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NEW INTERFACE DESIGN PROCESS BASED ON AI-GENERATED CONTENT - TAKING MIDJOURNEY AS AN EXAMPLE

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Abstract. The purpose of this article is to introduce and discuss the application method of Midjourney as an innovative interface design auxiliary tool. By analyzing the current development status of interface design and AI-Generated Content, comparing mainstream AI design software, the Midjourney tool is selected to compare with the traditional interface design process. The method of AIGC to assist the interface design process is proposed and at the same time, systematically analyze the types of interface design elements, verify the application of this tool in actual interface design projects through actual cases and guide designers to better use Midjourney to improve work efficiency in specific scenarios or element types during the design process using digital technology. Starting from the advantages and disadvantages of Midjourney, it helps designers and software developers analyze the usage limitations and potential problems of this tool, so as to better provide directions for the optimization and upgrade of future versions.

Keywords: *Interface design, artificial intelligence, AI-generated content, Midjourney, design process, digital technology.*

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1. Introduction

With the development of artificial intelligence technology (AI), it has brought great challenges to the art and design industry and some basic and simple design tasks and skills are facing the risk of being replaced by AI. At the same time, the popularization of AI application has also brought new opportunities to different fields. According to an analysis of the Artificial Intelligence Index Report released by Stanford University in 2024, AI can not only improve labor efficiency but also ensure high-quality output and reduce the gap between low-skilled workers and highly skilled workers. 59 percent of the respondents said that using AI has reduced their costs, up 10 percent from 2022 (Artificial Intelligence Index, 2024). However currently for the public, scope of AIGC application often not very well adapt to specific industries and fields, so in the field of diversified design, can be applied to a small range and vertical application mode, will bring future design more efficient development and prospects, the particularity of the interface design need to further consider the possibility of AIGC in the application.

Interface design mainly consists of three parts: user research, interaction design and visual design. According to the user's needs to research and analysis, design in line with the user operation mode and use habits and convenient operation interface and different

interface visual design style, tend to bring the user difference of visual effect and aesthetic experience, to strengthen the interface visual design for the user to use understanding and appeal (He, 2022). At present, the interface design tools are mainly based on computer image processing technology, different design software can solve different needs and more often it will be used at the same time. However, no matter what kind of design software it is, designers need to have skilled operation ability, which requires a certain amount of learning time and practical experience (Mi, 2021). The theoretical basis for the design of virtual objects, in particular mannequins, taking into account the individual characteristics of customers was studied by Yezhova and Pashkevich (2021). The means of developing design creativity are discussed in the article by Skliarenko et al. (2022). The use of digital technologies in the training of designers is described in the article by Kolosnichenko et al. (2022). Certain aspects of research and creative activity in the training of future designers are discussed in the article by Gryshchenko et al. (2024). The emergence of artificial intelligence technology has provided people with new tools. Enterprises, scholars and designers have all explored the application of artificial intelligence technology in their respective fields.

AI is a based on computer science, through computer technology, psychology, philosophy and other disciplines, is used to simulate and extend the intelligence of intelligent theory, method and technology, trying to understand the essence of intelligence and produce a new can completely imitate the real human thinking and operation of intelligent object. Even if it has independent decision-making ability, cognitive ability, perceptual ability and task execution ability, it can even produce intelligent machines with human emotions and human ethics and moral concepts, making it eventually become a new tool to help human beings improve production efficiency and development (Li *et al*., 2023).

AI Generated Content (AIGC), also known as generative AI, is automatically generated by artificial intelligence. Specifically, it refers to deep learning technologies such as large language model (LLM) and generative adversarial network (GAN), which are generated by artificial intelligence after inputting relevant data. Currently AIGC in AI generate images, text, code, music and other fields have related applications to the ground, it is AIGC related underlying technology such as neural network, big data, natural language processing, computer vision and other ability of maturity and breakthrough, compared with the traditional decision AI in continuous dialogue ability, generate content quality, language understanding and logical reasoning ability are improved. With the discovery and landing of scenes at both ends of B and C, AIGC will become an important new productivity in the future, so as to solve the anxiety of productivity (Liu, 2023). For example, McDonald's and Microsoft established an AI laboratory in Nanjing, China, which not only uses AI technology to improve the work efficiency of the enterprise management platform, but helps employees to improve their skills in service. Meanwhile, it also applies to print publicity, stylized illustration design and other exploration and innovation, so as to improve the digital user experience (Microsoft, 2024).

The evolution process of content generation is the process from professionally generated content (PGC) to user generated content (UGC) and finally to AIGC. PGC refers to the content carefully planned, produced and edited by professional content creators or organizations, such as news, film, music, etc. UGC refers to ordinary users or enthusiasts to create, edit and publish content through the Internet platforms and tools, such as Twitter, Facebook, Youtube and other media creation platforms, involving a wide

range of professional categories, such as technology, food, cars, travel, painting and other pictures, text, music, video and other types. AIGC refers to the use of artificial intelligence technology to automatically generate content related to user needs, such as images, videos, music, text, code and so on. AIGC compared with the traditional content production mode, PGC is made by professional companies and producers to guarantee the highest quality of content production, but the lowest efficiency. The quality of UGC is often unstable due to user differences, but the advantage is that the more numbers and categories are generated. AIGC has a relatively stable, fast and a large amount of generated content, while the learning cost is relatively low, so that more people can participate in the creation. The specific differences are shown in the table 1 below.

