence (AI) research […] where we build and work with computational systems that create artefacts

[15] Cfr: *ibid.*
[16] *Ibid.*
[17] «Several Turing tests completed with music professional participants have confirmed that the compositions of AIVA can't be differentiated as human or AI creation». Cfr*: ibid.*
[18] Cfr: *ibid.*
[19] *Ibid*.

and ideas».[20] These systems are used in areas traditionally associated with human creativity, both sciences and arts,[21] and operate following cognitive patterns similar to human ones. The functioning of artificial intelligences as AIVA resembles problem-solving process: the user gives a prompt, and the system generates creative responses. These AI systems employ neural networks to analyse datasets, recognising patterns, stylistic variations, and formal composition rules. Then, they produce an output that meets the request by manipulating existing data and following compositional guidelines.

The computational creative process adheres to rational criteria and evaluates artworks based on mathematical models and algorithms. Thus, equating creativity with a mathematical operation appears to be an inadequate approach; it is difficult to accept the idea of reducing creativity to mere mathematical logic. Likewise, a work of art cannot be restricted to a mathematical framework. A recent study[22] indicates that, in the context of art, individuals often prioritise attributes such as the authenticity of the artwork, the effort expended, the skills demonstrated, and the motivation and intention of the artist.[23] «Objects are typically imbued with something of the essence of its creator. People experience a connection between the creator and receiver transmitted through the object, which lends authenticity to the object».[24]

Moreover, it is impossible to reduce a work of art – whether it is a painting, a musical composition or a poem – to a mere mathematical logic. The artwork originates from the realm of imagery and embodies symbolical values and nuances of meaning. It reflects the *Zeitgeist* in which it has been created, as well as the self-consciousness of the artist. Namely, it distinguishes itself by both a subjective and a universal nature: on one hand, the artist infuses its own memories, experiences, truths, and sensitivities into the work, as much as it resonates differently with each viewer. On the other hand, a work of art embodies a polyphony of interpretations and meanings that prevent it from being fully comprehended or exhausted. Furthermore, the artwork is intrinsically associated with the

[20] S. Colton, & G. A. Wiggins, (2012). Computational Creativity: The Final Frontier? *European Conference on Artificial Intelligence*.
[21] Cfr: *ibid*.
[22] A. Chatterjee (2022). Art in an age of artificial intelligence. *Front. Psychol.* 13:1024449. DOI: 10.3389/fpsyg.2022.1024449.
[23] Cfr: *ibid*.
[24] *Ibid*.

qualities of authenticity and uniqueness, which are often perceived as contrasting with mathematical logic.

Despite being powerful tools for data-analysis, generative AIs do not take into account what cannot be reduced to computational logic: human consciousness and creative thinking go beyond mathematical rationalism. All works of art possess qualities that lie beyond the formal structure.[25] In the case of music, mathematical relationships between sounds form the basis of composition. Physical models can translate music into an image, representing its sound waves. However, analysing the mathematical relationships within music is not sufficient to understand it. This perspective suggests that music should be regarded as a merely physical event, thereby neglecting the various dimensions that extend beyond the scientific phenomenon, such as imagery, sensitivity, memory, and emotional resonance. As Giovanni Piana asserts, music encompasses multiple dimensions that reflect the diverse ways in which humans express themselves and organise their thinking forms.[26]

The meaning of the work transcends the form and remains open to interpretation due to its «hidden imaginative dynamism».[27] Piana closes his *Philosophy of music* exploring all the elusive meanings that musical figures can evoke, highlighting the impossibility to explain them once for all. Musical figures resonate within the listener, moving into his mind both associations by resemblance and evoking the blurred and undefined ones.[28] Music, as arts in general, carries symbolic value, with an immense universe of meaning beyond its formal appearance that logic alone cannot capture. To draw this resonance of meanings, Piana recalls Wittgenstein's theme of ineffable. The term *ineffable* emphasises the inherent expressive limitations of verbal logic. When confronted with an overabundance of significance, language might fall short of fully capturing these nuances of meaning. In the case of music, Piana highlights the challenges to face the complex interplay between meaning and musical form.[29] Any attempt of attributing meaning to musical form presents considerable challenges. While a formalistic approach may interpret a sound work as a sequence of physical events, this perspective alone is

