EMBODIED CREATIVITY AND THE LIMITS OF ARTIFICIAL INTELLIGENCE: A CONCEPTUAL CRITIQUE THROUGH ARTISTIC PRACTICE

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Abstract

The creative human mind operates in ways fundamentally different from AI through our bodies, emotions, and lived experiences that algorithms simply cannot replicate. This paper presents a conceptual and interpretive critique of AI's creative limitations by examining neurological processes, particularly the brain's Reticular Activating System (RAS), which serves as our attention filter and shapes how we process creative stimuli. Drawing on Material Engagement Theory and somatic cognition, I argue that creative thinking emerges through active engagement with materials and bodily sensation, an idea further supported by recent work in neuroaesthetics. I ground this theoretical analysis in three works from my own artistic practice Captive Bird, Arsenic: King of Poisons, and Ghost in the Wind using them as interpretive touchstones to illuminate how human creativity emerges from sensory experience, emotional memory, and physical engagement with materials. Each piece contextualizes philosophical arguments about what machines cannot achieve: the intuitive leaps that arise when we filter stimuli through personal experience, the integration of half-forgotten memories that surface unexpectedly during creation, and the tactile discoveries that come through manipulating physical media. While AI tools generate impressive technical outputs, they fundamentally lack the embodied intuition that gives human art its depth and resonance. This critique positions AI as a sophisticated tool that extends human creative capacity rather than an autonomous creative force.

Embodied Creativity; Reticular Activating System (RAS); Neuroaesthetics; Material Engagement Theory (MET); Somatic Cognition; Artificial Intelligence Limitations

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Introduction

Creative thought is fundamentally embodied: our bodies, senses, and emotions shape how ideas emerge. Embodied cognition holds that “the mind is more than the brain, that knowledge is distributed across the body,” and that our perceptions and reasoning are grounded in lived, sensory experiences (Shaheed, 2021). In contrast, artificial intelligence (AI) operates by detecting patterns in data and optimizing algorithms, producing outputs devoid of personal context. For example,

an artist's choice of color or form often reflects unconscious memories and visceral reactions a process AI cannot replicate.

This paper examines that divide through the lens of the Reticular Activating System (RAS), the brainstem network that acts as our sensory gatekeeper. The RAS constantly filters incoming stimuli, amplifying those that match our intentions or emotions and dimming irrelevant noise (Patel & Azzam, 2019). by combining insights from neuroscience and phenomenology with concrete examples from my own art practice, I show how human creativity emerges from an ongoing dialogue between body and world.

The following sections examine the role of the Reticular Activating System (RAS) and embodied attention in creativity, explore how memory episodic, semantic, and emotional intertwines with sensation to produce art, and present three case studies from my practice that illustrate sensory and emotional processes in artistic making. Building on these analyses, the discussion highlights the fundamental limits of current AI systems: while generative models can rearrange elements statistically, they lack the neuro-somatic substrate of human creativity.

Theoretical Background: Embodiment, Material Engagement, and Neuroaesthetics

Building on embodied cognition, I approach creativity as a neuro-somatic process rather than a purely computational one. Embodied cognition proposes that perception and thought are enacted through the whole organism in its environment: cognition is not confined to the brain, but distributed across brain, body, and world (Varela, Thompson, & Rosch, 1991). From this perspective, creative thinking arises from sensorimotor coupling with the environment, and imaginative acts are inseparable from bodily states such as posture, movement, and affect.

Merleau-Ponty's phenomenology of perception further emphasizes the "lived body" as the primary site of meaning, arguing that perception is essentially bodily and that we cannot understand experience apart from our corporeal being-in-the-world (Merleau-Ponty, 1962). On this view, I do not stand outside my body and then interpret sensations; rather, my body is already entangled with the world, and this entanglement is where meaning first appears. For an artist, this means that creative insight emerges through situated, bodily engagement with materials and spaces, rather than from detached mental representation alone.

Material Engagement Theory (MET) extends these ideas by treating things, tools, and materials as cognitive partners in thought. Malafouris argues that mind is not limited by the skin and that we often think with and through things, rather than merely about them. He describes this as "thinging": a process in which cognitive becoming unfolds through ongoing interactions between brain, body, and artifacts (Malafouris, 2013; Malafouris, 2018). In this sense, creative practice is not the internal generation of ideas later applied to matter; it is a continuous negotiation in which materials themselves participate in shaping thought.