Table 1. Content-generated object differentiation analysis
Authors (2024)

Feature	Value		
	PGC	**UGC**	**AIGC**
Content Quality	Highest	Unstable	Higher
Production Efficiency	Low	Medium	High
Production Cost	High	Low	Medium
Individuation	Low	Higher	Highest
User Engagement	Low	High	High
Copyright Problem	None	Exist	Exist

The current mainstream AI paintings include Dall·E2, Stable Diffusion (SD) and Midjourney. Among them, Dall-E2 is developed by Openai. It generates images through a text description. It uses the GPT-3 converter model trained with more than 10 billion parameters. It can interpret natural language input and generate corresponding images. It is based on the excellent understanding of GPT's ability, Dall-E3 is able to understand complex details and iterate over images. Stable diffusion, as an open source model that everyone can use, is based on the latent diffusion model. It generates images through noise reduction and noise reduction and interprets and adjusts complex prompt words and parameters (prompt means that the user lets the model generate specific text content or instructions input to the requirements). It can be generated through different large models (Large models mean a machine learning model with large-scale parameters and computational structures), lora (The lora means that users only need a small amount of data to train a personalized style type), etc. Making powerful control over the style, subject, clothing, movements, etc. of the image (Rombach *et al*., 2021). Midjourney pays more attention to creative expression. It uses generative adversarial networks to understand various painting expression styles and artist styles. It can meet the needs of artists and designers for different styles, design elements, etc. and can be generated through text prompts (Wang, 2023).

From the perspective of artistic creation, convenience and learning cost, the analysis of three types of AI painting tools show that due to the accuracy of Dall-E2 images generated by language recognition, slightly less than Midjourney and Stable Diffusion, but there will be no obvious logical error and can better understand the user's natural language. But on the generation of related content including interface design, too complex semantic recognition, at the same time generate quality, stylized, controllable are weaker than Midjourney and Stable Diffusion and the limitation of the creation size makes it can only create a square image content, which is not conducive to the application of multi-platform equipment interface design (Abdullahi, 2023). Stable Diffusion is

limited by the user's hardware, checkpoint and lora, need each user for their required style installation and download, to the user's personal equipment requirement is higher, has high difficulty, once prompt word use deviation, is easy to generate low quality images, so more suitable for willing to specific areas depth of professional users (Jin, 2023). However Midjourney does not need to be limited by equipment configuration, only need a computer with a network of can let users to quickly get started, through a simple dialogue can generate the integrity and aesthetic feeling higher pictures and able to refine and fusion of different styles, using low threshold and generate speed, but does not affect the generation of higher product quality images, suitable for creative areas (Saitakhmadov, 2023).

Among them, Wu et al. (2024) research proposed a product color design method based on ChatGPT and Midjourney based on AIGC authorization. This methodology takes the image adjectives of perceptual engineering as the medium and combines AIGC, color harmony, image color extraction and evaluation methods, to transform consumers' emotional feelings into the color collocation and shape of products. This study presents a model case of collaborative integration of generative AI and traditional design methods, confirming the potential application of generative AI in product design. Huang (2024) studies and their empirical study of 119 students showed that AIGC has significant advantages in improving student self-efficacy and consistent results across different skill levels. AIGC significantly improves the workflow and efficiency of product design conception teaching, cultivates more meaningful teaching experience and ultimately improves the quality of design education. Verganti et al. (2020) point out that the wide application of AI enhances the scalability and interdisciplinary ability of the design process, thus helping designers overcome various limitations in the traditional design process. Dong et al. (2017) believe that the development of artificial intelligence has promoted the intelligent evolution of design, making the design process gradually shift from ‘machine-assisted designer creation’ to ‘designer evaluating machine creation’. By analyzing the influence of AIGC on jewelry design, Lyu et al. (2024) found that it could have an influence on the inspiration and conception stage of jewelry design and create various styles and characteristics for the designers. Hu et al. (2023) found that AIGC in the design object style semantic imitation and scheme quantity output has significant advantages, in the process of modelling design only according to the design style of language and reference pictures upload, can quickly generated by AIGC appearance, structure and style consistent derivative scheme, can greatly improve the efficiency of the design. Jaruga-Rozdolska (2022) introduces AIGC in the architectural design process and takes Midjourney as an example to introduce its potential and usability in the architectural design.

The development of artificial intelligence technology has received widespread attention, the technology into other areas, improve the work efficiency has become a development trend, has been proved to be able to work for people's needs for certain creative output, in addition to the text generation AI, widely used in music, art and story, such as creative products, can let the user through the natural language text directly involved in the creation process (Dong *et al*., 2017).

