

AIGC Technology's Reconstruction of Design Ethics and Exploration of Visual Communication Practice Pathways

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ABSTRACT

AIGC technology reconstructs the ethical dimensions of visual communication, triggering four fundamental transformations: redefinition of originality, dissolution of subjectivity, algorithmic bias, and attribution of rights and responsibilities. Practical applications reveal risks of copyright ambiguity, misinformation, and cognitive inertia. This paper proposes a human-machine collaborative ethical framework: establishing designers as ethical gatekeepers, institutionalizing content traceability and transparent labeling mechanisms, and constructing technology-critical workflows centered on human welfare.

KEYWORDS

AIGC technology; Design ethics; Visual communication

1 Introduction

Generative AI, exemplified by models like DALL-E, catalyzes a paradigm shift in visual productivity. It is restructuring design processes, efficiency thresholds, and creative boundaries by enabling high-throughput generation of professional-grade visual solutions through natural language prompts. Currently, the embodied ethical dilemmas of this technology are becoming apparent: algorithmic adjudication of creative rights dissolves subjectivity, blurs originality assessment benchmarks, and exponentially amplifies training data biases. Collectively, these factors trigger an ontological crisis in design, suspending authorship attribution, turning off intellectual property frameworks, and undermining safeguards for symbolic equity and social authenticity. As the human-centered ethical paradigm collides with the new reality of human-machine collaboration, restructuring the moral framework of visual communication has become imperative. Academia must establish a cognitive coordinate system adapted to technological embodiment. Its core lies in decoding the responsibility allocation mechanisms within algorithmic black boxes, constructing a value-oriented paradigm for human-machine symbiosis, and ultimately achieving a new equilibrium between technological ethics and visual practice.

2 The Rise of AIGC Technology Poses Systemic Challenges to Traditional Design Ethics Frameworks

2.1 AIGC Subverts the Definition of Originality in Design Works and the Designer's Subjective Authority

A core pillar of traditional design ethics rests on the principle of originality—grounded in uniquely human creativity—and the consequent establishment of designers as the definitive creative agents. The emergence of AIGC fundamentally undermines this established foundation. Works generated by AIGC are essentially the result of algorithms performing deep learning, probabilistic reorganization, and logical generation on vast amounts of existing data. Their creative process does not stem from uniquely human life experiences, subjective emotions, or social insights, rendering the traditional definition of originality—as creation from nothing—increasingly obsolete. The designer's role has partially shifted from direct creator to prompt engineer, content curator, and ethical evaluator, facing unprecedented challenges to their agency in the creative process. The causal chain linking initial conception, underlying intent, and final output is severed when the design's core process evolves from direct human-tool interaction into complex dialogue with an autonomous black-box model^[1]. This increasing blurring of authorship sparks numerous legal disputes over intellectual property rights in practice and profoundly touches upon the very essence of design at a philosophical level. It compels us to rethink whether design is a unique expression of human intelligence and emotion, or a cold product of algorithmic logic and data probability.

2.2 The Black-Box Operation of Algorithms and Data Bias Trigger a Crisis of Responsibility and Fairness in Design

The inherent cognitive opacity of AIGC technology breeds a diffusion of accountability. When generated content carries discriminatory visual elements, ethical responsibility becomes suspended between prompt users, algorithm providers, and training data sources. This non-retraceable mechanism stems from the chaotic mapping properties of

neural network weight matrices, which strip decision paths of interpretability. A deeper crisis manifests in bias amplification mechanisms: latent social stereotypes in training data are unconsciously encoded through feature extractors, then reinforced by probabilistic sampling to evolve into systematic occupational gender rigidity or racial representation biases at the output stage. Design practices thus degenerate into tools reproducing structural discrimination, continuously dismantling the meta-ethical commitment of disciplines to promote social equity while creators remain unaware. Resolving this justice crisis triggered by technological contingency requires establishing an evaluation framework encompassing cognitive fairness, algorithmic autopsy, and ecological responsibility. This drives the ethical horizon from individual morality toward a philosophy of technological politics.