Neuroaesthetics complements these perspectives by framing aesthetic experience as an emergent state arising from the interaction of sensory–motor, emotion-valuation, and meaning-knowledge neural systems—the so-called

“aesthetic triad” (Chatterjee & Vartanian, 2014). Sensory–motor circuits process formal properties and implied actions, emotion-valuation networks support affect and reward, and meaning–knowledge systems encode cultural, semantic, and autobiographical associations. Together, these systems help explain why my experience of making and viewing art is at once bodily, emotional, and interpretive. This triadic model maps closely onto my focus on sensation, emotional memory, and semantic associations in artistic practice and provides a neuroscientific frame for understanding why current AI systems, which lack a living body and affective history, cannot fully replicate such experiences.

The RAS and Embodied Attention

The Reticular Activating System (RAS) is a diffuse network of nuclei in the brainstem that regulates wakefulness and attention (Arguinchona & Tadi, 2023; Patel & Azzam, 2019). This selective gating by the RAS helps configure the sensory–motor and emotion-valuation components of the aesthetic triad described in neuroaesthetics, shaping which features of a work become salient in my creative experience.

It receives input from the spinal cord and sensory pathways and projects throughout the brain, ultimately determining which sensations reach conscious awareness. In practical terms, the RAS “is ultimately responsible for attention, arousal… and the ability to focus” (Patel & Azzam, 2019). For an artist immersed in creation, this filtering is profoundly embodied. As one sketch session unfolds, irrelevant sights and sounds fade into background, while subtle textures, colors, or bodily rhythms come into sharp focus. Breathing slows, heart rate adjusts, and the eyes narrow; the artist is in a state of flow guided by shifting priorities of the RAS.

Unlike biological attention, computer algorithms process inputs all at once and without inherent weighting. Modern AI can analyze vast datasets in parallel, unaffected by fatigue or distractions (Zhang, 2024). It lacks the dynamic, emotion-driven selection that the RAS provides humans. In other words, a neural network gives every pixel or token equal chance unless explicitly programmed otherwise, whereas our RAS inherently prioritizes stimuli by meaning and feeling. This adaptivity is a cornerstone of embodied creativity, where thinking and seeing are inextricably linked to bodily states. AI simply has no equivalent filter: it can simulate the visual variety of art, but it cannot choose what matters in any given moment of creation.

Creativity, Memory, and Emotion

Human creativity thrives on the interplay between current sensation and past experience. When an artist paints a “wrong” shade of blue into a sky, it may feel intuitively right because sensory cues have invoked a memory or mood. We can differentiate three memory systems that contribute to such intuition:

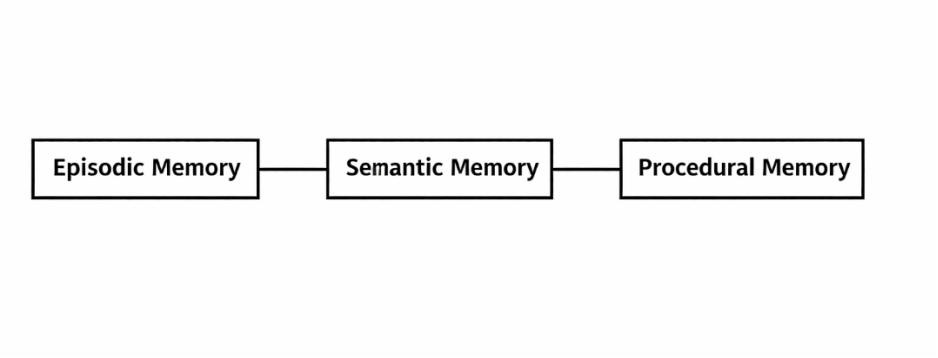

Figure 1. Overview of three memory systems—episodic, semantic, and emotional—and their roles in cognitive processing. Episodic memory supports vivid recollections of personal events, semantic memory encodes conceptual and cultural knowledge, and emotional memory captures affect-laden associations that color perception and decision-making

Episodic memory: Vivid recollections of personal experiences, triggered by sensory cues (a smell, color, or texture) that flood the mind with a sense of having been there. These memories often supply raw emotional tone or narrative strands in art.

