

Research on the development of advertising design based on AI artificial intelligence

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Abstract: This paper aims to explore the application and development of AI in advertising design, focusing on its impact on creative generation, audience targeting, advertising delivery and effect monitoring. The introduction of AI technology has brought new possibilities for advertising design, accelerated creative generation, improved the accuracy of advertising delivery and optimized the monitoring of advertising effect. Through practical cases and data, this paper will delve into how AI plays a role in different aspects, as well as discuss the challenges faced by AI applications and future advertising trends.

Key words: Artificial intelligence; Advertising design; Idea generation; Audience positioning;

1. Artificial Intelligence The impact of AI on advertising The rise of

artificial intelligence (AI) is bringing profound changes to advertising design. More than just a technical tool, AI is a new way of thinking that is playing an increasingly important role in all aspects of advertising. The introduction of AI technology not only improves the efficiency of advertising design, but more importantly, it opens up new possibilities, enabling advertising to reach the target audience more accurately and create more influential communication effects. This paper will focus on the influence of AI in creative generation, audience positioning, advertising and effect monitoring. Through practical cases and data, we will analyze how AI empowers advertising design, thus leading the change and innovation of the advertising industry. At the same time, we will explore the challenges faced by AI application in the field of advertising design. Finally, we will look forward to the future development trend of AI in the field of advertising design, and explore its far-reaching impact on the advertising industry and business ecology.

2. The application of AI in advertising design

1. The application of AI in many aspects. The field of advertising design is witnessing the widespread application of artificial intelligence (AI) technology, which has shown great potential in many fields such as advertising creativity, audience targeting, advertising delivery and effectiveness monitoring (Cui et al., 2018). With the advent of the digital age, advertising is no longer limited to traditional media, but extends to multiple channels such as the Internet, social media, and mobile applications. In this diversified environment, AI technology offers entirely new possibilities for advertising design, allowing advertising to evolve from a simple message transmitter to a personalized emotional interactor.

2. Automated idea generation Automated idea generation is an important breakthrough of AI in the field of advertising design. Through deep learning and natural language processing technology, AI can generate creative advertising ideas from massive data. This automated idea generation not only greatly improves the efficiency of idea generation, but also brings a new dimension to the diversity of ideas (Google AI Blog, 2018). Google's "AutoML" project, for example, demonstrates the great potential of AI for idea generation. The project uses neural networks to analyze the content of images and automatically generate eye-catching advertising slogans. Trained on large amounts of data on images and slogans, the AI is able to understand the connections between different elements and create unique advertising content. This automated approach to idea generation not only saves time, but also injects new and innovative elements into AD ideas, improving the quality and variety of ideas.

3. Audience targeting and personalization. AI technology also shows great potential in advertising audience targeting. Traditional advertising audience targeting mainly relies on market research and statistics, but often fails to accurately capture consumers' interests and needs (Liu et al., 2016). AI can analyze users' online behavior, social media activities, purchase history and other data to gain more accurate insight into consumers' personalized characteristics. For example, Facebook's advertising platform makes full use of AI technology to achieve personalized audience targeting. By analyzing users' likes, comments, shares and other behaviors on the platform, AI can accurately understand users' interests and consumption tendencies. Based on this information, advertisers can more accurately target ads to those audiences whose potential interests match, thereby improving the click-through rate and conversion rate of ads. In these ways, AI technology brings a higher degree of precision and personalization to audience targeting in advertising design, which significantly improves the effectiveness of advertising.

3. Advertising Targeting and Audience Analysis

1. Personalized advertising targeting. In modern advertising design, personalized AD targeting has become a key strategy. Traditional AD targeting often relies on market research and statistics, an approach that fails to capture consumers' personalized needs and interests. AI can achieve more refined targeting by analyzing data on consumers' diverse behaviors on the Internet. For example, shopping websites can analyze users' browsing history, search keywords, and purchase history to learn about their preferences and purchase preferences. Based on this data, advertisers can push ads of related products to those users with similar interests and needs, improving the click-through rate

and conversion rate of the ads. Its advertising platform uses AI technology to analyze users' interactions on the platform, including likes, comments, shares, etc., to gain insight into users' interests and preferences. Advertisers can create customized AD groups based on this data to target those users who are likely to be interested in their products.