[25] Cfr: A. Damasio, *Sentire e conoscere: storia delle menti coscienti,* tr. it. di I. C. Blum, Adelphi, Milano 2022, pp. 76-77.
[26] Cfr: G. Piana, *Filosofia della musica,* Guerini, Milano 1991, p. 295.
[27] Cfr*:* ivi*,* p. 286.
[28] Cfr: *ibid*.
[29] Cfr: ivi, pp. 270-273.

insufficient to address the underlying question of meaning. Meaning transcends mere formal analysis: as Piana asserts, the significance in music exists beyond any objective framework, thereby it lies beyond the constraints of linguistic logic. It is this apparent absence of definitive meaning within musical structure that engenders an excess of interpretation, which cannot be fully encapsulated by objective verbal logic[30] – whether it is verbal or computational. It is «a content too immense to be contained into the word»[31] and can only be understood through direct experience of its *resonance* inside the listener.

This effect of resonance stems from the aesthetic experience of engaging with the sonic art work. Aesthetic experience involves cognitive processes such as perception, memory, and emotional responses. Unlike normal perception, it activates various mechanisms of emotional response linked to the listener's subjectivity and produces notable effects on them. Though AI-generated art work can also produce a resonance effect on its audience, it is not the only indicator to define a work of art as such.

Experience is closely related to intentionality, a key element in understanding the creative and evaluative processes of art. The latter suggests that experience is always directed toward an object, and it reflects the structure of consciousness and mind.[32]

Franz Brentano claims that all mental phenomena exhibit intentionality, unlike physical phenomena. This distinction underscores that intentionality is the defining characteristic of the mental domain, differentiating it from the physical one.[33] Hence, intentionality is here intended as the unique feature of consciousness directed toward something beyond itself, and in Brentano's perspective the term involves how consciousness focuses on an object. During perception, judgment, sensation, or thought, an individual's mental state is always oriented toward specific content.[34]

After Brentano, Edmund Husserl's *Logical Investigations* presents the first phenomenological study of intentionality. Husserl emphasises that it is not simply about a general experience, since it involves directing emotions toward specific objects. Each mode of consciousness is defined by its intentionality towards its own object and cannot be analysed without considering both the objective and subjective correlates. The

[30] Cfr: *ibid*.
[31] Cfr: ivi, p. 271.
[32] Cfr: S. Gallagher, & D. Zahavi, *La mente fenomenologica: filosofia della mente e scienze cognitive,* tr. it. di P. Pedrini, Raffaello Cortina, Milano 2008, p. 19.
[33] Cfr: ivi, p. 167.
[34] Cfr: *ibid*.

intentional object and the mental act are mutually dependent, and their relationship is internal; thus, each element can only be identified in relation to the other.[35] Following Husserl's perspective, every intentional experience has two inseparable aspects: its specific type, known as intentional quality, and its direction toward an object, referred to as intentional matter. This latter component defines both the intended object and its understanding.[36]

Transitioning from these considerations to the domain of art, the aesthetic experience can also be analysed in terms of intentionality. The artwork serves as the focal point of the aesthetic experience, towards which both the intentionality of the artist is directed—since the work embodies the cognitive processes of its creator—and that of the viewer, with whom a relationship is established that yields specific effects. In the context of artworks generated by AI, the element of intentionality is somewhat diminished. While the connection between the artwork and the viewer persists, the same cannot be asserted for the relationship between the artist and the work. In this scenario, intentionality encapsulates the consciousness and subjectivity of the artist; however, these attributes are absent in AI, which, at least for the present moment, are characteristics exclusive to human beings.

Defining Human

Human beings differ from other animals by the uniqueness of the conscious mind they have developed through evolution. The conscious mind enables creative thinking and is foundational to the origins of culture.[37] The complex interaction between awareness of the external world, emotions, logical reasoning, and creative thinking has laid the foundation of societies and the development of what Cassirer defined the *symbolic system*[38]. It is a complex structure of symbols that places human existence beyond the physical and biological world of other animals, defining the human world. This symbolic universe is composed of an intricate web created by human thought forms, intertwining

