From Pixel to Material: The Application Path of AI-Generated Schemata as Oil Painting Underdrawings

Lingyu Zhang, Liping Qiu

Department of Public Basic Courses, Ji'an College, Ji'an, Jiangxi, China

Abstract. Against the backdrop of the explosion of AI image generation technology, oil painting creation faces updates in both concept and methodology. Addressing how to effectively transform the non-material AI-generated "pixel" schemata into oil painting "material" entities that carry the artist's emotion and concept, this paper constructs a four-stage workflow of "Screening-Interpretation-Translation-Realization". It elaborates in detail the specific methods, technical challenges, and decision-making processes involved in using AI schemata as creative underdrawings.

Keywords: AI-generated Schemata; Oil Painting Underdrawing; Pixel; Materiality; Application Path; Translation; Creative Methodology.

1. Introduction

Oil painting, as an artistic practice with a long history, has always included a rigorous preparatory underdrawing stage in its creative process. From the sketch (disegno) studies of Renaissance masters to the color sketches of Impressionist painters capturing light and outdoors, the underdrawing has always served the key functions of conception, composition, and formal exploration. Art historian Erwin Panofsky pointed out that the Renaissance "disegno" referred not only to technical drawing but also implied an "internal design," an intellectual activity where the artist transforms ideas into visible form [1]. This tradition, centered on hand-drawing, established the foundation of coordination between hand, eye, and mind in oil painting creation.

Entering the digital age, the tools for artistic creation have undergone profound changes. From digital painting software (e.g., Photoshop, Procreate) to 3D modeling, technology continuously expands the boundaries of art. In recent years, the rapid development of generative artificial intelligence technologies, represented by Diffusion Models, has given rise to AI image generation tools like Midjourney and Stable Diffusion. These tools can instantly generate vast amounts of visual images based on text prompts, with unprecedented efficiency and diversity. This has spawned a new type of visual resource and creative starting point – the AI-generated schema.

This paper specifically defines AI-generated schemata as a new type of "digital underdrawing." Compared with traditional hand-drawn underdrawings, it possesses three disruptive characteristics: First, high efficiency and boundlessness, it can provide a vast range of visual possibilities in a very short time, greatly expanding the artist's visual library and conceptual boundaries; Second, serendipity and inspiration, the unexpected combinations generated by AI trained on massive datasets, which transcend the habitual thinking of individual artists, can become a "muse" that sparks inspiration; Third, virtuality and non-materiality, its essence is a collection of pixels on a screen, lacking any physical brushstroke, texture, or material quality. As media theorist Lev Manovich stated in *The Language of New Media*, one of the core characteristics of the digital image is its "numerical representation" and "programmability"; it is separated from the material world from its inception[2].

Consequently, we are facing a historic shift in the paradigm of the underdrawing. This shift compels practitioners of oil painting to respond to a core question: In the face of the "generative efficiency" and "algorithmic serendipity" represented by AI technology, where does the contemporary value and future path of oil painting, rooted in manual skill, materiality, and bodily experience, lie? How should painters select, adopt, and transform these non-material "pixel" schemata, so that they ultimately become oil painting entities rich in material sense, carrying the individual emotion and concepts of the artist? This paper explores based on this inquiry of our time.

2. Definition of Core Concepts

Pixel: In this paper, it refers to the basic constituent unit of AI-generated images, symbolizing their digital, virtual, and infinitely reproducible nature. It is informational, algorithmic, a visual temporary existence in cyberspace.

Materiality: In this paper, it specifically refers to the sum of physical materials and traces in oil painting creation, such as canvas, paint, brushstrokes, and texture. It emphasizes the involvement of the body, the sedimentation of time, and the physical presence of materials collectively constituting an irreproducible sense of substance and presence.

3. The Aesthetic Qualities of AI-Generated Schemata and Their Potential as Underdrawings

AI-generated schemata are not random pixels without basis; they are products of probability models trained on massive visual datasets. This essence endows them with unique potential as oil painting underdrawings, primarily manifested in the following three aspects:

First is their unparalleled structural suggestiveness. AI can rapidly construct complex scenes, human dynamics, and spatial relationships, providing artists with immediate visual references for composition, major forms, and value relationships. For creative themes requiring complex narrative compositions or specific lighting atmospheres, this greatly saves the time cost of preliminary conception. For example, when conceiving a landscape with surrealistic overtones, a painter can quickly obtain dozens of schemata with distinct characteristics in composition and element combination through Prompts, a level of efficiency far beyond that of traditional hand-drawn sketches. This capability, in a sense, can be seen as an externalization and rapid concretization aid for the artist's "inner vision."