2. Methods

The traditional interface design process is generally to analyze the project requirements, to understand the requirements of user groups, functional requirements,

brand style and other aspects. Then, through user behavior data, market research and competitive product analysis, demand assessment is conducted to have an in-depth understanding of the needs, behaviors and preferences of target user groups, which is helpful to help designers to obtain more accurate user expectations and needs. According to the actual requirements for the interface visual elements sketch design, including the overall style, font, icon sketch categories, this stage often requires designers quickly and a large number of design iteration, need designers to have rich industry experience, design sensitivity, aesthetic basis and professional technical ability and also spend a lot of time for reference figure collection, literature sorting, etc. and repeatedly communicate with customers and the actual user groups. After the plan is finalized, the final design plan of the interface is carried out to realize the implementation of the interface design plan (Zhou, 2023).

It can be seen from the design flow chart (Figures 1 and 2), the differentiation characteristics of traditional interface design methods and AI-assisted interface design methods. In the early stage of design research, there is no obvious difference between the two. Both of them need to establish and promote the design theme from the perspective of clients, designers and users and based on the literature review, competitive product analysis, aesthetic characteristics and personal experience.

In the design deduction stage. The phase usually experiences a lot of repeated modifications and adjustments. Traditional design methods require designers to spend a long time to think about the scheme, sketch drawing, color performance and select the appropriate scheme category in a large number of schemes. Subsequently, the final protocol design for interface redrawing was performed using computer-aided design software such as Adobe AI / Sketch / Figma etc. Each link will spend more time, equipment and energy, which are limited by the designer's personal ability.

And artificial intelligence auxiliary design can let designers to a large extent to release their hands and brain, only need to improve the design theme of natural language, into a suitable for artificial intelligence understanding prompt words and input in the word box and submit or use picture tips, sketch conversion rendering, anyone can in a very short period of time (30s-1min) generate a lot and has a certain reference significance of high quality interface design inspiration scheme, meet the process of design deduction for massive scheme and material collection and arrangement. For some interface style elements or illustration types, designers can be used directly after reprocessing optimization through Midjourney.

Admittedly, this stage still requires the combination of artificial intelligence and the designer's manual design, but as an integrated assistant, it can greatly shorten the time needed in the early stage of the design, accelerate the tension of product development and achieve the continuous improvement of the solution in the subsequent iterative design.

This study systematically analyzes the current development status and design process of interface design and uses the design case method to demonstrate the design content in the workflow of interface design in practice, such as icon stylized design, interface stylized design, interface element category design, Interface object-based design, interface size parameters, etc. Taking into account the aesthetics of visual elements in interface design and the important stage of inspiration in the design process, Midjourney, which is the most widely used and has low usage and learning costs, is selected as the AI tool selected for analysis in this article to explore the role of Midjourney in interface design work possibility of in-stream applications.

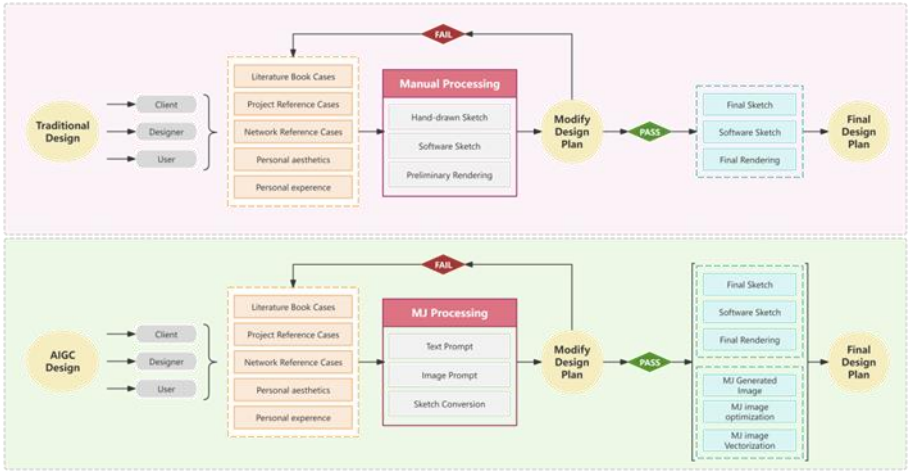

Figure 1. Midjourney auxiliary interface design process
Source: Zhou (2024)

