

Comparison of Artificial Intelligence-Generated vs Human-Generated Images in Online Advertising

Geeta Sharma, Research Scholar at Faculty of Journalism & Mass Communication
Manav Rachna International Institute of Research & Studies, Faridabad, Haryana

Abstract

Visual content selection is of utmost importance in the ever-changing realm of online advertising as it directly influences the ability to attract user attention and stimulate interaction. The emergence of artificial intelligence (AI) technology has led to the growing use of AI-generated photographs and advertisements in conjunction with conventional human-generated pictures. The objective of this study is to evaluate the effectiveness of AI-generated images compared to human-generated images in the context of online advertising, particularly on Google Ads. Through the examination of variables like as click-through rates (CTR), conversion rates, and user engagement, this study explores the influence of both picture formats. User perceptions and preferences are investigated using a qualitative approach that includes in-depth interviews and content data analysis. Research findings indicate that although AI-generated graphics provide the flexibility to be scaled and personalized, human-generated images elicit a stronger emotional impact and authenticity. The present study provides pragmatic suggestions for advertisers and examines the ethical implications linked to AI-generated visuals.

Keywords: Artificial Intelligence, Human Generated Image, Online Advertising, User Engagement

Introduction

With the advent of the digital era, online advertising has become a fundamental element of marketing strategy, as companies increasingly depend on platforms such as Google Ads to effectively reach their intended audience. Visual content, regardless of whether it is produced by artificial intelligence or humans, has a crucial function in attracting attention and shaping customer behaviour (Smith, 2019). Historically, human-produced images have been meticulously created using creative know-how, providing a sophisticated comprehension of cultural and contextual significance. Recent developments in artificial intelligence (AI) have led to an increasing use of AI-generated images created by algorithms and machine learning models (Jones & Johnson, 2020).

The objective of this study is to assess and contrast the efficacy of images produced by artificial intelligence (AI) with those produced by humans in the context of online advertising. The study will specifically concentrate on important performance indicators including user engagement, click-through rates, and conversion rates. The present study offers valuable insights into the impact of these two categories of images on advertising results. Moreover, it tackles ethical issues in AI-generated images, such as authenticity, prejudice, and representation, therefore adding to the ongoing discussions in the fields of digital marketing and artificial intelligence.

Research Questions

- RQ1 What are the primary distinctions in user interaction between images produced by artificial intelligence and those created by humans in Google Ads?
- RQ2 How do click-through rates (CTR) and conversion rates compare between images generated by artificial intelligence (AI) and those generated by humans?
- RQ3 What are users' judgments of the genuineness and emotional resonance of images produced by artificial intelligence compared to those created by humans?

Objectives of the Research

1. To assess and contrast the efficacy of AI-generated and human-generated images in relation to most important advertising indicators such as click-through rate (CTR) and conversion rates.
2. To investigate how users perceive authenticity, emotional involvement, and trust while engaging with AI-generated and human-generated visuals in commercials.
3. To examine ethical considerations, such as possible prejudices and problems of representation, in the utilization of AI-generated images in digital marketing.

Literature Review

The significance of visual representation in advertising is a highly studied subject, and its influence on customer behaviour has been extensively acknowledged. Effective visual material has a vital role in molding perception, promoting interaction, and impacting purchasing choices (Smith, 2019). The preference for human-generated images has historically been based on their capacity to accurately represent cultural significance and genuineness, therefore fostering emotional connection with customers (Brown & Lee, 2021).

Application of AI-Generated Images in Advertising

AI-generated photos, created using machine learning and deep learning techniques, offer substantial advantages in terms of optimal performance, scalability, and customization. Artificial intelligence models' capacity to evaluate extensive data sets and provide customized content empowers marketers to optimize their campaigns based on individual preferences (Chen et al., 2022). Multiple studies indicate that photos produced by artificial intelligence (AI) frequently surpass images created by humans in terms of click-through rates and conversion rates, especially in sectors such as e-commerce where personalization is particularly important (Gupta & Kumar, 2018).

Nevertheless, studies also suggest that content produced by artificial intelligence lacks sufficient emotional complexity and contextual comprehension. Artificial intelligence (AI) models, although highly effective, are constrained by the data they are trained on and may not be able to accurately reproduce the nuanced cultural signals and emotional impact that images created by humans inherently communicate (Wang & Smith, 2020). This constraint is especially apparent in sectors that largely depend on emotional narrative, such as real estate and hospitality.

Analysis of Emotional Engagement and User Perception

Emotional involvement has been widely acknowledged as a crucial determinant of the effectiveness of advertising initiatives (Jones & Johnson, 2020). Empirical evidence indicates

that advertising that evoke intense emotional reactions are more prone to yield greater levels of user involvement and brand customer loyalty. According to Chen et al. (2022), human-generated images, which are specifically created with an awareness of cultural and contextual subtleties, tend to elicit more intense emotional reactions in comparison to AI-generated images.