[35] Cfr: ivi, p. 173.
[36] Cfr: ivi, pp. 176-177.
[37] Cfr: A. Damasio, *Sentire e conoscere: storia delle menti coscienti,* tr. it. di I. C. Blum, Adelphi, Milano 2022, p. 120.
[38] Cfr: E. Cassirer, *Saggio sull'uomo. Introduzione a una filosofia della cultura*, 1944, trad. it. C. D'Altavilla, Armando Editore, Roma 1968, p. 79.

areas such as language, myth, art, and religion.[39] In 1944, Cassirer asserts in *An essay on Man* that man does not face reality directly, as he has surrounded himself with linguistic forms, artistic images, mythical symbols, and religious rituals, to the point he can no longer see or know anything except throughout this artificial mediation.[40] Subsequently, Cassirer criticises defining humans just as an *animal rationale,* since he asserts it is not possible to explain forms of thoughts like religion, myth, art and language just by rational thinking. The richness of the different forms of human cultural life cannot be explained just through reason, since these are essentially *symbolic forms*. Hence, he proposes to define man as an *animal symbolicum*, instead of defining man as *animal rationale*. Cassirer underlines that this new definition would indicate what truly characterises humanity, highlighting what sets it apart from all other animal species. This shift also underscores humanity's intrinsic tendency toward civilization.[41]

According to Cassirer, symbolic thought and behaviour distinctly characterise humanity. Furthermore, these two elements originated the symbolic forms, as described in *The Philosophy Symbolic Forms* (1923-1929). Language, religion, science and art are the ways the symbolic thought is expressed. The aim of these forms is to find existential meanings and create cosmogonies, allowing humans to order the world and to overcome existential anguish. Moreover, these illustrate that the cultural construction, the production of symbolic forms, and artistic practices are phenomena characteristic of every civilization and every era. Hence, art practises are parts of the artificial constructs through which humans understand and reflect over reality and existence.

Artistic creativity arises from the human desire to represent an object through the filter of their inner condition and consciousness, and in relation to the outer world. It can be considered the process of adaptation to the environment through the diversified application of cultural rules and innate cognitive categories that are part of the genetic heritage.[42]

The human mind has the faculty to create mental images form external senses and stimuli, and to interpret these through conscious thinking. The process of image-making

[39] Cfr: ivi, p. 80.
[40] Cfr: *ibid*.
[41] Ivi, p.81.
[42] Cfr: M. E. Di Giandomenico, *L'esperienza artistica di Tiziano Calcari: creatività e lutto nell'arte sostenibile,* Silvana Editore, Milano 2023, pp. 52-53.

is intrinsic to humans: from the combination between mental images and feelings, men create arts and cultural materials, reflecting their historical and cultural contexts. Humans need to gives the world and existence meanings through symbols, art practices, rituals, and cultural artifacts. Yet, this has a biological origin that lies in the evolution of the neural system and the conscious mind. Neuroscience opens an interesting perspective over this matter, highlighting the uniqueness of the human mind and the role of imagery and cognition.

Antonio Damasio has asserted the defining traits of biological intelligence, underlining the singularity of the human ones. In the essay *Feeling and knowing: making minds conscious,* the neuroscientist emphasises the unique development of human neural networks and the explicit intelligence. These allows humans to understand and attribute meaning to the world by creating those symbolic forms that Cassirer had spoken of. The functioning of human intelligence is way more complex than the one of other living beings, Damasio defines it «explicit». He also highlights that the explicit human intelligence requires the presence of a mind and its generated contributes, such as feelings and conscience, as well as physical perception, memory, and reasoning.[43]

The contents that compose the mind are the result of a complex interaction between the body's perceptions – sensitivity – and the ways neural networks elaborates these signals into mental images, indicating not only as visual phenomena but also as auditory, tactile, and visceral. These mental images can be manipulated through reasoning: we can mentally fragment and recombine them in infinite ways, and create new ones.[44] While trying to solve a problem, we call *reasoning* this continuous process of dissecting and reassembling mind's contents.[45] Furthermore, Damasio observes that the process of reasoning is similar to the imagination work.[46] Mind images are the result of the complex interaction between external stimuli and internal thoughts, giving meanings to existence through feelings, memories, symbolic forms, ideas, and symbols.[47]

At this point, it is important to highlight the difference between human explicit intelligence and AI, which is central to any discussion on the similarities and differences

