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Research on the Style Definition and Human Perceptual Differences between AI-Generated Illustrations and Original Illustrations

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Abstract: This paper focuses on exploring the visual style differences between human original illustrations and AI-generated illustrations, and conducts an in-depth discussion around the identification path of the two. Firstly, it clarifies the core connotations and the development status at home and abroad of AI-generated illustrations and original illustrations, and constructs a definition framework for them from three dimensions: rapid visual screening, in-depth artistic analysis, and traceability verification. This provides a scientific method for audiences with different cognitive backgrounds, aesthetic experiences and cultural contexts to distinguish the two illustration styles, and solves the identification dilemma caused by individual perceptual differences. Finally, combined with the current social development needs, it proposes practical paths for education popularization and ability training: strengthen the curriculum design integrating art and technology, focus on cultivating students' critical use of AI tools, original thinking and style shaping awareness, and deepen the education of copyright ethics and creative responsibility, so as to provide theoretical support and practical reference for the healthy and orderly development of AI-generated illustrations.

Keywords: AI-generated Illustrations; Original Illustrations; Human Perceptual Differences; Cultural Symbols; Human-machine Collaboration; Higher Vocational Colleges.

1. Core Theoretical Basis of AI-Generated Illustrations and Original Illustrations

AI-generated illustrations refer to image works with complete visual forms and conforming to the basic attributes of illustrations, which are created with generative artificial intelligence models as the core creative tools. Through human interventions such as inputting prompts, adjusting parameters, and screening results to varying degrees, algorithms reconstruct, combine and generate visual elements based on training data. Its core characteristics can be summarized into three points: first, human-machine collaboration. The creative process relies on human guidance of creative goals and the generation ability of AI algorithms, requiring human intervention in the images and illustrations output by the algorithms; second, data dependence. The generation results are limited by the style and content boundaries of the model training data, and there is a potential risk of style homogenization; third, intervention gradation. According to the depth of human intervention, it can be divided into two categories - automatic generation type and human-machine collaboration type. The latter is closer to the creative logic of traditional illustrations and has a certain foundation of originality.

Original illustrations refer to visual art works with originality, emotionality and non-reproducibility. Illustrators take their own aesthetic cognition, emotional experience and creative ideas as the core, and use traditional or modern creative methods such as hand-drawing and digital hand-drawing to fully dominate the entire creative process from theme conception, sketching, detail refinement to finalization, integrating unique personal styles and ideological connotations. Its core characteristics can be summarized into three points: first, creative subjectivity. Illustrators control the creative logic throughout the process, and independent decision-making is reflected from the source of inspiration to the form of expression, without algorithmic intervention or data dependence; second, emotional and ideological injection. Works are not only combinations of visual elements, but also carry illustrators' emotional attitudes, narrative intentions or cultural metaphors, with profound spiritual connotations; third, unique style. Based on the personalized brushwork, color preferences and narrative logic formed through long-term creative practice, the works have identifiable personal style marks, which are different from the homogeneous expressions generated by algorithms [1].

2. Research Status

2.1. Foreign Status

In the field of AI-generated illustrations, foreign countries have obvious advantages of technology leadership and mature ecology. Mainstream models such as OpenAI's DALL-E 3 and Midjourney continue to iterate and break through in semantic understanding accuracy, image texture and generation speed. The copyright definition and traceability mechanisms are gradually improved, and they have been widely penetrated into many fields such as advertising, film and television, and cultural and creative industries, forming a mature closed loop of "technology research and development - scenario application - commercialization". In 2022, American creator Jason Allen used Midjourney to generate "Théâtre D'opéra Spatial", which won the gold medal in the Digital Art category at the Colorado State Fair. This incident triggered a fierce global discussion on the copyright ownership and creative ethics of AI art, and directly promoted the U.S. Copyright Office to clarify the rule that AI-generated works need to have sufficient human creative contributions to obtain rights; Greek creator Tasos used Recraft to generate

hyper-realistic illustrations. His series of works created for a large cement brand became the core vision of a complete commercial campaign with realistic texture. With the model of "human creativity-led + AI technology empowerment", it has become a benchmark for AI illustration applications locally, and even attracted competitors in the industry to seek cooperation[2].

