Research on Ethical Boundary and Aesthetic Paradigm of AIGC's Collaborative Creation with Designers

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Abstract

The breakthrough development of artificial intelligence generated content (AIGC) technology is profoundly reconstructing the underlying logic of design and creation, which has spawned a new paradigm of "human-computer collaborative creation". Focusing on the ambiguity of ethical boundary and the transformation of aesthetic paradigm in AIGC's collaborative creation with designers, this paper systematically analyzes the three dimensions of ethical conflict in human-computer collaborative creation, such as the ambiguity of rights and responsibilities of the creative subject, the dislocation of the value of the creative process and the conflict of the social influence of the creative achievements, and puts forward four dynamic definition principles: human subject-oriented, equal rights and responsibilities, transparency and traceability, aesthetic positive and value bottom line. On the level of aesthetic paradigm, this paper discusses the deconstruction process of traditional design aesthetic paradigm, reveals the reconstruction trend of aesthetic characteristics under the intervention of AI, and constructs a four-layer dialogue cycle model of human-computer cooperation aesthetic mechanism, which includes "intention translation-generation expansion-evaluation negotiation-feedback evolution". Finally, this paper puts forward the specific path of ethical and aesthetic collaborative governance from the three dimensions of technology, system and education, and emphasizes that the balance between technological innovation and humanistic value can be achieved through the construction of the technical base of "goodness" and "beauty", the establishment of the rule framework and the remolding of designers' aesthetic quality, so as to ensure that man-machine collaborative creation always serves the subjective value of people and the deep authenticity of culture.

Keywords

AIGC; Man-machine Collaborative Creation; Ethical Boundary; Aesthetic Paradigm; Collaborative Governance.

1. Introduction

The breakthrough of artificial intelligence generated content (AIGC) technology is reconstructing the underlying logic of human creation. This technology penetration not only improves the design efficiency, but also gives birth to a new paradigm of "man-machine collaborative creation"-the role of the designer has changed from a direct creator to an algorithm trainer, an aesthetic decision maker and an ethical gatekeeper.

However, there is a deep crisis behind the technology carnival. The core dispute is whether AI training data constitutes a "systematic theft" of human creative achievements. This exposes the ambiguity of the ethical boundary in human-computer collaborative creation-when AI gains creative ability by devouring hundreds of millions of human works, the traditional ethical framework such as originality, copyright ownership and cultural diversity will face complete deconstruction [1]. There is a worrying convergence in the aesthetic field. AI models

trained on the same data set tend to generate "safe but mediocre" design schemes, which leads to "algorithmic aesthetic hegemony" in urban architecture, commercial advertising and other fields [2]. In the process of pursuing efficiency, designers may unconsciously transfer the right of aesthetic judgment, making design a data-driven "aesthetic fast-moving product".

At present, academic research shows obvious "binary separation". Technologists focus on algorithm optimization and generation efficiency, while ethicists emphasize responsibility attribution and risk prevention and control, while aesthetes try to explain the phenomenon of AI creation with traditional theories. This discipline barrier leads to three key problems that have not been solved: (1) Lack of systematic analysis of dynamic ethical relations in human-computer collaborative creation; (2) The aesthetic evaluation system adapted to AI characteristics has not been established; (3) Ignoring the designer's demand for subjective reconstruction as a "man-machine intermediary". The existing copyright law is still based on the premise of "human author", which cannot cope with the dispute over the ownership of AIGC. Although computational aesthetics can quantify visual features, it cannot explain the emotional resistance of users to AI design.

2. Ethical Boundary Analysis of Man-machine Collaborative Creation

2.1. Multi-dimensional Presentation of Ethical Conflicts

Man-machine collaborative creation breaks the traditional creative logic of single subject, and the deep integration of AIGC and designer's creativity not only improves efficiency and expands creativity, but also spawns multi-dimensional ethical conflicts, which are concentrated in three core levels (Figure 1).