Semantic memory: Conceptual knowledge of the world facts, cultural symbols, and conventions that provide a framework for meaning. Even a single gesture or motif in a painting can evoke mythic or cultural associations stored in semantic memory.

Emotional memory: Affect-laden associations encoded by the limbic system (notably the amygdala) that color experience. A familiar texture or shape can evoke joy, fear, or nostalgia without conscious thought.

Crucially, the RAS modulates all these memory inputs, amplifying those that align with the artist’s intentions or emotional state and suppressing others. For instance, in a dark studio, a faint sound might suddenly become salient if it resonates with the mood being painted. AI, by contrast, has no autobiographical or emotional memory; its “knowledge” is an aggregation of data patterns. It can recombine visual or conceptual elements statistically but lacks the embedded affect that arises from a personal history of experiences. In human minds, memories and current perception meet body-first: a remembered childhood fear of spiders might cause an artist’s hand to tremble when shaping spiky forms. AI models simply have no analog to that visceral, context-rich memory. They process data (training images, text) as raw inputs, so their “creativity” is effectively an impersonal rearrangement of features rather than a meaningful, lived transformation (Zhang, 2024).

Case Studies of Embodied Artistic Practice

Captive Bird A Tactile Emergence

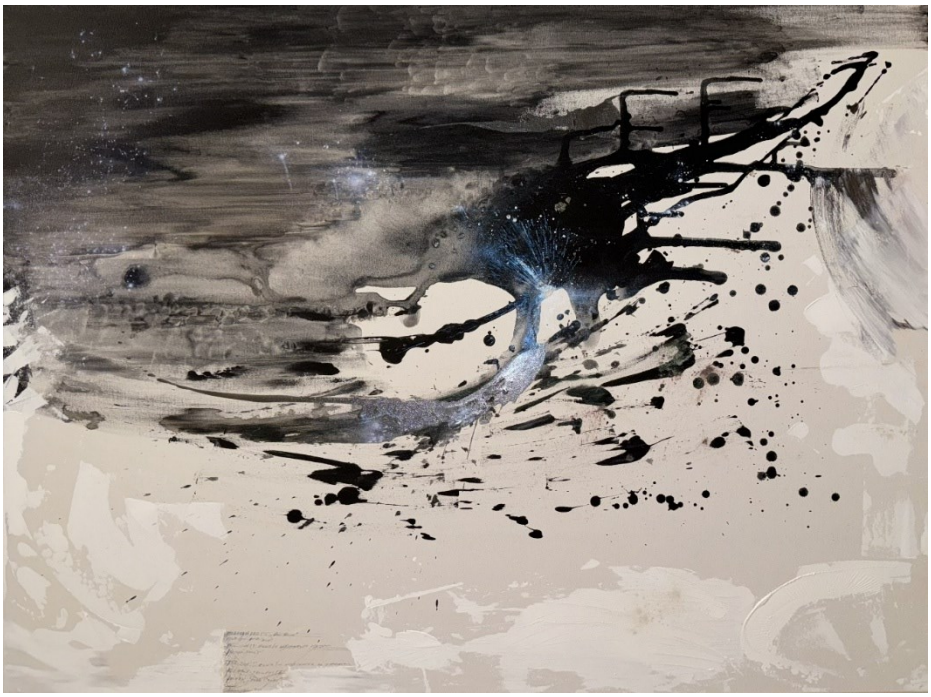

Figure 2. *Captive Bird* from the *Unseen Shadows* collection by Arefeh Ahmadi (2024). This painting emerged through a tactile, pre-reflective process in which visual fatigue shifted my attention toward the feel of paint and canvas, highlighting the role of embodied, proprioceptive intuition in creative decision-making.