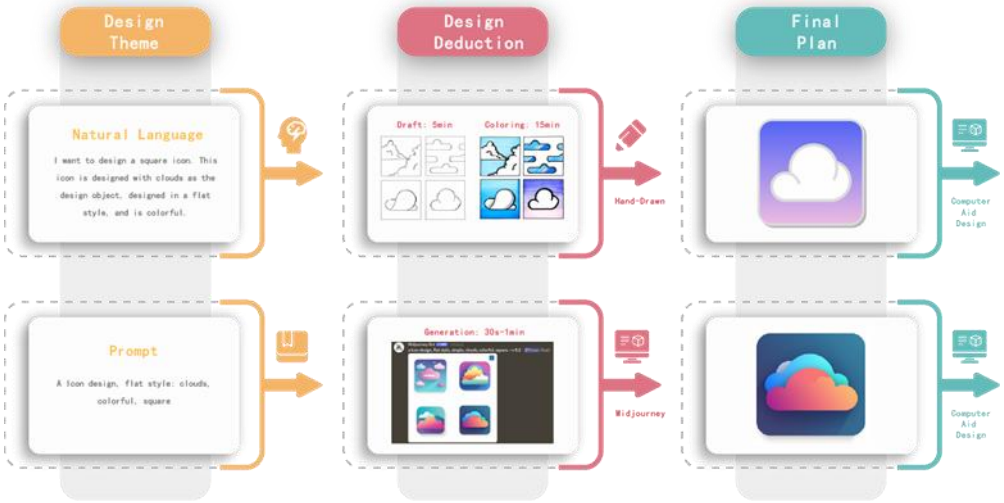

Figure 2. Case of Midjourney auxiliary interface design process
Source: Zhou (2024)

3. Results

3.1. Midjourney parameterized adjustment method

Before entering the Midjourney server dialog box, it is necessary to understand the application method of AI software before operation. It is to replace human natural language by prompt words. The composition structure of prompt words is mainly composed of three categories: image prompt, text prompt and parameter prompt. The image prompt is generated by the user by adding the URL address of the one or more image to the prompt word, which is also the component part that can most influence the generated image category and style. If you place a personal selfie photo and input the corresponding cartoon avatar category prompt word, a cartoon character portrait with the user's personal appearance characteristics will be generated. Text prompt is generally divided into main object, style characteristics and image processing three parts, the main

part is told by the Midjourney need to generate categories and objects, style description is the specific style characteristics of generated images, such as cartoon, realism, photography, hand-painted and other different types of expression, image processing is introduced image processing and rendering scene need specific light Angle, light source type, perspective processing method. Finally, the parameter prompt is to adjust the generated image by changing the image size, version, type, etc. and is placed as a suffix at the end of the complete prompt word. As shown in Figure 3.

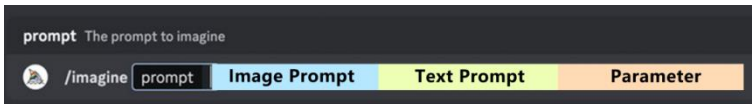

Figure 3. Midjourney structure of prompt words
Source: Zhou (2024)

On this basis, it is necessary to select large models and parameters corresponding to Midjourney and the difference of basic parameters can generate picture cases of different styles and quality. Since Midjourney V6 is in beta, this paper adopts V5.2 version, which can understand the natural language prompts sent by users and generate higher quality painting pictures.