The foreign original illustration industry has developed maturely, forming a sound ecological system of "creation - incubation - commercialization". The styles are diverse and the segmented fields are deeply cultivated. Europe and the United States focus on the integration of realism, abstraction and commerce, while Japan and South Korea have a global influence with fresh and healing styles and two-dimensional styles. The industry norms and copyright protection mechanisms are sound, illustrators' rights and interests are fully protected, and there are diverse commercialization paths, covering publishing, advertising, film and television, trendy toys and peripherals and other fields, with emphasis on cross-cultural exchanges and industry-university-research linkage. In terms of typical cases, Japanese illustration master Yoshitaka Amano has deeply cultivated the original field with his unique fantasy style. His works not only laid the visual tone for the "Final Fantasy" series of games, but also built a complete IP matrix through personal art exhibitions, art prints, peripheral derivatives and other forms, becoming a benchmark for the commercialization of cross-dimensional original illustrations; American illustrator Jasmin Darnell focuses on original creations with humanistic themes. Her works frequently appear in the columns of the New York Times, and she also cooperates with public welfare organizations to create themed illustration projects, achieving a win-win situation between artistic expression and social value, showing the diverse value dimensions of foreign original illustrations[3].

2.2. Domestic Status

The domestic AI-generated illustration industry focuses on localized innovation and scenario implementation. Local platforms have risen rapidly. Baidu Wenxin Yige, SenseTime's "Rixin Miaohua", SeaArt and others are making efforts in national style element adaptation, multi-modal creation and reasoning speed optimization, while strengthening data compliance and copyright protection, and accelerating deep integration with local industries such as e-commerce, cultural tourism and publishing. There are prominent highlights in practical cases. In 2024, SenseTime's "Rixin Miaohua" cooperated with Nongfu Spring to launch a Chinese New Year AI painting applet, customizing an exclusive "Dragon Baby" model. Within 20 days of its launch, it attracted netizens to create more than 1 million paintings, forming a marketing upsurge through social media communication, confirming the value of AI illustrations in brand breakthrough; at the end of 2023, Fujian Chuangzhi Alliance cooperated with publishing houses to launch the country's first AI-illustrated book "There is a Secret Garden in My Book". With AI technology, it solved the problem of consistency of illustration characters, doubled the production efficiency, and reduced the cost to a quarter to half of the original, becoming a typical model of AI application in the publishing industry.

The domestic original illustration industry has grown rapidly in recent years, and the rise of national style originals has become a core highlight. Illustrators mostly draw inspiration from traditional culture, combining ink wash artistic conception with modern aesthetics to adapt to local needs such as cultural tourism and cultural and creative industries. The industry exchange platforms are becoming more and more perfect. Exhibitions represented by the Shanghai GAF Illustration Art Festival gather creators at home and abroad, promote the integration of art and commerce, and a single exhibition can achieve tens of millions of sales, empowering the professional development of illustrators. However, the industry still has shortcomings, such as the lack of unified norms, frequent chaos such as low-price orders, delayed payment of manuscript fees, and fraudulent manuscripts. The awareness of copyright protection needs to be improved. Some illustrators have to take illustration as a means of making a living, making it difficult to balance artistic ideals. Picture book illustration master Cai Gao has been deeply engaged in the original field for more than 40 years. Her works are rooted in Hunan culture and folk art, integrating ink wash artistic conception with modern aesthetics. In 1993, she won the "Golden Apple Award" at the Bratislava International Children's Book Fair with "The Fox Spirit of the Wilderness", becoming the first Chinese winner of this award. Her "The Story of Peach Blossom Land" was also included in Japanese primary school textbooks, building a bridge for cross-cultural communication of traditional Chinese culture through picture books; illustrator Ni Chuanjing, who lives in New York, broke through the international market with a style integrating Eastern and Western elements. As one of the youngest winners of the Forbes 30 Under 30 Art List, her works frequently appear in mainstream media such as The New Yorker and The Wall Street Journal, and she has also designed Lunar New Year images for Apple, interpreting Western philosophy with Eastern colors, becoming a model for domestic illustrators to go international and achieve a win-win situation between commerce and art[4].

3. Style Differences and Definition System Construction between AI-Generated Illustrations and Original Illustrations

3.1. Style Differences between AI-Generated Illustrations and Original Illustrations

The core differences in style presentation between AI-generated illustrations and original illustrations stem from the essential differences in creative subjects, sources of inspiration and expression logic, which are specifically reflected in multiple dimensions such as style consistency, emotional core, and detail texture. AI-generated illustrations rely on the integration and reconstruction of training data, and their style presentation has the characteristics of "hybridity" and "templateization". They can quickly replicate mainstream styles such as retro, national style, and two-dimensional, but it is difficult to form a unique and coherent personal style. Logical loopholes are prone to appear in details, such as stiff line connection, inconsistent element matching, superficial emotional expression, lack of in-depth interpretation of the theme, and more inclined to "stacking of visual symbols".

