Innovation of Visual Communication Design Works Based on Artificial Intelligence: Take "Ne Zha2" as an Example

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Abstract: Currently, with the rapid development of the digital era, artificial intelligence technology is becoming more and more important, especially in favor of the innovation of visual communication design works. In order to explore the effective use of AI Generative Adversarial Networks (GAN) and Convolutional Neural Networks (CNN), as well as Deep Learning Models (CLIP) and Collaborative Filtering Algorithms (CF). Using a combination of literature research and case study method, this paper conducts an in-depth study using "Ne Zha2" as a typical case, from which it concludes that AI not only revolutionizes the creation paradigm of visual communication design and promotes the innovation of visual communication design works, but also deeply integrates technological innovation and artistic expression, opening up a new way for the modern expression of traditional excellent cultural IP. This provides new insights into the creative use of artificial intelligence in the field of visual communication design.

Keywords: Artificial Intelligence; Visual Communication Design; Creative Work; Ne Zha2

1. Introduction

1.1 Research Background

Visual communication design as a bridge between the information and the audience tripod, the information conveyed is scientific thinking, but also artistic display, more rich in emotional language and novel image, simple content, rich in connotation, diverse forms, styles, chic, strong visual impact, for the majority of the information audience or user acceptance and love. However, its two-dimensional graphic design has been unable to adapt to the needs of today's three-dimensional and even multi-dimensional world feelings, the urgent need to achieve breakthroughs through technological innovation, which should leverage the more comprehensive and powerful artificial intelligence technology. The powerful and diverse functions of artificial intelligence can help improve the creative efficiency of visual communication design, improve the quality of creative results, creative mode innovation, especially to promote the innovation of artistic expression, and open up a new path for the modern expression of excellent traditional culture, which is the main background of this study.

The Chinese New Year animated film "Nezha2" in 2025 was a surprise hit, with more than 300 million viewers at home and abroad, and a box office of more than US$15 billion at home and abroad, creating the top box office of Chinese films and the top box office of animated films in the world. The film not only stirred cultural ripples, but also gave people educational revelations, and triggered deep thoughts about its technological achievements, including the extensive exploration of AI-assisted innovations in the film's light and shadow conveyance, which makes it an important case for research.

1.2 Research Significance

The purpose of this study is to explore the technical advantages of artificial intelligence in helping the innovation of visual communication design works through literature analysis; combined with the case study of Ne Zha2, it explores the effective application practice of artificial intelligence technology in enhancing the efficiency and expression of film design.

1.3 Research Methods

1.3.1. Literature research method

Systematically comb the domestic and international literature on the application of AI in art and design during the period of 2023-2025, focusing on technological advantages, practice cases and controversial issues, and refining the

research framework and core viewpoints.

1.3.2. Case Study Method.

Taking "Ne Zha2" as a sample, combining the film production interviews, technical analysis reports and audience feedback data, we will deeply analyse the application scenarios and effects of GAN, CNN, CLIP and other technologies.

2. Literature Research

2.1 Artificial Intelligence Research has Achieved Stage Progression and Rapid Expansion of the Scope of Application

Contemporary digital technology plays a positive role in the embodiment of people's spiritual interactions and the distribution of cultural resources, as well as the consumption of spiritual products, playing a driving role in the common prosperity of the spiritual life of the entire people; however, there are problems such as the digital divide, information cocoon and technological dependence in the development of the digital society, which will affect or impede to varying degrees the degree, precision and height of the common prosperity of the spiritual life of the people.For this reason, it is necessary to "strengthen the foundation of digital culture, resolve digital risks, and bridge the gaps in the mechanism in order to maximize systematic governance to release the dividends of technology and satisfy the people's aspirations for a better life." [1]

2.2 AI Technology is Being Widely Used in All Aspects of Society

For example, AIGC technology is reshaping the virtual digital person live, innovative positive e-commerce operation mode, "brands can generate personalized visual content through AI, reducing marketing costs by more than 30%"[2].Using AI-driven e-commerce platform virtual anchor, the daily average can be continuously live 18 hours, so that sales increased by 25%; Another example is that some beauty brands use AI-generated short video ads to improve the click conversion rate by 42%, and the length of user stay increased by 1.8 times.