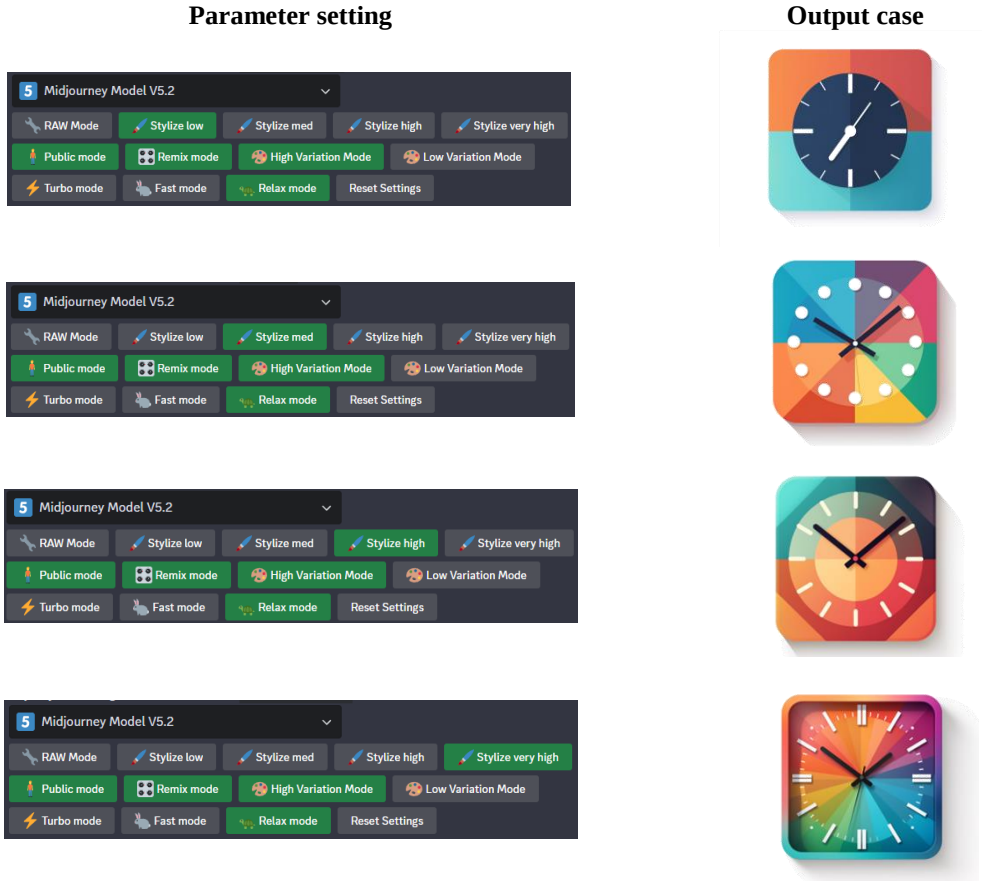

Figure 4. Midjourney stylized parameter setting
Source: Zhou (2024)

Figure 5. Midjourney variation mode regulation parameter setting
Source: Zhou (2024)

In the parametric setting, contains the stylized parameters and variation mode, a total of four stylized parameter level, the adjustment of stylized parameters tend to generate the quality of the picture and performance effect produce certain differences, low stylized generated images tend to be more conform to the user input prompt words, but has the artistic expression level is relatively poor. However, the pictures generated by high style will be created more artistic creation, resulting in the weakening of the correlation with the user's prompt words, as shown in Figure 4.

At the same time, the function high / low variation mode is added in V5.2 version, which can improve the range of change when using the graph change, so that the modified picture change style has greater differences in the overall change or only in the local details. In addition, by generating the function at the bottom of the control (U1 represents high-definition generated top left picture, U4 represents the lower right picture, V1 represents based on the top left picture, can retain its basic features, Refresh representative for all generated pictures to refresh, generated figure have previous characteristics) and selected picture fine tuning and scene amplification, under the fixed prompt word content, to ensure the adjustable and replicable. As shown in Figure 5.

3.2. User Interface icon stylized design

User Interface (UI) icon design refers to the visual elements applied in the user interface, which help users identify, understand and use the different contents or functions corresponding to the icons in a symbolic way. UI icon design needs to fully consider factors such as the shape, color, size and style of the icon, so that users can form a good user experience when using the interface and achieve beautiful and practical effects. Among them, flat style, skeuomorphic style and linear style are the most common. The flat style uses simple colors to fill geometric shapes, removes excessive shadows, gradients and textures and highlights the theme content of the application functions, thereby achieving clearer visual information. The skeuomorphic style pursues the real effect of simulating the corresponding functions of icons through realistic details and textures and applies expressive materials, shapes, shadows, etc. to make icons look

like actual objects, which can reduce users' learning costs for icons, easier for users to understand. The linear style is in line with modern and concise design requirements. It uses simple lines and colors to form icon elements, reflecting a more flat visual effect and showing a unified sense of the overall style of the interface design.

In the process of Midjourney icon design, the prompt words for different styles, types and characteristics of the icons are edited and organized and the functional types corresponding to the icon elements are determined, as shown below:

1) Skeuomorphic style. Based on the V5.2 large model, the prompt word input '/imagine' prompt: interface icon design, three-dimensional, a clock, c4d oc rendering, simple color, square shape, white background, can generate a series of skeuomorphic icons accordingly.

2) Flat style. The prompt word input '/imagine' prompt: interface icon design, flat style, a clock, simple color, square shape, white background, can generate a series of flat style icons accordingly.

3) Linear style. The prompt word input '/imagine' prompt: interface icon design, interface icon design, simple line style, clear, a clock, square shape, white background. Then a series of linear style icons can be generated correspondingly.

It is worth noting that in the process of generating icon, the use can change the clock to weather and can through the shape of the adjustment (square shape) constraints the shape of the icon and the background color processing, facilitate late adjustment, at the same time may also appear semantic recognition error, so as to generate the icon type, need the user to adjust the prompt word and content of refresh, so as to obtain the corresponding icon style inspiration and design scheme. In the practical application process, only an image is generated through Midjourney. If it is to be converted into a vector map, it can be imported into Adobe Illustrator. Using the extended high-fidelity image in the image tracing function, the path of the image can be editable, so as to freely modify the shape and color of icon elements. The generated content is shown in Figure 6.

Figure 6. Application of Midjourney in UI icon design
Source: Zhou (2024)

3.3. Interface stylized design

Interface stylization refers to the overall appearance of user interface design and the user's visual experience. It brings different style types through the use of different artistic

expression techniques. This article conducts design practice from four categories: simplified style, three-dimensional style, technological style and cute style. The generated content is shown in Figure 7.

Figure 7. Application of Midjourney in interface stylized design
Source: Zhou (2024)

1) Simplified style. By adding feature descriptions such as simple design style, win10 style, frosted glass effect, etc. to the prompt words to create a simple, clean interface design style without too many complicated elements, so that users can use it during the use process. It focuses more on the content and functions of the interface and is not affected by other elements.