Original illustrations, on the other hand, take the illustrator's personal aesthetics, life experience and artistic accumulation as the core, and their styles have strong "uniqueness" and "growth". Whether it is Cai Gao's ink wash

picture book style rooted in traditional culture or Ni Chuanjing's color aesthetics integrating Eastern and Western elements, they all carry the creator's ideological emotions and value expressions. Every detail of lines, colors and compositions has been deliberately designed to form a unified style mark throughout the work. Even when drawing on classic styles, personal understanding will be integrated for innovation. The details are logically consistent and layered, allowing viewers to feel the story and temperature behind the work, which is a "concrete presentation of artistic personality". In addition, the style of original illustrations will continue to iterate with the growth of the creator's experience, while AI styles are mostly limited to the coverage of training data, making it difficult to achieve breakthrough self-innovation.

Table 1. Style Differences between AI-Generated Illustrations and Original Illustrations

Comparison Dimension	AI-Generated Illustrations	Original Illustrations
Creative Core	Rely on the integration and reconstruction of training data, no independent consciousness, passively execute instructions	Take the illustrator's aesthetics, experience and artistic accumulation as the core, and actively express ideological emotions
Style Characteristics	Strong hybridity and obvious templateization, can replicate mainstream styles, but difficult to form a unique and coherent personal style	Outstanding uniqueness and growth, with clear style marks (such as Cai Gao's ink wash artistic conception, Ni Chuanjing's color integrating Eastern and Western elements), and iterate with experience
Detail Texture	Prone to logical loopholes, stiff line connection, inconsistent element matching, and lack of design sense in details	Details are deliberately designed, logically consistent and layered, and lines, colors and compositions are in line with theme expression
Emotional Core	Emotions are superficial, no in-depth interpretation, only stacking of visual symbols	Carry the creator's ideological values, convey stories and temperature, and realize the integration of artistic expression with cultural/social values
Innovation Ability	Limited to the scope of training data, difficult to break through existing styles for innovation	Can integrate personal understanding on the basis of drawing on classics to achieve style innovation and breakthrough
Case Display	 AI-generated illustrations	 Victo Ngai "Casserole"

3.2. Construction of Style Definition System for AI-Generated Illustrations and Original Illustrations

AI-generated illustrations are essentially the reorganization and imitation of data. They are generated by algorithms "predicting" and combining according to the patterns and labels of a large number of existing works. They are more like an exquisite "average solution" based on probability. Human original illustrations, on the other hand, are essentially the conception and expression of intentions. They originate from the creator's unique observation, thinking, aesthetics, emotions and narrative needs. Every stroke and every element has undergone conscious choice and design. Based on the three core concepts of "verifiable creative process, traceable creative intention, and identifiable artistic style", a multi-dimensional and operable identification framework system is constructed to identify the style similarities and differences between AI illustrations and original illustrations from three different levels[5].

3.2.1. Level 1: Rapid Visual Screening

Level 1 rapid visual screening mainly includes two parts: technical defect checklist and texture style preliminary judgment. In the technical defect checklist, the first is anatomical and structural abnormalities, which are specifically reflected in hand details, such as abnormal number of fingers, unreasonable joints, and unnatural holding of objects; in facial features, there are problems such as asymmetrical eyes, abnormal arrangement of teeth, and incorrect ear positions; in limb connections, there are unnatural joint bending and disproportionate limbs. Secondly, physical logic errors include light and shadow contradictions,

such as multiple light source directions and inconsistent shadows; perspective problems, such as chaotic spatial relationships and disproportionate near and far distances; and gravity abnormalities, such as objects floating without support and unreasonable liquid flow directions.

