

Optimization of User Experience Design Process Driven by AIGC

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Abstract: The year 2023 is known as the year of AIGC, and the emergence of CHATGPT has brought about the adjustment of the direction of many industries. In this storm of technology based on artificial intelligence, the design industry should also follow the trend, think and make choices. With the continuous development of AI technology, its high efficiency and low cost make it a powerful tool for designers to improve efficiency in the design field. How generative artificial intelligence system (AIGC) can promote the optimization and intelligent transformation of user experience design is discussed. By analyzing in detail, the application of AIGC in the design process, the author gradually delves into how to use AIGC tools more rationally to improve the efficiency and quality of designers in completing the UX design process. The aim is to provide designers with new ideas in practice to cope with increasingly complex design tasks and user needs, and to provide reference for research and practice in related fields.

Keywords: AIGC; User Experience Design; Intelligent Transformation; Design Research.

1. Background and Significance of the Study

1.1. Policy and Industry Background

AIGC (Artificial Intelligence Generated Content) is a new type of production method that utilizes artificial intelligence technology to generate content [2]. It uses algorithms, learning models, and other technologies to make computer systems creative, improve content production efficiency, and create new, unique perspectives on content. The concept was not proposed overnight. As early as 1950, Turing proposed the “Turing Test”, the initial germ of AIGC; in 2007, the artificial intelligence system of New York University created the world's first novel created entirely by artificial intelligence; [3], marking the steady progress of AIGC technology; since the 21st century, AIGC technology has entered the spurt of development. stage of development, with technology giants and emerging companies increasing their R&D investment, covering more complex media forms such as text, code, pictures, audio and video.

1.2. Significance of the Project Research

The purpose of this thesis is to discuss how to utilize Artificial Intelligence Generation and Creation (AIGC) technology to assist designers in solving increasingly complex design tasks and user needs. By learning AIGC technology, designers can explore user needs more deeply and realize true “user-centered experience design”. In addition, through the research on AIGC technology, we think about how to improve the design efficiency and accelerate the iterative process of design results through the empowerment of technology. Through the research and practice of the thesis, we hope to provide a theoretical basis for the related fields, and to promote the development of the design industry in the direction of intelligence, efficiency, and greening.

2. Definition and Application of AIGC-Related Concepts

2.1. Definition of the Concept of AIGC

AIGC (Artificial Intelligence Generated Content) is a new type of production method that utilizes artificial intelligence technology to generate content [2]. It uses algorithms, learning models, and other technologies to make computer systems creative, improve content production efficiency, and create new, unique perspectives on content. The concept was not proposed overnight. As early as 1950, Turing proposed the “Turing Test”, the initial germ of AIGC; in 2007, the artificial intelligence system of New York University created the world's first novel created entirely by artificial intelligence; [3], marking the steady progress of AIGC technology; since the 21st century, AIGC technology has entered the spurt of development. stage of development, with technology giants and emerging companies increasing their R&D investment, covering more complex media forms such as text, code, pictures, audio and video.

2.2. Status and Trends of AIGC Development

At present, the application scene of AIGC technology realizes multi-domain coverage, and mature applications have appeared in media, e-commerce, entertainment, education, industry and other industries. Intelligent cooperation across fields and scenes has been realized in a real sense, and the integration of AIGC technology with other fields has deepened, such as computer vision and natural language processing, providing more dimensional data support and creative inspiration for many content production industries. For example, in the media industry, AIGC technology is widely used in speech recognition, video quality enhancement, and digital human anchoring. In the e-commerce industry, virtual fitting rooms, virtual anchors, intelligent chatbots, and other functions have emerged to provide personalized services to users. In the medical industry, AIGC can assist in medical image analysis to quickly and accurately identify lesion areas and assist doctors in making more accurate

diagnoses.

With the continuous progress of technology, intelligent aids will become more and more intelligent and personalized, providing more accurate and effective support for designers. From the current situation, it can be predicted that future AIGC systems may increasingly involve multimodal content generation, producing more intelligent, diverse and personalized interactive products.