[43] Cfr: A. Damasio, *Sentire e conoscere: storia delle menti coscienti,* tr. it. di I. C. Blum, Adelphi, Milano 2022, p. 49.
[44] Cfr: *ibid*.
[45] Cfr: *ibid*.
[46] Cfr: *ibid*.
[47] Cfr. ivi, pp. 60-61.

between human creativity and AI ones. Creativity is an innate human quality, and it is the result of the thousand-years long evolution of conscious mind. It allows human intelligence to be explicit and is the result of a complex interplay between emotions and consciousness. Firstly, algorithms lack the biochemical structure of humans, which enables bodily sensitivity. Machines do not feel emotions; the data comprising the artificial intelligence lack the emotional depth that the images that make up the human mind have. Damasio emphasises this point, highlighting how the efficient approach adopted to program AI overlooked the realm of emotions and feeling, essentials both for explicit intelligence and creativity.[48] Damasio observes how pioneers of AI had undervalued the importance of the biochemical dimension of body – which allows to feel and to produce an emotion response. This mistake had implied a limit to the potential of AI and computational algorithms[49] and arises from underestimating the importance of emotions, particularly the «affection universe», identified by Damasio as a primary form of intelligence that had a central role to the further development of creativity.[50]

Moreover, AI currently lacks dimensions like subjectivity, consciousness and self-consciousness, which are essential for creativity and the interpretation of experiences. As a result, it cannot interpret the emotional resonance of art beyond algorithmic logic. AI is trained to acquire stylistic patterns but do not know how to interpret them beyond its computational logic. In other words, it responds to human commands and follows standardised paths whereas human intelligence actively pursues inventive and original solutions. While we cannot claim that AI will not develop consciousness in the future, it is crucial to highlight the importance of experiential, perceptive, self-consciousness and consciousness component in art and creativity. The latter results particularly interesting here, and it is largely discussed by Gallagher and Zahavi in *The phenomenological mind*: the third chapter is entirely dedicated to phenomenological perspective on self-consciousness. As most phenomenologists argue, self-consciousness is a constant structural element of any form of conscious experience.[51] Self-consciousness is presented as a subject of experience in an immediate manner, and part of that immediacy is the

[48] Cfr. A. Damasio, *Sentire e conoscere: storia delle menti coscienti,* tr. it. di I. C. Blum, Adelphi, Milano 2022, p. 182.
[49] Cfr: *ibid*.
[50] Cfr: *ibid.*
[51] Cfr: S. Gallagher, & D. Zahavi, *La mente fenomenologica: filosofia della mente e scienze cognitive,* tr. it. di P. Pedrini, Raffaello Cortina, Milano 2008, p. 70.

implicit characterization of it as belonging to me.[52] It appears in various forms and degrees, and it can recall whenever the subject consciously perceives an external object. This process involves an awareness of the object's experience rather than merely its perceptual sensation.[53] Thus, the authors define as «*perirreflective self-consciousness*» the intrinsic experiential dimension, which provides an implicit sense of first-person experience, highlighting the subjectivity of one's own perception. Alongside with this dimension, they also identify «*reflective self-consciousness*», which is explicit and objectifying. The latter allows the contemplation of the experience's object. Gallagher and Zahavi define reflection as a complex self-awareness involving two distinct moments, leading to sort of *self-splitting* and thematic structuring of subjective life. It distinguishes between the reflecting experience, which focuses on the reflected experience, and the reflected experience itself, which is self-aware but non-reflective and non-positional, lacking objectification.[54] This brief digression aims to underscore the critical importance of these dimensions not only for experiencing the external world but, more importantly, for interpreting and attributing meaning to those experiences. The dimensions of consciousness, self-consciousness, and subjectivity significantly influence human creativity, as they enable the artist to reinterpret their experiences and memories, thereby integrating aspects of their own subjectivity into their work.

Memory is another key element that constitutes the inner universe of the human being, it is crucial in defining subjectivity, consciousness and self-consciousness. In a general perspective, memory is described as a psychological and neural function that assimilates data from the external environment, including perceptual stimuli and experiences. Furthermore, memory is part of the cognitive and mental processes discussed above and its role is crucial in learning and knowledge.