In Captive Bird, my body guided creation through touch. Working late into the night, visual fatigue set in. The canvas at first appeared blurred, so I instinctively continued by feeling. My hands explored the paint's viscosity and the canvas grain; my fingertips detected subtle ridges in the wet medium. During this phase, my Reticular Activating System (RAS) shifted priority: visual input faded and tactile sensation dominated. Without a prior plan or reference image, shapes and rhythms emerged through the act of touching. This pre-reflective mode—sensing texture before seeing form—illustrates how my body can direct a creative outcome. No AI system has intrinsic proprioception or tactile feedback. An AI image generator may apply texture-like effects across pixels, but it cannot feel the weight, resistance, or cool wetness of paint against the skin. Captive Bird exemplifies how my art can grow from the body's proprioceptive intuition—a source of creative authority that disembodied algorithms lack.

Arsenic: King of Poisons (As 33–74.92)



Figure 3. *Arsenic: King of Poisons* (As 33–74.92) from the *Unseen Shadows* collection by Arefeh Ahmadi (2024). The work materializes a lived tension between the known toxicity of arsenic and the seductive beauty of its metallic surface, showing how cognitive appraisal and visceral attraction can coexist and shape the final form.

In *Arsenic: King of Poisons*, this mixed-media artwork grew from the tension between knowing arsenic is toxic and being captivated by the material's beauty. **I** understood the danger intellectually, yet the warm metallic sheen of the medium inspired fascination. This contrast created a physical and emotional conflict during the making process: a subtle sense of caution in **my** hands, paired with curiosity and attraction. The clay's cold weight suggested risk, while its bronze surface invited closer engagement. **My** Reticular Activating System (RAS) allowed these opposing feelings to coexist, letting both fear and fascination shape the final form. AI, however, cannot experience such inner conflict. A machine may correlate "poison" and "metal" through patterns in data, but it cannot feel the simultaneous pull of danger and beauty. *Arsenic: King of Poisons* emerged from **my** lived paradox, where the material's toxicity itself became part of the creative inspiration.

Ghost in the Wind

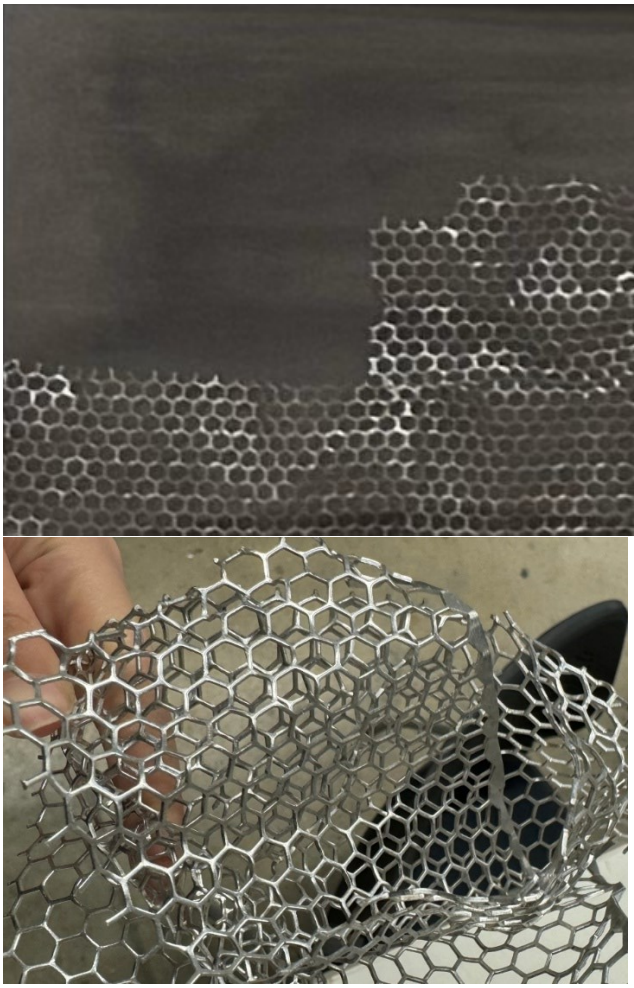

Figure 4. *Ghost in the Wind* (2024). Top: Overall view of the sculptural steel installation. Bottom: Close-up detail of twisted metal forms, emphasizing the material's resistance, surface reflections, and spatial dynamics.