2) Three-dimensional style. By adding to the prompt words, such as three-dimensional design style, semi-realistic, materialized icon elements, volume sense, shadow texture and other characteristic descriptions, through changes in shadows and levels, the flat interface has a certain three-dimensional feel, allowing users to have a more intuitive and touch-sensitive interface experience.

3) Science and technology style. By adding prompt words such as science of technology style, high-tech, science fiction effect, big data processing, blue background and future sense, blue background, futuristic sense, etc. to create interface effects that can be applied to technology, digital and electronic products and are richer in the sensory characteristics of future technology.

4) Cute style. By adding prompt words such as vivid color, cute style, cartoon toy, circular frame and other prompt words, a cute, warm and colorful interface feature is created, which is more suitable for children or fun in the product interface.

3.4. Interface element category design

In addition to icon design, the interface is also composed of other different elements, such as banner page design, status illustration design and image IP design, which can enhance the user experience and reflect the corporate brand image on the basis of conveying the basic information of the application. Function.

1) Banner page design. Use Midjourney to enter prompt words such as A 3d microphone, hi-tech style, blue and purple, frosted glass effect, isometric view, oc rendering, high detailed, light purple background and other characteristic keywords. Users only need to modify the first target object to Such as alarm clocks, telephones, etc., can directly generate consistent graphic types with technological dynamics and gorgeous colors, and can be directly applied to the interface of the banner or popup page under the modification of the design software Adobe Illustrator or Photoshop, for different application categories can be used in different prompt words, as shown in Figure 8.

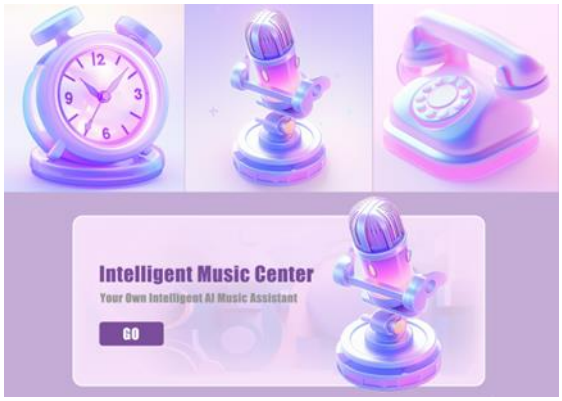

Figure 8. Application of Midjourney in banner page design
Source: Zhou (2024)

2) Status illustration design. Status illustrations represent the specific status of interface application functions or interactive feedback results in the form of illustrations. They can express different usage situations such as success, error, loading, etc. Taking Travel APP as an example, by inputting prompt words such as a girl stands in front of a car with a mobile phone, illustration style, minimalist style, vivid color, white background, thus generating a scene of the user waiting for the bus. The status of the interface is shown in Figure 9.

Figure 9. Application of Midjourney in status illustration design
Source: Zhou (2024)

3) IP design. Designing a unique IP image role by extracting the characteristics and tonality of the brand can attract users while increasing brand recognition and connect the IP image with users and the brand. Taking a vegetable brand as an example, by inputting A cabbage, cartoon toy, IP design, anthropomorphic, cute style, 3D, Popmart style, oc rendering, the transformation from physical characteristics to cartoon image is achieved, as shown in Figure 10.

Figure 10. Application of Midjourney in IP design
Source: Zhou (2024)

4) Interface object design. Based on Midjourney's powerful AI image generation capabilities, it can generate app interface designs with different functions according to different prompt word types of users. Designers only need to keep the basic prompt words unchanged, such as App interface design, black mobile phone prototype, dribble style and modify them. The main part, such as map information, car information, food, weather forecast, etc., can realize the interface design of different objects. Although there are some flaws in the details, it can diverge thinking and inspiration from the matching degree of the basic characteristics of the target object and the interface design, as shown in Figure 11.

Figure 11. Application of Midjourney in interface object design
Source: Zhou (2024)

5) Interface size parameter adjustment. In the interface design process, it is necessary to fully consider the application carrier of the interface. Different carriers will correspond to different interface sizes. It is necessary to fully consider the screen size, resolution, interaction method and specific environment of use of the device. Therefore, the elements and layout within the interface will also be adjusted accordingly to ensure that the interface can provide users with a good experience on different devices. By applying Midjourney, designers can not only generate effect pictures, but also adjust the configuration parameters of the prototype type, such as mobile phone interface, tablet interface, notebook interface, car HMI interface and digital large-screen interface, etc., in different carrier to get the interface display effect and category, can also through the input '--ar 16:9' (aspect ratio) which is the proportion of picture adjustment. The following figure shows the map information as an example, as shown in Figure 12.