Second is the serendipity and inspiration of their imagery. The inherent randomness in the AI generation process often produces unexpected visual combinations and images beyond the artist's preset intentions. This "machine serendipity" can break the painter's ingrained thinking patterns and formal habits, becoming a valuable opportunity to inspire creativity. The concept of "creative destruction" put forward by French philosopher Catherine Malabou when discussing "plasticity" is quite enlightening here[3]. The "errors" or "accidents" of AI may precisely constitute a "creative destruction" of the artist's established conception, forcing or inspiring them towards an unanticipated, more dynamic creative direction. It acts not as an obedient servant, but as a stimulating collaborator capable of proposing "alternative solutions."

Finally, there is their stylistic plasticity. Through precise control of the Prompt, AI can quickly simulate the visual stylistic features of different art movements and masters. This means that artists can easily obtain an underdrawing for a "portrait with Rembrandtesque lighting" or a "landscape with Pollock-like drip tendencies." This provides an extremely convenient starting point for artists' stylistic research and formal experiments. Scholar Paul Crowther, in *The Phenomenology of Digital Art*, discussed how digital technology can "decouple" form from matter, making the exploration of style more pure and free [4]. AI-generated schemata are the ultimate embodiment of this "decoupling"; they allow style, as a visual grammar, to be easily invoked and mixed.

4. Inherent Deficiencies of AI-Generated Schemata as Underdrawings and Coping Strategies

However, if we fail to recognize the inherent deficiencies of AI-generated schemata as underdrawings, we are highly susceptible to losing our direction in creation and becoming subservient to technology. The challenges primarily stem from the disconnect between its algorithmic nature and the material world.

4.1 Fundamental Lack of Materiality

AI-generated images are flat visual presentations devoid of brushstrokes and texture. Their colors exist in the screen-emitted RGB mode, vastly different from the material colors of oil paint achieved through mixing and layering. This deficiency often causes AI schemata to exhibit a kind of "perfect smoothness" or "algorithmic average" visually, lacking the life temperature and traces of time inherent in manual creation. Art theorist Zhang Wei once emphasized that the physical properties of materials "speak by themselves," constituting the irreplaceable "objecthood" aesthetics of painting[5]. This is precisely what AI underdrawings completely fail to provide.

4.2 Logical Fallacies and Structural Unreliability

Since AI does not truly "understand" what it generates, it often produces obvious errors in spatial perspective, anatomical structure, and physical logic. For instance, it might generate figures with an abnormal number of fingers or objects levitation defying gravity. These "hallucinations" are common technical limitations of current generative AI. If painters uncritically copy them entirely, they will introduce these algorithmic fallacies into the final oil painting, compromising its internal coherence and persuasiveness.

4.3 Initial Void of Meaning

AI-generated schemata represent a statistical "average beauty" or "patterned combination," lacking a clear emotional direction and profound conceptual core at the moment of generation. Their "content" is a product of the prompt context, rather than a direct outpouring of the artist's inner emotions and life experiences. If the artist lacks a strong subjective intent, they can easily be overwhelmed by the vast number of AI-generated images, leading the final creation to become a superficial visual spectacle. This intensifies the waning of the "aura" of art in the age of mechanical reproduction, as warned by Benjamin[6], because even the initial act of creation is partially handed over to the machine.

Coping Strategies: Establishing the Dominance of Artistic Subjectivity

Confronted with the potential and flaws of AI underdrawings, the artist must adopt a firm theoretical stance: resolutely prioritize artistic subjectivity and relegate technology to a subordinate, instrumental role.

Transcending "Faithful Reproduction": Establishing the AI Underdrawing as a "Reference"

We must completely abandon the mindset of treating the AI underdrawing as an imperial decree. Its position in the creative workflow should be that of an "inspirational reference" or an "unfinished rough draft." Traditional Chinese painting theory emphasizes "learning from nature". Similarly, the "digital nature" generated by AI requires the artist to "learn from" it with the "Self" as the master. As Shi Tao said, "Why should I learn from the ancients without transforming?" When dealing with AI, we should emphasize "transformation" over "replication."