Feng Zixuan tried to use algorithms to generate complex patterns in the creation of woodcut prints, so that the efficiency of traditional techniques increased by 60%, but also fully allowed the expansion of the abstract expressionist style, so that his work "Digital Knife Marks" series using AI to simulate the randomness of hand-carved knives, successfully shortlisted for the Venice Biennial [3], the depth of the integration of technology and art.

Wang Qin (2025) emphasizes that AI is promoting the reform of the visual communication design curriculum system, for example, the introduction of generative design tools that enable students to quickly complete 3D modelling and dynamic effect testing[4].The application of AI in homework correction has also gradually become popular, for example, Shenzhen universities automatically analyze the structure, colour and compositional reasonableness of the student's design works through algorithms, so that the efficiency of teacher's feedback can be increased by 50%.

2.3 The Three Core Characteristics of AI Technology Inject New Momentum into Visual Communication Design

The rapid development of information technology and artificial intelligence technology has had a profound impact on modern society and the field of visual communication design. The application of artificial intelligence technology in image recognition, content generation and user behavior analysis not only brings new tools and methods to visual design, but also significantly improves design efficiency and accuracy, enabling designers to better respond to complex and diverse needs. The application of artificial intelligence technology further enhances the personalization and interactivity of visual communication design [5]. Therefore, it has the following three characteristics to inject new momentum into visual communication design.

2.3.1 High efficiency

AI can quickly process massive data, generate diverse design solutions to optimize the design process, and reduce the cost of manual trial and error. The empirical study of Li Shanshan (2024) shows that AI-assisted design shortens the creation cycle of the original painting of the character by 40% [6]. AI design dynamic posters can generate real-time templates for holiday themes, Baidu Companion Fly in the Chinese New Year marketing, based on the AI to generate 3,000 differentiated posters, covering the underground advertisement screens of 200 cities across the country, and the cost of manpower has been reduced by 70%.(see Table

1)

Table 1. Technical Characteristics and Empowerment Path of Artificial Intelligence in Visual Communication Design

Technical features	Core Functions	Typical Cases	Effectiveness Data
EFFICIENCY (Li Shanshan, 2024)	Rapid generation of diverse scenarios Optimize the dynamic rendering process	Tencent Games AI generates 100 weapon designs Spring Festival Marketing AI Generates 3000 Posters	98 per cent reduction in screening time (2 weeks → 3 hours) 70% reduction in labour costs
Innovativeness (Sun Ling, 2023)	Plane → three-dimensional dynamic transformation Modern Translation of Cultural Symbols	Dynamic Thousand Miles of Rivers and Mountains Cyberpunk Van Gogh Style City	Audience interaction rate +65 per cent On display at the Tate
Personalisation (Han Lin, 2024)	User preference driven customization Cross-cultural adaptation	Adjustment of Dragon Scale Colour Tones in Southeast Asia Version of "Ne Zha2" Social Platform Multi-age UI Design	Box office boosted by 12 per cent User satisfaction +28 per cent

Provenance: Summarized by the author

2.3.2 Fast innovation.

CNN technology quickly achieves the transformation of plane static to three-dimensional dynamic through feature extraction and dynamic rendering. Sun Ling (2023) research that AI can quickly build a "visual grammar library", such as the traditional ink brush strokes into 3D particle effects, and quickly expand the boundaries of the design language.[7] Take Generative Adversarial Networks (GAN) technology as an example, which has achieved great success in the fields of image generation and art creation. GAN is able to generate realistic images by learning the distributional features of a large amount of sample data, which provides a brand new creative platform for visual communication design students.[8] This technology is used in the project of "Dynamic Thousand Miles of Rivers and Mountains", which makes the landscape and clouds in the ancient paintings dynamic, and increases the audience interaction rate by 65%.(see Table 1)