Figure 12. Application of Midjourney in interface size adjustment
Source: Zhou (2024)

6) Styled and consistent mixed application mode. Interface elements, such as icon design need to conform to the overall style characteristics of the interface, through the Midjourney can meet the requirements after the qualified prompt word icon style, but

different types of icon style generated inconsistent, if through a large number of repeated, not only will consume more power, but also will not necessarily generate satisfactory type. Firstly, creating icon types by Midjourney, then through Stable Diffusion unique controlnet of icon profile information constraints, combined with the use of stylized lora model, to the bulk of the icon type stylized unified generation, not only can realize the personal style of custom, also can meet the unity of enterprise interface stylized characteristics change. As shown in Figure 13, by using a realistic large model (Realistic Vision V50) and a lora style model generated by individual designers (Wool felt v1.0_ felt, plush 2_, wool ball! Lovely animal model), in the message input the original icon color information, the Midjourney generated icon style unified processing, get the icon plush material effect, while the conventional design way requires the designer to master graphic design software, 3d modeling software and graphic rendering ability, but through more AIGC hybrid application can quickly achieve requirements.

Figure 13. Midjourney Styled and consistent hybrid application mode
Source: Zhou (2024)

4. Discussion

Based on the results of design practice, analyze the differences of Midjourney in the design workflow, list the types of project cases that have been applied to the actual design work and get its advantages and disadvantages in the actual design process.

4.1. Application of Midjourney in interface design

AIGC is reshaping the working mode and creative process of designers and teams and transforming the design content from the basic AI generated text and plane vision related content to a comprehensive project creative performance scheme that meets the complexity.

In interface elements, if the demand side is the need for complex 3d scene and illustration, need to spend more time to modeling rendering design, such personnel and cost investment is not proportional to the benefits and through the AIGC can quickly generate high quality images, can be found that the purpose is to conform to the overall style or play the effect of attracting attention, it is the AIGC is most suitable for generating content.

Through case analysis, it can be found that Midjourney has a wide range of applications in interface design, but it is also limited by the cost of using large models. Currently, it is mainly used by large Internet companies in the design process. For example, Alibaba's Dingtalk team used Midjourney and Stable Diffusion technology in the workbench interface design, because the custom design of the workbench interface

can reflect the characteristics of corporate culture and brand image. The current iteration and update speed of the workbench will be limited by the design level and cost of the enterprise itself, By the rapid processing of AIGC, It allows the team administrator to switch between icon style and interface style, can realize the icon materialized style, ground glass style, hand-painted style, stroke style, gradient style and the combination of common colors and random colors, can meet the needs of different enterprise brand main color (AlibabaDesign, 2024).

Midjourney can help design team design time cost and improve efficiency, such as Alibaba Big Taobao Design team built based on Midjourney and Stable Diffusion AI integration tool platform - 'Taohuayuan', team members through AI platform spent in creative design phase before the time increased by 60%, but the richness of creative scheme significantly increased 150%, makes the overall project landing time reduced by 18%. Among them, in the UI design scene, Taobao can generate user's exclusive Taobao interface skin style through AI according to users' shopping habits, which increases the possibility of product function customization (Taobao Design Team, 2024).

At the same time, more AI tools like midjourney will be subdivided into different exclusive industries. For example, China's Interface design online platform "Instant Design" also launched "Instant AI", a design tool that allows users to experience the rapid generation of editable UI design features through natural language description. In the official test report, the generation capacity of instant AI is already equivalent to that of junior designers. In a recent update, when the JS-UIbotics model was officially launched, allowing users to generate four editable pages in 30 seconds, taking 30 minutes to create a UI interface and instant AI increased production speed by 60 times. Some users using instant AI took just a minute to create a simple promotional site for the movie "Lost in the Stars". The operation is simple and it does not require the user to have the design foundation, the code foundation. Similar UI design tools are Uizard, Galileo Ai, Visily (AIGC, 2024).

4.2. Advantages of Midjourney in interface design

1) Improve efficiency. Midjourney can generate effect pictures or picture prototypes that meet user needs through text and pictures, greatly saving designers' time and experience and improving design efficiency. Designers do not need to spend too much time on plan discussions, sketching, software drawing, plan adjustments, etc., but can liberate productivity. Generally, four rendering effect pictures can be generated in about 5 minutes. If the fast mode is turned on, then pictures can be generated in about 1 minute. As a result, more energy is put into demand analysis, solution evaluation and interface optimization and the creative thinking and design experience of the human brain are quickly transformed into actual products through Midjourney, which fundamentally affects the interface design process and content. changes and developments rather than mechanical repetitive software operations. Zhou and Lee (2024) analyzed the application of AIGC have shown that using AIGC can significantly increase productivity by 25 percent.

2) Stimulate creativity. Midjourney allows designers to explore the infinite possibilities of AI, discover new inspirations and ideas and expand design thinking and vision. At the same time, in the context of the era of multi-disciplinary integration, in addition to art and design workers, they can also draw picture categories related to their own needs, thereby creating picture plans that they have thought about before but are not capable of showing. Through the corresponding functions, the interface content, style and

functions can be re-adjusted, optimized and combined to further refine the creative inspiration, allowing you to instantly grasp the artistic style characteristics of the master. For users who have difficulty in refining prompt words, they can send them through story-like language descriptions and they can also get picture themes that are relatively consistent with the text content. The application of AIGC tools can expand the career of artistic creators and thus open up a whole new field of art (James *et al*., 2024).