"Transduction" rather than "Translation": Emphasizing the Artist's Understanding and Sublimation

The process from pixel to material is not a mechanical "translation" (seeking the highest degree of formal resemblance), but a "transduction" full of subjective agency. "Translation" pursues the equivalent transmission of information, while "transduction" permits and even requires re-creation, selection, correction, and sublimation based on understanding. Philosopher Gilles Deleuze's concept of the "fold" might serve as an analogy for this process: the artist, through the "folding" and "unfolding" of their body, emotion, and skill, transforms the smooth, digital pixel plane into a material existence full of folds, furrows, and depth [7].

The Final Intervention of the Painter's "Embodiment": Overcoming Deficiencies and Infusing Spirit

The fundamental power to overcome all the deficiencies of the AI underdrawing and ultimately endow the work with soul comes from the painter's embodiment. Maurice Merleau-Ponty's phenomenology of perception emphasizes that the body is the origin point through which we perceive

the world and express meaning [8]. In oil painting creation, the movement of the hand, the force of the brushstroke, the mixing and application of paint – all these bodily experiences are direct traces of the artist's life force and will. It is precisely this embodied intervention that can correct the logical errors of AI, cover the digital smoothness with real material texture, and "infuse" the artist's unique emotions and concepts into the material, thereby accomplishing the decisive leap from "algorithmic product" to "artistic life."

In summary, using AI-generated schemata as oil painting underdrawings is a double-edged sword. While they offer unprecedented visual inspiration and efficiency, they are also accompanied by the pitfalls of material lack, logical fallacies, and semantic void. The key to successful transformation lies in whether the artist, with strong subjectivity, can effectively play the roles of "critical editor," "wise transducer," and "vital finisher." This establishes the core theoretical principle for constructing the specific practical workflow in the next chapter.

5. Application Path Construction: The Four-Stage Workflow of "From Pixel to Material"

Theoretical analysis points the direction for application, but the real challenge lies in translating concepts into actionable, concrete steps. Based on the profound understanding of the potential and deficiencies of AI-generated schemata developed earlier, and guided by the theoretical framework of "artist subjectivity," this chapter constructs a practical workflow consisting of four stages: Intentional Screening, Critical Interpretation and Planning, Material Translation, and Transcendence and Completion. This workflow is not a rigid dogma but a dynamic, cyclical system emphasizing the artist's continuous decision-making and creative intervention.

5.1 Stage One: Intentional Screening – Finding the "Potential Underdrawing" from Mass Generation

Faced with the vast ocean of images generated by AI tools, aimless wandering only leads to decision paralysis. Therefore, the screening in the first stage must be guided by the artist's clear creative intention.

1. Theme First: Guiding Prompt Design with Concept

The creative process begins with a clear concept or emotional core, not random keyword attempts. The author's creative process involves designing and iterating Prompts around core imagery. This method ensures that the generation process consistently serves a unified artistic concept, avoiding degenerating into meaningless visual accumulation. This aligns with artist Anselm Kiefer's view: "Material is just the bearer of my thought."[9] Here, the AI-generated pixels become the initial "digital material."

2. Aesthetic Judgment: Identifying "Painterly Potential"

Among the numerous generated results, the artist needs to make rapid aesthetic judgments based on their professional expertise. The selection criterion is not to find the "perfect finished image," but to identify schemata that possess "painterly potential". The core criteria include:

Compositional Tension: Whether the picture structure possesses dynamism, balance, or surprising visual guidance.

Color Atmosphere: Whether the color palette or certain unexpected color combinations can evoke emotional resonance.

Uniqueness of Imagery: Whether visual images that transcend conventional imagination and possess metaphorical or symbolic potential have emerged.

3."Aesthetics of Incompleteness": Embracing Underdrawings that Leave Room for Hand-Painting

The most valuable underdrawings are often those with a "completion level" around 70%-80%. They provide a solid structural foundation and core imagery but leave ample blank and ambiguous areas in details, textures, and local logic. This very "incompleteness" precisely reserves precious space for the artist's hand-painted intervention, inviting the artist to "complete" it with their bodily

experience and skill. The "postproduction" theory proposed by curator Nicolas Bourriaud suggests that the key to contemporary creation lies in the selection and re-contextualization of existing cultural products [10]. Here, the artist is selecting the products of the AI "cultural production machine" and grant them a new material context.