2. Social media targeting algorithms. Social media platforms have become one of the important channels for advertising, and AI technology has also played a key role in social media targeting. On social media, users generate a large amount of content and interaction behavior, and these data contain rich information about users' interests and characteristics. AI can analyze this data to provide advertisers with more accurate audience targeting options. Social media platforms use machine learning algorithms to analyse users' interactions, interests and areas of focus. For example, Twitter's advertising platform can analyze the content of a user's tweets, following lists, interactions, etc., to determine what topics a user is interested in.

4. Advertising and Performance Monitoring

1. Real-time bidding. Real-time bidding advertising is an advertising delivery method based on real-time data and algorithms, advertisers can bid according to the characteristics of the audience and the value of advertising space, in order to get the best advertising exposure opportunities. An advertising system can determine the value and potential interest of each user by analyzing the user's historical behavior, interests, hobbies, geographic location and other data. Advertisers can then set bidding strategies based on this data to target ads to those users most likely to generate conversions. This personalized delivery strategy improves the effectiveness of ads while also reducing the cost of delivering them. A key feature of real-time bidding advertising is precise targeted delivery. Advertisers can choose who to target based on the characteristics of the user, such as age, gender, interests, geographical location, etc. With the aid of AI technology, advertisers can more accurately identify potential customers and present ads to those users who are likely to be genuinely interested.

2. Automated AD optimization. AI technology can help advertisers automatically monitor AD performance and make optimization adjustments based on data feedback. Traditional advertising effectiveness monitoring often requires human participation, is time-consuming and prone to subjective misjudgments. AI, on the other hand, can quickly identify key metrics, such as click-through rate and conversion rate, from a large amount of data to help advertisers better understand the performance of their ads. Google's AD platform, for example, uses machine learning algorithms to automatically optimize AD delivery. The system will automatically adjust the delivery strategy based on the AD performance data, such as adjusting the bid, target audience, etc., to achieve better advertising results. This automated optimization not only improves the conversion rate of the AD, but also saves the advertiser's time and resources, enabling it to focus more on creativity and strategy. A key advantage of automated AD optimization is continuous real-time adjustments. AD performance data is constantly fed back to the system, and the system makes real-time optimization adjustments based on this data. This allows advertisers to adjust their advertising strategies more quickly to adapt to market changes and audience responses.

5. The application development of AI in advertising design Explore

The future, and the application prospect of AI in advertising design is broad. With the continuous progress of technology, AI will become more intelligent and accurate, bringing more innovative possibilities for advertising creativity, targeting and delivery. Some trends may include:

1. Hyper-Personalized AD experience: With the development of AI technology, advertising will become more and more personalized and precise. Advertisers can provide more customized advertising content based on users' interests, purchase history, behavior and other information, thereby improving user engagement and response rate.

2. Augmented Reality ads: As AR technology advances, augmented reality ads will become more common. Users can see virtual advertising content in the real world through AR technology, creating a more engaging and immersive advertising experience.

3. Emotion recognition technology: AI can analyze users' voice and facial expressions to obtain emotions and reactions from them. Applying these technologies to AD design allows for a better understanding of users' emotions and preferences so that advertising content and strategies can be adjusted.

4. Sustainable advertising: In the context of society's growing focus on sustainability, AI can help advertisers design more environmentally friendly and socially responsible ads. By analyzing users' values and preferences, AI can generate advertising content that aligns with users' values.

Conclusion

The application of AI in advertising design is changing the pattern of the advertising industry and bringing more innovation and opportunities for advertising. With the continuous progress of technology, we can expect to see more intelligent, personalized and creative advertising design in the future, bringing better experience and results for users and advertisers.

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