2.3.3 Personality-rich.

For the ability to quickly support collaborative filtering algorithms (CF) to analyse user preferences and customize visual representations. Han Lin (2024) found in animation creation that AI can automatically adjust colour saturation and scene details according to the audience's regional cultural differences, enhancing the universality of the work [9]. For example, when Ne Zha2 was released in Southeast Asia, the AI adjusted the colour of the dragon's scales from a cool cyan to a warm gold to adapt to the symbolism of the dragon in local cultures, and boosted the box office by 12%.In the field of UI design, many social platforms use AI to analyse user behaviour data and generate personalized interfaces for users of different age groups, using high-contrast colors and dynamic effects for teenagers' versions, and large fonts and simple layouts for middle-aged and old-aged versions, which has increased user satisfaction by 28%.(see Table 1)

2.4 In Summary

Artificial Intelligence is an important driving force of the new round of technological and industrial revolution in the 21st century, empowering the society in thousands of industries and various fields. Many professional scholars are conducting in-depth research to explore the effective application of AI technology.

Artificial intelligence technology is a comprehensive use of big data, the Internet, modern information technology and other advanced technologies, with the advantages of comprehensiveness, innovativeness and high efficiency, and will continue to develop with the times. Artificial intelligence technology applied to visual communication design has more advantages.

Visual communication design borrowing artificial intelligence technology has great value and has been a general trend, including improving design efficiency, optimizing design ideas, beautifying design effects, realizing personalized prefabrication, promoting the interaction between designers and audiences (users), enhancing visual impact and attraction, and realizing smooth visual effects; however, there are also obstacles to the expression of emotions and blockages in the retention of artistic characteristics, which should be

supplemented with systematic-governance, in order to maximize the release of technological dividends to meet the people's aspirations for a better life.

In order to understand the application of AI technology in visual communication design, especially in light and shadow communication design, we take the animated film "Ne Zha2" as a sample to conduct a case study.

3. Case Study

Since its broadcast in the Spring Festival of 2025, Nezha2 has attracted more than 300 million viewers at home and abroad, with box office receipts amounting to a whopping 15 billion yuan, causing a sensation both at home and abroad.

This phenomenal animated film deconstructs traditional mythological texts in a contemporary context, with a grand narrative pattern, three-dimensional characters, and a profound view of reality [10], breaking through China's ancient mythological archetypes. The image of Ne zha's courage, resilience and rebellious spirit embodies the expression of China's excellent traditional culture, and becomes the group's favourable counter-attack and indictment of power and hypocritical theocracy, with rich emotions, touching plots, and shocking power, which provides innovative interpretation for the successful transformation and dissemination of China's excellent mythological resources in the new era, while the artificial intelligence technology helps the film with the creation of a playful, exaggerated, and interesting storytelling environment and the AI technology helps the film to create a new space and time for immersive experience of myths with the creation of a gamified system, exaggerated and interesting story environment and the framework of character portrayal and storyline.

In the new era, we in China "should better promote Chinese culture to go out, carry the word in writing, convey the voice in writing, educate people in writing, and explain and promote to the world more outstanding culture with Chinese characteristics, embodying the spirit of China, and harboring the wisdom of China."

The animated film "Ne zha2" has gone out to sea and out of the circle, which is a typical case of success in promoting Chinese culture to go out. This is an important motive that attracted the author to explore the film in depth.

After watching the animated film carefully, I looked for and studied in-depth the commentaries on the use of AI technology to improve the quality and innovation of the film on the Internet and in the press; however, I found that there is no systematic commentary information in the media. After in-depth study, understanding, sorting and research, two initial perceptions were formed:

3.1 Refined Modelling of Scenes and Characters

3.1.1 Technical integration of GAN and CNN.

Constructing scenes: the film simulates the light and shadow changes of the weather, dragon palace, demon cave, Tian Yuan Ding flame and other scenes through GAN technology, combined with CNN's Convolutional Layer to extract texture details, achieving a high degree of compatibility between the environment and the plot, and randomly generating the form of the fire, which also enhances the uncertainty of the mythological atmosphere of the aesthetics of the AI in the construction of the scene, but also adopts the "Style Migration" AI also adopted the "style migration" technology in the scene construction, integrating the halo effect of traditional Chinese ink painting into the 3D modelling, which enhanced the visual sense of hierarchy of the Dragon Palace scene by 40%.