5.2 Stage Two: Critical Interpretation and Paper-Based Planning

After selecting the underdrawing, the artist must shift from being an "appreciator" to a "critical editor," completing crucial diagnosis and planning on paper before formally applying paint to canvas.

1.Problem Diagnosis and Formulation of Correction Plans

First, it is essential to conduct a "physical examination" of the AI underdrawing with a professional eye. This includes: marking logical fallacies such as inconsistent perspective, distorted anatomical structures, and unreasonable object forms. For example, if the AI-generated rock structure in the underdrawing has an unreasonable overhang, it should be promptly re-anchored and reshaped in the sketch according to the physical logic of rocks. This step is the first, and decisive, correction of algorithmic limitations by the artist's subjectivity.

2.Visual Purification: Composition Management through Sketching

Next, visual purification needs to be carried out by drawing small sketches. This includes:

Compositional Selection and Omission: Strengthening the main subject, weakening, or deleting distracting redundant elements.

Form Reinforcement: Clarifying the structure and contours of key forms to make them more powerful.

Rhythm Organization: Organizing the visual rhythm of points, lines, and planes in the picture to ensure it aligns with the artist's inner feeling.

This process, akin to "positioning management" in traditional Chinese painting theory, is a personalized re-creation of the initial composition provided by AI.

Color Reconstruction: Designing a Materialized Color Scheme

At this stage, one must completely break free from the constraints of the AI's on-screen RGB colors and create an independent color design study. The artist needs to consider: How to convert RGB color values into the material colors of oil paint? How to use the relationships of hue, value, and chroma to create the desired emotional atmosphere? For instance, the author intentionally adjusted an overly vivid "digital blue" in the AI underdrawing to a more mineral-like mixture of ultramarine and cobalt blue, and planned the sequence of color layers (e.g., warm underpainting, cool upper layers) to utilize the transparent properties of oil paint for deeper color effects.

5.3 Stage Three: Material Translation on the Canvas

This is the core link of the workflow, the substantial stage where digital information is overlaid, replaced, and sublimated by corporeal experience.

1.Substrate Preparation and Confident Drawing

Select a canvas with different textures (coarse or fine weave) according to the pictorial intent and confidently begin the drawing using charcoal or diluted paint. The key here is to "re-draw" rather than "trace." The movement of the hand should be expressive, with lines conveying the artist's affirmed understanding of the form, rather than carefully replicating the contours on the screen.

2.Materialization of Color

This is the key battle against the virtuality of AI. The focus lies on:

Paint Thickness: Strategically using scumbles and impastos. For example, use scumbling for distant views or blurred areas to make them airy and ethereal; for foreground subjects or areas requiring emphasized light sources, use a palette knife or brush loaded with paint to create impasto, forming tangible entities with projections. This contrast between thick and thin itself creates visual and tactile rhythms that the screen cannot present.

Medium Texture: Utilizing oil painting mediums (such as alkyd resins to speed drying, cold wax to add matte and heavy texture) to alter the physical properties of the paint, creating unique, personalized material language.

3. Construction of Brushwork and Texture

Systematically replace the smooth gradients of the AI image with expressive, varied brushstrokes. The direction, length, speed, and urgency of the brushstrokes should all become means of expressing emotion and shaping form. Furthermore, actively use techniques like scraping, scrubbing, incising, and dripping to construct physical textures on the canvas that AI cannot generate. These traces record the time and bodily movement of the creative process, becoming the ultimate proof of the artist's "presence." Henri Matisse emphasized: "The brushstroke must spring from a considered gesture, it carries the artist's emotion."[11] Here, every brushstroke is a personalized counterattack against the algorithmic tendency towards averaging.

5.4 Stage Four: Transcendence and Completion – The Final Infusion of Subjective Spirit

Once the major relationships within the picture are established, the creation enters its most subtle phase – breaking away from dependence on the underdrawing and allowing the work to grow and complete itself according to its own material logic.

1. Embracing Accidental Effects

During creation, be keen to capture and preserve the effects formed by the accidental flow of paint or the fortuitous interplay of brushstrokes. These "happy accidents" are products of the interaction between corporeality and materiality; they inject an unpredictable "sense of life" into the picture, marking the work's departure from a mechanical feel.