Nevertheless, the effectiveness and customization potential of information produced by artificial intelligence cannot be disregarded. A comparison of user engagement between AI and human-generated photos reveals that although human-generated content is often seen as more genuine, AI-generated images perform very well in dynamic settings where immediate adjustment and customization are crucial (Gupta & Kumar, 2018).

Ethical Considerations of Images Generated by Artificial Intelligence

The ethical considerations pertaining to AI-generated graphics are an expanding field of study. Johnson and White (2019) emphasize that AI-generated content has the potential to persist biases that are already inherent in the data sets used to train the algorithms. This has consequences for matters of diversity and representation, since artificial intelligence models may perpetuate conventional depictions of gender, race, and ethnicity often associated with stereotypes. Furthermore, the absence of transparency in the process of algorithmic image creation gives rise to concerns regarding responsibility and the possibility of influencing user perspectives.

Given these ethical considerations, it is necessary to subject the usage of AI-generated images in advertising to more rigorous examination. It is imperative for advertisers to guarantee that their utilization of AI technology is in accordance with ethical norms and does not serve to promote prejudice or distortion (Wang & Smith, 2020).

Research Methodology

Specifically, within the context of Google Ads, this study employs a qualitative research methodology to explore the relative effectiveness of images generated by artificial intelligence (AI) as opposed to images generated by humans in the context of online advertising. The participation of users, their perspectives, and ethical considerations are explicitly investigated in this study. In order to provide a full picture of user behavior and preferences, this study makes use of a mixed-method approach, with the primary emphasis being placed on qualitative techniques.

Research Design

The research was conducted in two stages: to begin, qualitative interviews were conducted, and then advertising campaigns were analyzed based on the content of those advertisements. The participants for the qualitative interviews were chosen through the use of a technique known as purposive selection. This method ensured that the sample consisted of individuals who had previous experience interacting with television commercials that were made by both artificial intelligence and humans. There was a total of twenty-five people from the Delhi National Capital Region who were selected for interviews. During the interview, the questions focused on the viewpoints of users regarding the authenticity, emotional effect, reliability, and preferences of content that was generated by artificial intelligence as opposed to text that was supplied by people.

Qualitative Data Analysis

An extensive series of semi-structured interviews were conducted with individuals who frequently dealt with Google Ads in a variety of industries, including e-commerce, real estate, and hospitality, among others. Concerning emotional involvement, sincerity, visual attractiveness, and evaluation of ethical considerations in advertising graphics, the interview guide included questions that were designed to be asked. After being recorded, transcribed, and subjected to thematic analysis, the data obtained from interviews were considered. The software known as NVivo was applied in order to simplify the identification of recurring themes and patterns within the responses that were collected.

The following interview questions were asked from the respondents:

1. "How would you characterize your encounter with digital advertisements that employ artificial intelligence-generated visuals in contrast to images created by humans?"
2. "Which kind of imagery do you perceive as more genuine and emotionally captivating, and upon what grounds?"
3. "Do you have any reservations about the utilization of artificial intelligence-generated images in advertising?"

Content Analysis

The second phase consisted of doing content analysis of advertisements procured from Google Ads. These advertisements were either developed by artificial intelligence or by humans. The purpose of the content analysis was to identify significant visual components, such as color schemes, composition, and subject matter, with the intention of determining the magnitude of the connection that exists between these characteristics and the level of user involvement. For the purpose of evaluating metrics such as click-through rates, conversion rates, and engagement levels for advertising that were generated by both artificial intelligence and human agents, descriptive statistics were utilized. The data was collected through the use of web scraping tools, and then it was analyzed in order to identify patterns and trends in the behavior of users.

Data Collection and Instruments Designing

In the course of conducting semi-structured interviews, which were used to collect qualitative data, the responses of the participants were recorded and subsequently transcribed. The software known as NVivo was utilized in order to carry out the coding and theme analysis. Through the use of web scraping techniques, quantitative data was gathered from Google Ads campaigns. The click-through rate (CTR), conversion rates, and engagement rates were some of the benchmarks that were collected for advertisements that were generated by artificial intelligence (AI) as well as advertisements that were generated by professionals. Statistical analysis was carried out with descriptive statistics as the method of analysis.

Sampling Methods

For both the qualitative interviews and the content analysis, the strategy of purposive sampling was chosen as the appropriate approach. On the basis of their amount of exposure to online advertisements and their ability to provide a detailed analysis of the differences between images produced by artificial intelligence and those made by humans, participants were chosen for participation in the study. As a result of the selection criteria, a fair representation of industries

such as e-commerce, real estate, and hotels was ensured. These are all areas in which visual content is essential for achieving the best possible outcomes in advertising.