2.3. Application of AIGC in the Design Field

Nowadays, the application of artificial intelligence in the field of design has shown a trend of all-round and multi-angle coverage. From automated design to intelligent assistance, AIGC technology is in full swing changing designers' workflow and way of thinking. Here are some cases:

Table 1. Applications of AIGC tools in the design area

Design Field	Specific Application Forms	AIGC Tools
User Experience Design	Simulated User Interviews	SyntheticUsers, ChatGPT
	Prototyping	WireframeDesigner, Uizard
	Feedback Data Analysis	GoogleAnalytics
Media Design	Text Content Generation	ChatGPT
	Image Generation	Midjourney, Stablediffusion
	Image rocessing	Remove-BG, Upscayl,
	Audio processing	Whisper, Mubert
Environmental Design	Video Production	Runway, Pika
	Rendering Visualization	Midjourney, Stablediffusion
Product Design	Logo	Midjourney, Logosc
	Sketch to 3D	TripoAI
	Exterior Rendering	Midjourney, Stablediffusion

3. Analysis of the Advantages of AIGC-driven UX Design

AIGC is revolutionizing the design industry's approach to innovation and problem solving, and iterating on design at an unprecedented rate. The benefits of AIGC-driven user experience design are becoming more apparent.

3.1. Centered on Meeting Demands, Empower an Efficient Design Process.

Empowering an efficient design process centered on meeting needs is one of the key goals in the design field. To improve the efficiency and quality of the design process with AI technology, especially AIGC, which replaces repetitive work and allows designers to focus on creative work, and analyzes design data and trends to provide inspiration and references, helping teams better grasp market demand and user preferences to create competitive work. This collaborative model not only improves the efficiency of the design team, but also promotes the continuous output of creativity and keeps the team energized.

3.2. Guided by User Insights, Data-Driven Digital Transformation.

Guided by user insights, data-driven digital transformation refers to the process of digital transformation in which user insights and needs are used as the main driving force, and data analysis and mining are used to guide and support the transformation and development of the organization. This approach puts the user at the center of business strategy and further promotes products and services that can better meet user expectations and needs. Once upon a time, limited by technology, designers mainly did design through their intuition and experience, and data was only a passive resource [4]. But nowadays, one of the most significant features of the big data era is quantitative thinking, i.e., everything can be quantified, and data is no longer passively used, but actively integrated into the design process, becoming part of the design process. AI analyzes a large amount of user data and digs out the patterns and behaviors hidden in the data, which helps designers locate the user's needs more accurately and optimize the experience [5].

In UX design, by analyzing user behavior data through data-driven methods, designers can obtain user insights, so that they can use the data as a guide and optimize the UX design of e-commerce websites, and improve the user satisfaction and conversion rate of the website.

3.3. Aiming to Enhance Experience, Emphasize Personalized Experiences

In user experience design, the goal of enhancing the experience and the emphasis on personalization means placing user needs, preferences, and behaviors at the core of the design, and creating an experience that is more relevant to the user's needs through personalized design and services. Contemporary design is defined as problem solving, but the pursuit of excellence requires the creation of emotional and personalized experiences. Today's users, especially Generation Z, care about personalized experiences, and we need to pay attention to how they interact with the design work and its impact on emotions, behaviors and experiences. Using AIGC tools to analyze user data and capture preferences, designers can develop personalized design solutions that provide a customized interaction experience for each user, increasing platform user activity and retention.

4. Case Study of UX Design Process Empowered by AIGC

4.1. Design Definition

The Parkinson's Voice Early Screening Platform is an application designed to help middle-aged and older adults and their families screen for the possibility of Parkinson's disease. Users can record their voice, and the platform assesses the risk of Parkinson's disease by comparing with a model library. It aims to achieve the goal of "early detection and early treatment" to maximize the relief of symptoms and improve the patient's physical condition. At the same time, the platform also links users and providers, integrating health management functions and smart medical device docking services to provide users with better services.