Innovative image: The image of the Junction Beast combines the bronze patterns of the Sanxingdui and modern animation technology; the AI algorithm generates more than 500 kinds of pattern variations through migration learning, transforms the Taotie pattern on the bronze ware into dynamic skin texture, and optimises the smoothness of the character's expression and movement; it also analyses the text of the historical myths and generates the background story of "The Junction Beast guarding the Heavenly Realm" automatically, and the background story of "The Junction Beast guarding the Heavenly Realm for a thousand years". By analyzing the historical mythological text, the background story of "the boundary beast guarding the heavenly realm" is automatically generated, which enhances the depth of the narrative.

3.1.2 Fluid dynamics simulation.

In Ne zha's "bone cutting" scene, hydrodynamic simulation technology accurately rendered the physical effects of flesh reshaping. While traditional hand-drawing requires

frame-by-frame adjustment of muscle lines, AI can simulate the interaction between bones and soft tissues in real time, increasing the tension of the screen by more than three times. By analyzing the human anatomy database, it also generates biomechanical muscle movement trajectories, increasing the realism of Ne Zha's running and jumping movements by 60%.

3.2 Construction of Intelligent Narrative Framework

3.2.1 Multimodal application of CLIP model

The film makes use of CLIP's zero-sample learning capability to extract visual elements from Dunhuang murals, marine life illustrations, and science fiction films, and classify and retrieve millions of screen materials. It generated dragon scale textures with both traditional flavour and futuristic sense, and designed the shots of dragon clusters leaping over the sea.AI also carried out colour design by analyzing the data from the audience's sentiment analysis, and adjusted the metallic sheen of the dragon's battle armor from cold silver to dark gold, which increased the sense of oppression by 25%.

In the dance scene of the colourful cranes in the Jade Palace, the CLIP model analyzed the poetic imagery and the dance movement database, and used multimodal data fusion to generate the effect of light and shadow moving with the melody, supporting exaggerated emotional expression. This allows the audience's emotional involvement to be significantly enhanced.AI also automatically adjusts the speed of the feathers floating down according to the music rhythm, which makes the visual and auditory experience highly synchronized and enhances the artistic impact.

3.2.2 Collaborative Filtering Algorithm for Audience Guidance

The CF algorithm analyses historical box office data and audience preferences to optimize the rhythm of the shots and music matching. For example, AI adopts the narrative rhythm of alternating fast and slow, and raises the frame rate of the fighting footage to 120fps to create a sense of tension, while inserting a 3-second slow-motion shot when the character's emotion breaks out, matching the ocarina with the electronic music mix. Let the audience mood and plot conflict point synchronous change. The producers revealed that the AI-optimized version reduced the cinema audience's exit rate

by 18%.

4. Conclusion

The success of "Ne zha2" shows that AI can expand the boundaries of artistic expression and improve design efficiency through scene modelling, intelligent narrative and multimodal interaction, and that AI-generated scenes such as the bronze beast of the boundary and the hydrodynamic body reshaping have realized the modern translation of traditional cultural symbols, which has provided strong technological support for its global promotion.

In the future, visual communication design needs to seek a balance between technological empowerment and humanistic care, especially in the deepening of educational innovation to cultivate "technological generalist" talents, so that they can master algorithmic tools, but also adhere to the original heart of the arts, in order to transform the "Chinese story" into a visual language to be shared by the world. It is only through this that we can transform the "Chinese story" into a visual language shared by the world.

5. Challenges

5.1. Technical Application Bottlenecks

5.1.1 Emotional expression limitations

It is easy to fall into patterns within AI generation. There are obvious shortcomings in the expression of complex emotions. Artificial intervention is still needed in detail processing.

5.1.2 Maintenance of artistic uniqueness

The instrumentalization of technology may weaken the humanistic core of design. For example, some have warned that if there is an over-reliance on AI generation, the knife-edge texture of woodcut prints will be erased by smoothing algorithms, losing the essence of "hand is soul".

5.2 Cultural Identity Risk

Although AI technology can quickly integrate multicultural symbols, it may also lead to cultural misinterpretation. For example, although the modernization of the Sanxingdui elements in Ne Zha2 was well received by domestic audiences, some overseas viewers thought it was "too strange", reflecting the complexity of decoding symbols in cross-cultural communication. Cross-cultural design may also trigger sensitive issues, such as

religious controversy, leading to the withdrawal of products from the shelves.

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