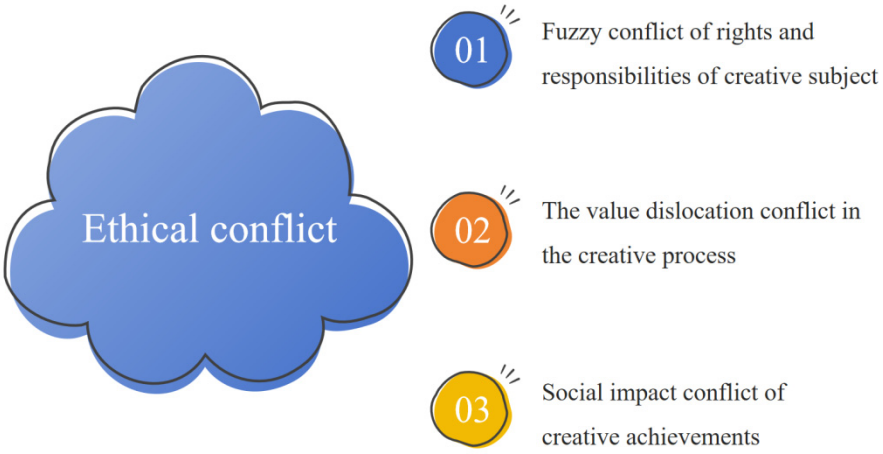


Figure 1. Three core levels of ethical conflict

The first is the fuzzy conflict between the rights and responsibilities of the creative subject. AI doesn't have the qualification of creative subject in the legal sense, and its generation content comes from the study and reorganization of massive data. When designers screen, modify and finalize the AI generation results, the original ownership and copyright definition of the works are in trouble. It is difficult to simply attribute the achievements to the designer, and it is also impossible to clarify the power and responsibility of the source of AI training data, which leads to the lack of clear basis for the distribution of rights and the traceability of creative achievements. Once copyright disputes arise, it is difficult to define the responsible subject [3].

The second is the value dislocation conflict in the creative process. The creative logic of AI focuses on data-driven and algorithm optimization, focusing on satisfying the public's aesthetic preferences and efficiency indicators, while the designer's creation carries personal emotional expression, cultural value transmission and social responsibility. This logical

difference may lead to the alienation of creative goals. In some collaborative creations, designers actively adjust the creative direction in order to cater to the algorithm orientation, sacrifice the humanistic depth and value of the works, fall into the dilemma of "algorithm catering" and weaken the spiritual core of creation.

The third is the social impact conflict of creative achievements. AIGC is easy to continue the aesthetic prejudice and cultural stereotype in training data. If designers do not strictly check, these biased contents will spread to the society through design works, which will aggravate aesthetic homogenization and even lead to cultural discrimination and misleading values. AI's dependence on data privacy also has hidden risks. If the training data involves unauthorized personal information, the creative process may touch the red line of privacy ethics and pose a threat to the security of personal information.

2.2. Principles of Dynamic Definition of Ethical Boundaries

The ethical boundary of man-machine collaborative creation is not a static rigid rule, but a dynamic category that is constantly adjusted with the technical iteration, industry development and social cognitive upgrading. Its definition should follow three core principles to achieve a balance between technological innovation and ethical constraints.

(1) Leading principle of human subject

It is clear that the designer's decision-making core position in collaborative creation, AI is only used as an auxiliary tool, and the final decision-making power of all creative directions, value judgments and aesthetic choices belongs to human beings, ensuring that the creative subjectivity is not digested by technology and keeping the ethical bottom line of human creation.

(2) Principle of reciprocity of rights and responsibilities

Establish a clear responsibility traceability mechanism, and the designer will bear the ultimate responsibility for the use, modification and release of AIGC, and at the same time give it the legal right to dispose of AIGC, realize the dynamic balance between rights and responsibilities, and solve the dilemma of vague ownership of rights [4].

(3) Transparency and traceability principle

Designers are required to disclose the participation degree, data source and generation logic of AI in creation, to protect the audience's right to know, to facilitate the tracing of the creation process, to avoid hidden plagiarism and misleading value, and to make the collaborative creation process subject to public supervision.

(4) Aesthetic positive and value bottom line principle

Adhering to social public order, good customs and positive aesthetic standards requires designers to strictly screen the value of AIGC, eliminate the content that violates ethics, guide AI to generate works that conform to mainstream values, and ensure that the aesthetic orientation of collaborative creation fits with social values.

3. Aesthetic Paradigm Transformation of Man-machine Collaborative Creation

3.1. Deconstruction of Traditional Design Aesthetic Paradigm

The traditional design aesthetic paradigm is based on the centrality of human subject, and its core features include as shown in Table 1. The intervention of AI fundamentally shakes this paradigm. As a "co-author" or "generation agent", AI blurs the only creative sovereignty [5]. The design process has changed from linear to cyclic interaction of "human setting boundaries -AI generation options-human-computer collaborative screening and optimization", and the result is more unpredictable than that of emergent properties. AI can melt any style across

time and space, generate a "rootless style" beyond the traditional pedigree, and make aesthetic judgment break away from the original historical context.