In *Ghost in the Wind*, creation became a full-body negotiation. Steel sheets had to be bent and twisted by hand, and **I** felt every point of resistance as the metal responded to **my** bodily force. From the perspective of Material Engagement Theory, the steel itself participates in shaping my thought; as I twist and bend the sheets, cognition unfolds through this reciprocal negotiation with the material, rather than preceding it as a purely internal plan.**My** Reticular Activating System (RAS) constantly shifted attention between the changing visual field—light glinting across the steel—and proprioceptive feedback—the subtle weight, tension, and strain in **my** muscles. **My** spatial awareness of how each form occupied the surrounding environment emerged directly from these sensory exchanges. This multisensory process is fundamentally different from how AI operates. A generative model can simulate the appearance of metal or calculate reflections, but it cannot feel weight, resistance, heat, or physical strain of shaping a material. *Ghost in the Wind* is an artwork that AI could not conceive of on its own because it has no body to inhabit space or negotiate force in the way **I** do.

Discussion: Embodied Limits of AI Creativity

Across my case studies, key differences between human and AI creativity become clear. First, human creativity is inherently embodied: I use all my senses and bodily movements in making art, and my aesthetic decisions are inseparable from tactile, visual, and kinesthetic engagement with materials, in line with embodied cognition and phenomenology of the lived body (Varela, Thompson, & Rosch, 1991; Merleau-Ponty, 1962). AI systems, by contrast, are purely computational and disembodied; they manipulate symbols and data structures without inhabiting a body or moving through space. Closely tied to embodiment is selective attention. Through the Reticular Activating System (RAS), my body dynamically filters sensory input based on relevance and intention, bringing certain textures, colors, or sounds into sharp focus while letting others fade into the background (Arguinchona & Tadi, 2023; Patel & Azzam, 2019). AI models can approximate “attention” in a technical sense, but they process input data according to engineered objectives rather than lived priorities shaped by emotion, fatigue, or bodily investment in the work (Zhang, 2024).

Moreover, human memory and experience give creativity a depth that current AI cannot match. My memory is associative, personal, and context-dependent: a smell, shade of color, or surface texture can suddenly invoke autobiographical episodes, cultural meanings, and half-forgotten feelings that guide my choices during making. AI “memory,” by contrast, consists of static training datasets and learned parameters that encode statistical regularities rather than lived histories (Zhang, 2024). This difference is tightly connected to emotional resonance. In my practice, the limbic system—especially structures such as the amygdala—provides an affective tone to perception and decision-making; fear, desire, nostalgia, and joy all shape how I see and what I choose to emphasize (Shaheed, 2021). AI systems have no genuine emotions or motivations; what might appear as “mood” in their output is the by-product of pattern recombination rather than felt experience.

Finally, the way I adapt to context during creation underscores a further gap between human and machine. Human artists display continuous contextual adaptation: a broken tool, a spill on the canvas, or an unexpected emotional shift can become a catalyst for new directions in the work, and meaning evolves through my ongoing negotiation with these contingencies. AI outputs, however, are fixed once generated unless a human intervenes; the system does not reinterpret its own actions in light of new bodily or environmental circumstances. Taken together, these contrasts show that current AI’s “creativity” is fundamentally representational rather than experiential. It can rearrange styles and motifs and even simulate complex aesthetic structures, but it does not feel paint viscosity under a fingertip, the weight of steel resisting a twist, or the tightening of the chest in response to toxic beauty. As scholars of computational creativity such as Boden have argued, algorithmic systems explore and transform structured possibility spaces rather than drawing on autobiographical, affect-laden lives (Boden, 2004). Qualitative studies of human–AI collaboration like Menon’s suggest that such tools can leave practitioners feeling disconnected from their own processes (Menon, 2024). Within this landscape, my examples support the view—also echoed by neuroaesthetic accounts of embodied, affective, and meaning-laden experience—that AI should be

understood as a powerful technical aid, not as an autonomous creative agent capable of the neuro-somatic depth that arises from a living body in the world (Chatterjee & Vartanian, 2014; Varela et al., 1991; Merleau-Ponty, 1962).

Conclusion

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