2.3 Design Ethics Expands from Humanistic Care to New Dimensions of Human-Machine Symbiosis

Design ethics is structurally shifting from a humanistic paradigm to a human-machine collaboration paradigm. The traditional ethical framework, which focuses on designers' responsibilities toward users, society, and the environment, must expand into new dimensions: First, establish a hierarchical decision-making authority mechanism for algorithms within the design process, clarifying the boundaries of intelligent systems' roles in concept generation, solution iteration, and other stages; Second, construct a bastion of interpretive authority for human subjects at value-judgment nodes, ensuring ultimate control over moral judgments and aesthetic decisions; Third, develop symbiotic protocols to prevent creative atrophy, maintaining cognitive diversity through complementary human-machine training ^[2]. This process necessitates concurrently establishing an ontological ethics for technology, formulating integrity maintenance guidelines for intelligent systems, and strictly prohibiting data poisoning and capability abuse. This paradigm shift from "designing for humans" to "co-designing with human-made entities" demands recognizing technological systems as moral agents. It requires constructing an ethical operating system encompassing permission matrices, responsibility chain traceability, and symbiotic evaluation indices, ultimately achieving ontological reconstruction for the era of cognitive collaboration.

3 Ethical Misconduct Risks in AIGC-Empowered Visual Communication Practices

3.1 Ambiguous Copyright Attribution and Risks of Unintentional Infringement and Style Misappropriation

Intelligent generation systems are deconstructing copyright order in visual creation. Their outputs, as algorithmically restructured products of vast visual resources, create a suspension of rights attribution: whether generated content constitutes derivative works or independent creations, and whether rights belong to prompt authors, system developers, or the public domain—existing legal frameworks lack stable consensus. Designers thus face risks in commercial practice: First, the unintentional reproduction of protected works within source material libraries, where systems replicate core expressive elements of copyrighted works through feature steganography mechanisms; Second, stylistic asset plundering occurs when users exploit prompt engineering to clone visual syntax systems refined by artists over the years, cheaply. This systemic devaluation of creative labor constitutes dual infringement of moral and economic rights and erodes the foundational originality that sustains the design industry ^[3]. As the cost of style imitation approaches zero, the industry's innovation incentive structure faces systemic collapse.

3.2 The Dissolution of Authenticity Boundaries in Generated Content Fuels Misinformation and Visual Pollution

Hyper-realistic image generation triggers a cognitive crisis that undermines visual trust at an ontological level. When algorithmically reconstructed pseudo-evidence of presence infiltrates news and documentary fields, the verifiability of historical memory suffers irreversible damage, while precisely targeted virtual efficacy imagery in commercial contexts accelerates consumer decision-making disorder through perceptual colonization mechanisms. Mass-generated visual entropy simultaneously spawns aesthetic collapse, as an industrialized deluge of fast-food content dilutes the emotional granularity of images. This floods communication channels with vast quantities of visually substitutable content that satisfy technical rationality yet lack cultural entropy value. This symbol of violence, driven by retinal despotism, not only destroys the ethical foundations of professional image production but also plunges collective social aesthetics into a vicious cycle of chronic intoxication. The ultimate collapse of cognitive boundaries between virtual and real is caused not only by technology's systematic alienation of testimonial functions but also by the inevitable chain reaction of visual ecosystem collapse triggered by the deepfake era.

3.3 Designers' Overreliance on Algorithms May Lead to Innovation Inertia and Skill Atrophy

The ubiquitous application of intelligent generation tools is triggering a systemic crisis for design agencies. When

creative conception is reduced to keyword topology games and visual expression is encapsulated into parametric generation modules, designers' problem-framing capabilities and solution-decision-making abilities face dual erosion. The core pathology manifests as cognitive ganglion atrophy: dulled perception in extracting inspirational elements from real-world contexts, regressed deductive capacity for navigating complex constraints, ultimately trapping innovative thinking in a closed loop of inert iteration. A deeper threat lies in the accelerated erosion of foundational skill systems: the anchoring function of hand-drawn representation, the spatial dialectic logic of typographic systems, and the emotional modulation mechanisms of color matrices—the myth of instant gratification increasingly marginalizes these disciplinary foundations through technology^[4]. This process of disenchantment, driven by instrumental rationality, reduces designers from value creators to algorithmic output filters, utterly dismantling the epistemological foundation of their professional existence. The path to salvation lies in constructing anti-domestication cognitive protocols: maintaining sensory acuity through mandatory training in direct material engagement, safeguarding decision-making sovereignty with critical technology evaluation frameworks, and establishing dynamic equilibrium between tool efficiency and knowledge rumination. Only design practitioners who fortify their cognitive trenches amid the technological deluge can preserve the industry's foundational value of innovation.