4.2. Design Processing

The platform's user experience design process unfolds based on the Stanford EDIPT design thinking model. Starting

from exploring the attitudes and behavioral habits of middle-aged and elderly people and their families towards Parkinson's disease screening and healthcare services; to creatively proposing various solutions and design ideas; to producing preliminary, low-fidelity or high-fidelity prototypes; and finally, to communicating with the users for feedback, the cycle iterates until it achieves the user-satisfied Parkinson's early screening platform.

4.3. Design Strategy

(1) AIGC-driven deep empathy

Design thinking begins with understanding, and the design process begins with a deeper understanding of the customer's background, behavior, and experience [6]. In the empathy stage, the emotional tone behind users' social media comments is assessed through sentiment analysis tools to better understand users' emotional feedback on products or services so as to adjust design strategies. Next, personalized recommendations, customized pages, and other designs are implemented to meet users' individual needs and improve the quality of user experience based on user data and behavior analysis. In addition, the conversational AIGC tool is utilized to preview user interviews, gradually improve the interview outline, and identify potential problems in order to enhance the smoothness and effectiveness of field interviews. With the help of AI platforms focusing on simulated user research, such as Synthetic Users, interview data based on real user behaviors and feedback are acquired to assist in the formulation and optimization of design strategies. Finally, we introduce cross-disciplinary perspective thinking and utilize tools such as ChatGPT to think about design issues from different perspectives in order to achieve more comprehensive and in-depth design strategies.

(2) AIGC-assisted precision definition

In the process of designing the early screening system, as a designer, we must first gain an in-depth understanding of the needs and pain points of the target users. In response to the real-life plight of Parkinson's patients, the research identified problems such as difficulty in diagnosis and high misdiagnosis rates. This leads to delayed and ineffective treatment, which in turn increases healthcare costs. Therefore, we identified the need for an early screening system.

However, when using AI tools to process data, designers should also recognize their limitations. While AI can utilize algorithms and big data for statistical correlation, it lacks a true understanding of the causal relationships between events. At this point, human thinking logic and professional judgment become especially important.

Therefore, the professional perspective and thinking logic of the designer are crucial in the definition phase [7]. We need to use a combination of human professional judgment and AI technology to ensure that the early screening system can better serve Parkinson's patients and patient groups.

(3) AIGC-inspired multidimensional

In the conceptualization stage, it is necessary to output all-round and multi-faceted solutions through brainstorming and other means. In the project, the author first came up with the idea of integrating multi-functional services such as voice diagnosis, medical checkup appointment, and recreational guidance on the platform, in order to link the users with medical institutions and suppliers to realize the most efficient communication. In the brainstorming bottleneck, the question "How to make the Parkinson's early screening system

platform better serve the potential Parkinson's patients and patient groups, to give users a better experience." Entering ChatGPT and organizing it yielded some interesting answers, such as providing online medical Q&A with real people to increase credibility, and emphasizing that the main interface must be simple to be user-friendly.

(4) AIGC-simulated user feedback

During the testing phase, feedback is obtained by communicating with users, and prototypes are continuously improved to produce the final product. Figma plugin Attention Insight can accurately simulate the pattern of eye movements of users when they receive a page by using big data comparisons to analyze whether the most important parts of the page will attract the user's attention during the initial contact. This tool can be used before actually letting the user experience it, by pre-testing and making initial changes to save labor and material costs.

5. Conclusion

The rise of AIGC marks the flourishing of intelligent transformation in the design industry. This paper delves into the application of AIGC in user experience design, demonstrating its great potential in optimizing the design process and enhancing user experience. Under the guidance of AIGC, designers are able to understand user needs more accurately and make the design process more intelligent and flexible. Although AIGC has some problems, it shows endless potential in the field of creation. As the technology continues to evolve, AIGC is driving the design industry toward a smarter, more innovative future.

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