In 1896, Henri Bergson analyses the intricate relationship between memory and the body in *Matter and Memory*.[55] The French philosopher seeks to explore the complex interplay between the essence of the spirit and the material world, using the phenomenon of memory as a focal point. Bergson asserts that a comprehensive understanding of human

[52] Cfr: *ibid*.
[53] Cfr: ivi, pp. 75-76.
[54] Cfr: ivi p. 96.
[55] H. Bergson, *Materia e memoria: saggio sulla relazione tra il corpo e lo spirito* (1896), tr. it. di A. Pessina, GLF editori Laterza, Roma, 2011

consciousness necessitates an analysis that embraces the entirety of the individual, integrating the physical body into the discourse. Here, memory is defined as a phenomenon in which psychological and physiological elements converge and integrate.

It is evident the intrinsic relationship between memory, physical experiences and perception. However, it is also a cognitive function that plays a crucial role in various cognitive processes, and is closely associated with creativity. Once elaborated, memory re-interprets past experiences and knowledge. Hence, it does not merely reproduce the past: it represents parts of the past through associating elements and emotional filters. Creativity also works with the associations of different elements through imagination and memory, sometimes even at an unconscious level. The experiences transformed into memories, the matter of feelings in knowing processes, the cognitive abilities that allows imagination: all these elements contribute to define human explicit intelligence, hence creativity.[56]

An explicit intelligence must be autonomous and intentional: these characteristics relate to recognising oneself as the owner of the mind and its mental images, which arise from personal experiences. Thus, each individual's mind is unique, resulting in distinct reasoning and imaginative abilities. This underscores the gap between human cognition and AI, which merely executes commands and lacks true autonomy and intentionality.

These considerations raise the question of whether art produced entirely by AI could interest humans. If machines develop consciousness and intelligence, their art may not be understandable to us. The tendency to anthropomorphise AI often leads to evaluating its outputs through human-centric categories, despite differing making-processes and logics.

In the hypothesis that machines may develop consciousness and autonomous thought, it remains uncertain whether their cognitive processes will resemble those of human thought. Drawing again upon Cassirer's *The Philosophy Symbolic Forms*, human thought is structured through specific categories that address existential needs unique to human beings. Nonetheless, AI may not feel the same emotions or share the same perception of reality as humans. The hypothetical consciousness of AI is expected to adhere to its own framework, and to be characterised by a logical process of thought that is intrinsically linked to the nature of machines and the principles of computational informatics.

[56] Cfr: M. E. Di Giandomenico, *L'esperienza artistica di Tiziano Calcari: creatività e lutto nell'arte sostenibile,* Silvana Editore, Milano 2023, pp. 51-52.

Dealing With a New Medium

AI is a recent technological advancement that enhances human capabilities and encourages reflection on the essence of humanity, creativity, and art. However, we are still far from creating truly human-like machines. AI operates through computational processes linked to human actions; algorithms trained on large datasets recognise patterns but lack independent thought, reasoning, or intentionality. AI creation still relies on human requests, and the complexity of human neural networks and explicit intelligence still remains impossible to reply in machines. Anthropomorphising machines implies oversimplifying the underlying processes in both human and computational creativity.

The computational creative process does not arise from existential needs for meaning or understanding. Despite their complexity, computational algorithms cannot match innate human creativity, which is essential to our identity. The image-making process involves intricate interactions between the human nervous system and physical perception, reflecting the evolution of conscious thought.

Human minds are composed by different kind of mental images that originates from experience and memories. These mental images are elaborated through emotion feeling, reasoning and imagination. The explicit intelligence of humans has created culture, art and symbolic forms. Contemporary AI systems are trained on mathematical processes to generate outputs that align, and in certain cases exceeding and overfitting, the initial prompt. However, this approach neglects the agency of work of art, overlooking its internal resonance and impact on the viewer. Given this limitation, AI underlines all the constraints of the computational processes, excluding the emotional dimension of art. Moreover, focusing on training algorithms to solve a problem in the most efficient way tends to minimise errors – and so the possibility of creating something new.

Despite its significant impact on humans and social relationships, as well as its potential to produce art and transform everyday life, AI cannot fully replace humans. It remains a tool controlled by people. While in future scenarios AI may eventually create independent art, it would follow its own logic and semantic and would differ greatly from human artistic expression. For now, art is a human domain, with AI as one of many media in the contemporary landscape.