2. Adjustments Based on the Internal Logic of the Picture

In the final stage, the artist should shift their attention completely away from the AI underdrawing and focus solely on the canvas itself. Make holistic, intuition-based adjustments according to the relationships between the colors, brushwork, and textures already present on the canvas. It might be necessary to intensify the color contrast in one area or soften an overly abrupt brushstroke in another. The decision-making criterion at this point is no longer "whether it resembles the AI underdrawing," but "what the picture itself needs."

3. The Mark of Completion: Harmonious Unity

The mark of completion is the achievement of a perfect, harmonious unity between the "ghost" of the digital pixel and the "body" of the oil painting material. The initial imagery of the AI underdrawing has been thoroughly internalized, absorbed, and transcended. It exists within the work as a kind of "memory" or "gene," but what the audience perceives and is moved by is entirely the beauty of the oil painting material itself and the spiritual power infused by the artist. Only at this point is the transformation "from pixel to material" truly complete.

6. Conclusion

In creations involving AI technology, the ultimate value and uniqueness of an oil painting work reside not in the originating algorithm, but are irreplaceably condensed within the digitalized material traces and bodily experiences. The force behind each brushstroke on the canvas, the undulation of every texture, the layering of each color glaze – all serve as direct, tangible proof of the artist's life force and emotional depth. This constitutes the very foundation upon which oil painting art can not only endure but also find renewed vitality in the digital age.

Admittedly, as an exploratory study, this paper has its inherent limitations. It primarily focuses on the creative process of easel painting. While it acknowledges the broader ethical and copyright issues associated with AI-generated underdrawings, it does not delve into a systematic discussion of these matters. For instance, the copyright ownership of training data sources and the legal boundaries of using generated schemata in commercial applications are important issues that require ongoing attention and discussion in the future.

Looking ahead, further exploration can proceed in the following directions:

Firstly, on a personal level, the author intends to build upon the existing workflow to further explore the possibilities of combining AI with a wider range of oil painting mixed media and hybrid techniques. This includes, for example, integrating digital images with methods like collage and transfer printing, aiming to develop more groundbreaking visual-material languages.

Secondly, for oil painting education, this research suggests the necessity and feasibility of introducing training on the conceptual use of AI tools within academic curricula. Future educational reforms could consider how to incorporate AI as a tool for assisting conception and composition training into the foundational teaching system. Simultaneously, emphasis should be placed on cultivating students' critical thinking and sense of subjectivity, enabling them to confidently and consciously harness new technologies.

Finally, we should recognize that technological waves bring not only challenges but also opportunities for reinvention. As artist Anselm Kiefer stated: "Art always grows under constraint."[9] AI technology is precisely the new "constraint" bestowed upon artists in this era. We contend that between the algorithm and the brush, the artistic fire of oil painting will not be extinguished. On the contrary, through this profound dialogue and refinement, it can burn with greater intensity and clarity. Materiality, as the ultimate testament to the artist's body and spirit, is endowed with a new mission and dignity in the digital age – to steadfastly guard and pioneer the irreproducible, the real, the experience filled with aura, in a world saturated with the virtual and the copy. This research represents a preliminary survey in this long journey, hoping to inspire more fellow practitioners to jointly contemplate and create the future destiny of oil painting.

References

[1] Panofsky, E. (1972). *Renaissance and Renascences in Western Art*. Harper & Row.

[2] Manovich, L. (2001). *The Language of New Media*. MIT Press.

[3] Malabou, C. (2008). *What Should We Do with Our Brain?*. Fordham University Press.

[4] Crowther, P. (2008). *The Phenomenology of Digital Art*. Palgrave Macmillan.

[5] Zhang, W. (2021). *The Gaze of Materials*. Shanghai People's Publishing House.

[6] Benjamin, W. (1935). *The Work of Art in the Age of Mechanical Reproduction*.

[7] Deleuze, G. (1988). *The Fold: Leibniz and the Baroque*. University of Minnesota Press.

[8] Merleau-Ponty, M. (1945). *Phenomenology of Perception*. Gallimard.

[9] Kiefer, A. (2016). *Art will survive*. Knopf.

[10] Bourriaud, N. (2002). *Postproduction*. Lukas & Sternberg.

[11] Matisse, H. (1908). *Notes of a Painter*.