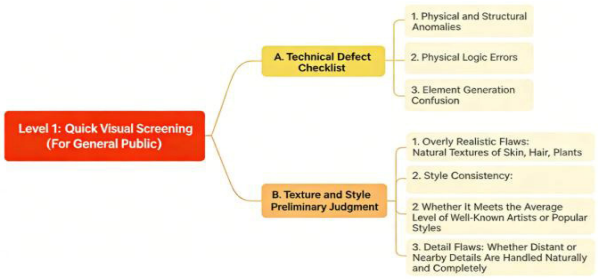

Figure 1. Level 1 Rapid Visual Screening Hierarchy Diagram

Finally, element generation chaos includes unreadable "pseudo-text" and meaningless symbol combinations in text symbols; meaningless repetition of background textures and blurred and chaotic details in repeated patterns; and conceptual confusion, that is, image expressions that are literally understood but inconsistent with common sense. The preliminary judgment of texture style needs to pay attention to three points: first, the "too perfect" alarm, that is, the skin, hair and fabrics lack natural textures; second, style consistency, judging whether it conforms to the "average version" of a well-known artist or popular style; third, detail processing, checking whether the distant and near details are equally "exquisite" but illogical[6].

3.2.2. Level 2: In-depth Artistic Analysis

From the perspective of creative logic analysis in in-depth artistic analysis, Level 2 compares the core differences between AI-generated illustrations and original illustrations from five dimensions: narrative coherence, style uniqueness, detail choice, emotional expression and error type: AI-generated works often have exquisite elements but lack internal connections, standardized styles, uniform details without focus, vague and rigid emotional expressions, and may also have systematic physical errors; while original illustrations construct clear narrative clues around the theme, have identifiable personal style marks, distinct primary and secondary details that serve expression, emotional expression is clear and highly consistent with the theme, and even if there are human errors, they conform to the creative logic.

Table 2. Comparison of In-depth Artistic Analysis Content at Level 2

Analysis Dimension	Characteristics of AI-Generated Illustrations	Characteristics of Original Illustrations
Narrative Coherence	Exquisite element combination but lack of internal connections	Elements are constructed around the theme with clear narrative clues
Style Uniqueness	"Standardized" style, lack of personal variants	Has identifiable personal marks, even imitation has
Detail Choice	Uniform details throughout the picture, no clear visual focus	Distinct primary and secondary details, which serve expression
Emotional Expression	Perfect skills but vague or rigid emotional expression	Clear emotional expression, highly consistent with the theme
Error Type	Systematic and unexplainable physical errors	May have human errors, but conform to creative logic

3.2.3. Level 3: Traceability Verification

Figure 2. Level 3 Traceability Verification Pyramid

Level 3 is traceability verification. The verification of the creative process is distributed in a pyramid level, and the credibility increases from bottom to top. The bottom layer is a single finished picture with the lowest credibility. Upwards, it is drafts, concept sketches, step-by-step pictures, line draft displays, layered source files, and creative process videos. The top is the creative process recording with the highest credibility level; at the same time, it can be combined with creator background verification to check whether the style evolution is natural and coherent, whether there are early practice works, and whether there is a technical growth track between different works; community participation, verifying whether they participate in art challenge activities, share creative experience and skills, and interact with other artists; and tool use traces, checking the process playback files of digital art software and the physical traces of traditional media.

Although AI-generated illustrations have advantages in efficiency and style replication, their creative essence still relies on the reorganization and imitation of training data, lacking real emotional core, narrative coherence and style uniqueness. In contrast, human original illustrations are rooted in the creator's personal experience, aesthetic accumulation and emotional expression, and have irreplaceable artistic value and humanistic temperature.

4. Conclusion

On the path of collaborative creation between AI and humans, the "human-machine collaboration" model is closer to the essence of creation. Humans are responsible for creative conception, emotional injection and style orientation, while AI serves as an auxiliary tool to realize visual expression. This model can not only improve creative efficiency, but also help retain humanistic uniqueness in technological applications. For education popularization and ability training, we should strengthen the curriculum design integrating art and technology, cultivate students' critical use of AI tools, original thinking and style shaping awareness, and strengthen the education of copyright ethics and creative responsibility. Creators should clarify their own positioning, make good use of AI as an auxiliary rather than a substitute, and focus on the continuous shaping of personal style and in-

depth excavation of emotional expression; when adopting AI illustrations, industrial parties need to clarify the use scenarios, attach importance to the artistic value and cultural connotation of works while pursuing efficiency, and establish a reasonable creative signature and copyright agreement mechanism. Copyright institutions should accelerate the establishment of ownership determination rules adapted to AI-generated content, highlighting the judgment standard of "human creative contribution"; educational and research institutions need to promote interdisciplinary research, construct a more complete identification system and evaluation tools, and promote exchanges and cooperation between the industry and academia through workshops, case libraries and other forms, guiding AI illustrations to develop in a healthy, orderly and humanistic direction.

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