Table 1. Core features of traditional design aesthetic paradigm

Core characteristics	Specify
Author authority	Aesthetic value and style system are closely related to the designer's individual experience, intention and skill.
Linear narrative	Creation follows a relatively clear linear or iterative process of "inspiration-conception-expression-correction".
Style pedigree	Aesthetic evolution has a clear historical context, genre inheritance and cultural context dependence.
Unity of form and function	With the decline of modernism, aesthetic judgment is often deeply bound with functional and social values.

3.2. Reconstruction of Aesthetic Characteristics under the Intervention of AI

Under the empowerment and challenge of AI, new aesthetic features are taking shape. Aesthetics is no longer only about the final form, but also in the process of setting and adjusting the parameters and prompts of the generating model. "Adjusting parameters" itself has become a new aesthetic ability and expression [6]. AI generates content based on probability distribution, and its output often wanders between the familiar and the weird. Reasonable anomalies may become new aesthetic interest points. Works can have the dynamic properties of real-time generation, infinite variation, response environment or interaction, and the aesthetic experience changes from static viewing to process participation. Faced with the huge number of options generated by AI, the core competence of designers has shifted from the concept of "from scratch" to the curatorial and editing ability of "identifying and selecting in infinite possibilities". The speed, breadth and standard of aesthetic judgment have evolved accordingly.

3.3. Aesthetic Mechanism Model of Collaborative Creation

In order to understand and guide the new paradigm, we can build a dynamic "man-machine collaborative aesthetic mechanism model", the core of which is a multi-level dialogue cycle, as shown in Figure 2. Humans transform vague aesthetic intentions into AI-understandable instructions. This is the first translation of aesthetic ideas. Based on instructions, AI "imagines" and generates candidate schemes from the cultural data space it has learned, which often exceeds the initial expectations of human beings and brings unexpected aesthetic expansion [7]. Human beings evaluate, screen and criticize AI output based on their own aesthetic standards, design goals and emotional reactions. AI can also provide logic feedback through interpretable technology. This process is the key negotiation link of aesthetic value. According to the evaluation results, human beings adjust the intention instruction or AI model to adapt to specific aesthetic preferences through fine-tuning, forming a closed loop of aesthetic coevolution.

In this model, aesthetics is neither a purely subjective expression of human beings nor an objective calculation output of AI, but a third-party field that is jointly constructed and dynamically evolved in the continuous dialogue between "human perceptual judgment" and "machine culture calculation". The ideal cooperative state is that both sides complement each other's advantages: human beings provide strategic intentions, cultural depth, ethical constraints and emotional resonance; AI provides unlimited possibilities, execution efficiency, cross-domain connection and formal innovation.

The aesthetic paradigm of man-machine collaborative creation is changing from "deterministic aesthetics dominated by designers" to "probabilistic aesthetics emerging in

man-machine dialogue" [8]. The core of its ethical boundary lies in how human beings, while embracing the possibility of new aesthetics, maintain their subjective responsibility in caring about layers and evaluation layers, ensure that aesthetic activities always serve people's value, maintain the depth and authenticity of culture, and maintain the final judgment and criticism right on the generated results. This transformation is not only the adaptation of technology, but also a deep philosophical reflection on the essence of creation, aesthetic value and designer identity.