4 Reconstructing Design Ethics for Human-machine Collaboration and Establishing New Paradigms in Visual Communication Practice

4.1 Establishing Designers' New Role as Ethical Gatekeepers and Core Values of Algorithms for Good

In response to the intelligent tool revolution, the key to reconstructing design ethics lies in reshaping the professional role coordinate system. Designers must transform into guardians of values within the technological environment, fulfilling core responsibilities: implementing value pre-screening during instruction input, establishing real-time ethical monitoring protocols during the generation process, and conducting manual compliance final review of output results. Simultaneously, they must retain absolute control over the final authority to audit fairness principles, verify authenticity, and judge originality. The industry must establish universal ethical guidelines for intelligent design, setting non-negotiable benchmarks for technological application: protecting fundamental human dignity, preserving multicultural ecological balance, and serving the maximization of collective welfare. The irreplaceable value of future designers will manifest in the following contextual competencies: precisely identifying humanistic expressions within algorithmically generated aesthetic arrays, upholding originality standards amid technological overload, and maintaining social responsibility in the face of efficiency temptations. Supporting this transformation requires building an implementable framework incorporating ethical decision-tree tools and accountability traceability pathways, while integrating ethical leadership into professional certification systems.

4.2 Establishing Traceability and Transparency Labeling Mechanisms for AIGC Content Sources in Visual Communication Practice

A dual-assurance system combining technical traceability and regulatory disclosure must be established to mitigate ownership risks and cognitive misdirection in visual production. Technologically, the design industry should deploy scalable traceability matrices: employing blockchain evidence systems to secure digital fingerprints of creations, leveraging immutable metadata structures to record material lineage, model versions, and generation parameters, forming complete creative path traceability chains. At the regulatory level, explicit sourcing for digitally generated content must be enforced. All algorithmically synthesized content used commercially or in public dissemination must permanently embed scannable source identifiers within the visual interface. This smart contract-driven transparency mechanism simultaneously fulfills dual obligations: tracing back to original knowledge sources and safeguarding the public's right to know. More crucially, design agencies must establish verification ethics white paper systems, regularly disclosing internal digital content screening processes and misinformation prevention protocols. Only when every design endpoint becomes a certified node in a trust network can media authenticity evolve from technical compliance into collective industry action, ultimately anchoring the value beacon of visual communication within the data deluge.

4.3 Building Human-Machine Collaborative Innovation Workflows and Critical Design Thinking Centered on Enhancing Human Well-being

Ultimately, a future-oriented, sustainable new paradigm for visual communication practice should be a human-machine collaborative innovation workflow deeply integrated with critical design thinking and fundamentally oriented toward enhancing human well-being. In such an ideal workflow, AIGC is clearly positioned as a powerful assistant capable

of sparking creative inspiration, expanding expressive boundaries, and efficiently handling complex tasks^[5]. Human designers should instead focus their primary energy on higher-level strategic, empathetic, and critical tasks. Designers must take the lead in defining the value orientation of design problems, setting ethical top-level design goals, and leveraging their deep professional expertise and humanistic literacy to rigorously screen, meticulously iterate, and deeply optimize the vast preliminary solutions generated by AIGC. This process infuses unique cultural significance and irreplaceable emotional warmth into the work. This demands that designers not only master how to use AIGC but also deeply understand how to interrogate it—critically examining the underlying algorithmic logic, data biases, and inherent limitations behind its outputs.

5 Conclusion

AIGC technology fundamentally deconstructs the ontological foundations of design ethics, impacting regulatory frameworks and profoundly reshaping the cognitive realms of subjectivity and value philosophy. Within the framework of technological irreversibility, the design community must transcend the binary narrative of embrace versus rejection to cultivate a sober awareness of technological ethics. This paper reveals that the traditional humanistic ethical paradigm must evolve toward human-machine symbiosis ethics: designers must assume the historical role of ethical gatekeepers, proactively mitigating technological entropy risks by establishing content traceability mechanisms, transparent systems, and critical collaborative processes.

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