3) Reduce costs. Compared with traditional design requirements, Midjourney requires the purchase of computers, tools and design software with certain configuration requirements, as well as designers with different design experience and mastery of different design styles. Midjourney does not require too much technology, equipment or even personnel. The Internet and discord applications can generate high-quality pictures anytime and anywhere. At the same time, it can shorten the product development cycle, quickly generate a large number of design concept solutions, help designers find directions faster, shorten the cost of early exploration and automatically complete some repetitive design tasks, reducing labor costs and later stage The cost of iterative trial and error has made the company's development lightweight, which is more conducive to the company's management and development.

4.3. Disadvantages of Midjourney in interface design

1) Lack of accuracy. Since the Midjourney version is still in the process of continuous iterative updates, the quality and actual effects of the generated images will be affected by factors such as user prompts, selected model versions and system parameters. Currently, there is still a certain degree of uncontrollability in the accuracy. The overall style of the interface may be in line with the designer's expectations, but the details, such as text content, picture details, etc., may have some errors and defects, or even be illogical. It is more likely that after multiple adjustments to the detail prompts, If the style characteristics completely deviate from the requirements, the designer will need to manually proofread, modify and improve it in the later stage. At the same time, the regeneration of the same prompt words will often have certain differences in content and features from the previous pictures. There are situations where similar interface features are inconsistent and designers need to generate multiple times to achieve an interface effect that basically meets the requirements.

2) Moral and ethical issues. Copyright issues remain the most controversial topic in AIGC drawings. When individuals create artistic designs, copyright usually belongs to the creators themselves. With the introduction of AIGC, the copyright issue of design works has become blurred. At the same time, different countries and regions have different views on the ownership of copyright. Because AIGC drawing does not directly transfer and plagiarize other people's works, but is based on deep learning technology and refines, disassembles and combines multiple matching picture types according to the user's text prompts, thereby producing unique works. Therefore, some people think that this is a lack of innovation and originality. Therefore, when using it, try to follow the relevant policies of the platform and the region where you are. When art is implemented with artificial intelligence, it is beneficial to highlight human labor in this process, for example by revealing the artist to train algorithms with their own set of paintings, rather than relying on commercial tools with pre-trained models (Messer, 2024). At the same time, the development of AIGC will also cause some artificial intelligence anxiety for individual designers, such as the problem of work replacement, which leads to their resistance to AIGC (Du *et al*., 2023). In fact, creation is a new combination of past

experience. If only created in the form of combination, the efficiency and results of AIGC will be significantly better than that of human beings. At this time, the result-oriented design will change, because the fundamental difference between genuine products and generic products is that legitimate products have the soul of the process, while generic products do not. Therefore, the design process with a soul is often even more important (Misono, 2024). Therefore, in terms of the definition of the author, when the designer trains the original data model and applies AI for creation, the model has its fixed author. When others use the model for creation and commercial use, they need to negotiate with the designer about copyright and profit distribution.

3) Learning costs. With the development of time, AIGC has gone through many iterations during 2023. From the beginning, designers need to master the content and format requirements of the prompt words themselves, to now it can be automatically generated through AI, which reduces its own learning cost, but also reveals designers often spend a lot of time learning the use of software and adjusting parameters and may be able to directly optimize and simplify the tedious design process in the next version and be able to implement more functions (Zhu, 2023). This has already limited designers' understanding of AI technology. The waste of learning ignores the most important thing in the design industry, that is, AI is currently only an auxiliary design tool, rather than determining the results of the design, thereby assisting the use of prompt words and the production of design works.

5. Conclusion

As a new AI tool, Midjourney has the ability to assist design, which has a great impact and help on the traditional interface design process. It can quickly generate different styles and types of UI icons according to the requirements of designers. A large number of preliminary design plans such as interface effects and interface element objects can also be freely adjusted according to the user's needs and preferences. The style, elements, objects, size parameters, etc. of the generated images can be freely adjusted to achieve a personalized and editable interface design method provides designers with a lot of inspiration and reference, saves designers time and energy and greatly improves design efficiency. However, Midjourney, as an auxiliary design tool, has certain inherent flaws due to intelligent production. It still requires the participation and judgment of designers to screen, modify and optimize the generated images to achieve the best possible results. Thus Midjourney is an excellent interface design auxiliary tool, but at the current stage it cannot completely replace the subjective initiative of designers. In the future, the development branch of AIGC technology will shift from open source large models to in-depth research on small models in detailed fields and carry out personalized customized services, thereby forming an image and rapidly transforming market. AIGC will further subdivide it according to the design industry field, such as AI applications specially developed for interface design, product design, cultural and creative design, clothing design, etc. and through multi-AI and integration, connect decision-making, evaluation, R&D ecology and marketing in the design process, thus affecting the ecology of the design industry system to jointly establish the field of data-based feature design.

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