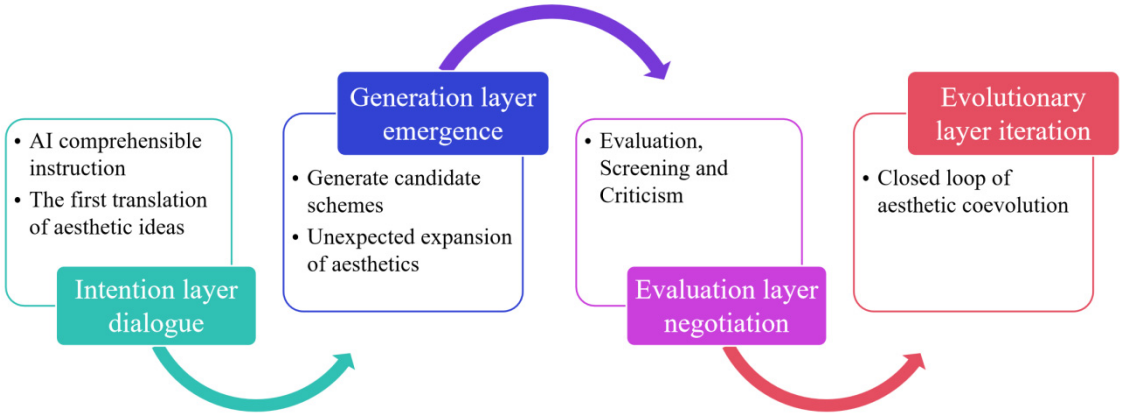


Figure 2. Aesthetic mechanism model of man-machine cooperation

4. The Cooperative Governance Path of Ethics and Aesthetics

The cooperative governance of ethics and aesthetics aims to build a benign ecology of people-oriented, technology-oriented and aesthetic promotion. Its core lies in the realization of "value alignment", that is, the ethical value belief of human artistic aesthetics runs through the whole process of AI creation to prevent the erosion of humanistic value and the loss of aesthetic "charm" caused by technological alienation. This paper puts forward the following three governance paths:

1) Governance of technical layer— Building the technical base of "goodness" and "beauty"

Technical governance is the pre-link of collaborative governance, which emphasizes that ethical and aesthetic considerations should be implanted in the stage of technical development to realize the procedural early warning of "technical pre-position". In the research and development of AI, digital humanities, neuroaesthetics and computational ethics are regarded as indispensable value parameters. By constructing a high-quality data corpus rich in artistic ethics, we can optimize the large language model, avoid algorithmic bias, and ensure that the generated content conforms to ethical norms and has a high aesthetic starting point. Develop and enforce the application of indelible "AI watermark" or content identification technology to ensure that the source of AIGC can be traced and the risk can be controlled. This is helpful to clarify the responsibility chain in copyright disputes or ethical misconduct events and safeguard the creators and the public's right to know. Establish the technical orientation of AI as an "auxiliary tool", for example, follow the "three-seven-open" principle, let AI undertake 70% of auxiliary work, and keep 30% of key links such as core aesthetic judgment, emotional expression and value calibration in the hands of human designers to prevent alienation of creation.

2) Institutional governance—establishing the framework of rules and the boundaries of power and responsibility

Institutional governance is the guarantee of collaborative governance, which aims to clarify the rights, obligations and responsibilities in man-machine collaborative creation through laws, regulations and industry norms. Promote and improve the AI Law and other relevant

legislation, and clarify the unshakable principle of "human subjectivity". With reference to the EU AI Act and China's Interim Measures for the Management of Generative AI Services, forbidden zones are set for high-risk functions, and the application scenarios of AI technology are standardized. Establish a clear copyright ownership mechanism to distinguish the rights and interests of AIGC and human original content. Severely crack down on the unauthorized use of personal data to train AI models, protect the creator's personality rights and privacy rights, and prevent the abuse of technologies such as "AI resurrecting relatives" from causing ethical crisis. Encourage trade associations to formulate ethical standards and aesthetic standards for man-machine collaborative creation.

3) Education Governance—Reshaping the aesthetic quality and ethical consciousness of man-machine symbiosis

Educational governance is the foundation of collaborative governance, which aims to enhance the cognition, aesthetic judgment and ethical consciousness of designers and the public on AI technology through education and guidance. In design education, we should not only teach students how to use AI tools, but also strengthen their aesthetic judgment, critical thinking and ethical awareness. Train designers to transform from a simple "content producer" to an "aesthetic curator" and a "value calibrator" so that they can master AI technology instead of being enslaved by technology. Carry out extensive media literacy education to help the public identify AIGC and understand the ethical risks behind it. Through education, we will guide the public to resist vulgar and homogeneous AI content and pursue real creation with "human flavor" and "pot spirit", thus promoting the aesthetic upgrade of AI content on the market demand side. Incorporate the ethics of science and technology into the general education system and cultivate the prudent attitude of the whole society towards technological development. Emphasize the return of human values to the unrepeatable life experience, keep the bottom line of human nature in the era of technological arrogance, and ensure that AI becomes an extension of human civilization rather than a substitute.

5. Conclusion

After the intervention of AI, the traditional design aesthetic paradigm is transforming from "deterministic aesthetics" to "probabilistic aesthetics", and its core features are the curation of aesthetic judgment, the interaction of the generation process and the rootlessness of style pedigree. By constructing the "aesthetic mechanism model of man-machine collaboration", the ideal collaborative state needs to realize the dynamic balance between human perceptual judgment and machine culture calculation, which not only gives full play to the efficiency advantage of AI, but also adheres to the core of human ethics and value. At present, there are still academic barriers and theoretical vacuum in the academic field. In the future, it is necessary to break through the traditional academic framework and establish an interdisciplinary research paradigm, focusing on the emotional resonance mechanism in human-computer collaboration, the protection of cultural diversity and the dynamic correction technology of algorithm bias.

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