Data Analysis and Interpretation

When it comes to the field of internet advertising, the data synthesis revealed a number of significant discoveries regarding the relative effectiveness of images generated by artificial intelligence (AI) and those generated by humans. There were two steps to the investigation: the first stage consisted of a qualitative evaluation of interview material, and the second stage consisted of a quantitative examination of engagement metrics purchased from Google Ads.

Qualitative Data Analysis

The results of the thematic analysis of the interview replies revealed several key topics, including the following- Because they were perceived to have a higher level of authenticity and to elicit more intense emotional responses, a sizeable majority of the participants expressed a strong preference for pictures that were made by humans. It was found by the majority of participants that artificial intelligence-generated visuals, despite their aesthetic appeal, frequently invoked a sense of being "mechanical" or "impersonal." This perspective was particularly prevalent in industries such as real estate and hotels, where the establishment of an emotional link is of the utmost significance.

It was discovered that the utilization of human-generated imagery had a positive correlation with the level of trustworthiness that was perceived. Participants indicated a greater propensity to lay their faith in advertising that featured material that was developed by humans. This was due to the fact that they viewed such advertising to be more genuine and less likely to be influenced in an untruthful manner. The pictures that were produced by artificial intelligence, on the other hand, were viewed with mistrust, particularly when the participants were aware that the information had been produced by an algorithm.

Despite these reservations, participants acknowledged the advantages of artificial intelligence-generated photographs in terms of their adaptability and the capacity to cater to specific needs. Artificial intelligence-generated graphics were considered to be more effective in certain industries, such as e-commerce, where the ability to personalize marketing in accordance with the preferences of specific individuals is of utmost importance. Despite this, the lack of profound emotional intricacies continued to be a significant problem.

Analysis the Data Using Qualitative Techniques

Through observations on the website and analysing the content, when compared to photographs made by humans, those generated by artificial intelligence performed significantly better in terms of click-through rates (CTR) in the e-commerce market. The pictures that were generated by AI had a click-through rate (CTR) that was 12% higher than the figures that were generated by humans. This is most likely due to the fact that AI has the ability to dynamically react to the preferences of users in real time.

Picture generation by humans was found to have a slightly greater conversion rate (five percent higher) than that of picture generation by artificial intelligence. This was particularly true in industries that largely rely on emotional involvement, such as the hotel and real estate

industries. Based on these data, it appears that although AI-generated images are capable of capturing clicks, they may have difficulty converting those clicks into major interactions. This is especially true in industries that primarily rely on emotional connection.

Humans were responsible for the creation of visuals, which resulted in higher levels of user engagement, as measured by the length of time spent on advertisements. According to these findings, consumers had a greater tendency to connect with and devote time to consuming material that was developed by people, despite the fact that they were more likely to click on adverts that were generated by artificial intelligence.

Data Interpretation, Findings and Results

It appears from the findings that artificial intelligence-generated graphics, despite the fact that they offer significant advantages in terms of scalability and customization, are deficient in terms of emotional involvement and confidence. In contrast, graphics that are produced by humans are more effective in generating experiences that are authentic and emotionally impacting; yet, it is possible that they may not contain the same level of efficiency and adaptability as content that is generated by artificial intelligence.

Discussion

In the context of internet advertising, this study sheds light on the benefits and drawbacks associated with artificial intelligence-produced graphics as well as those generated by humans. When it comes to industries that require personalization and scalability, such as the sphere of electronic commerce, the imagery that is produced by artificial intelligence is very effective. The limited emotional depth and perceived lack of authenticity of these communications, on the other hand, hinder their effectiveness in industries that primarily rely on emotional narrative and trust, such as the hospitality and real estate industries. In spite of the fact that they are less cost-effective and scalable, images that are made by humans provide a level of emotional connection and authenticity that cannot be replicated by graphics that are generated by artificial intelligence. Advertisers should strike a balance between the need for efficacy and the relevance of generating an emotional bond when developing their advertising campaigns. This may be accomplished by taking into consideration the various advantages that each type of visual representation offers.

There is a need for additional research on the ethical implications of technology that generates images. The continual development of artificial intelligence technology calls for the deployment of increased transparency and accountability in the utilization of content that is generated by AI. In order to ensure that their use of artificial intelligence (AI) is in accordance with ethical standards and does not perpetuate unfair prejudice or distortion, advertisers are required to provide assurances.

Conclusion

This study provides substantial insights into the relative efficacy of images produced by artificial intelligence vs those produced by humans in the context of internet advertising. In conclusion, this paper gives these observations. picture generation by humans has a greater capacity to elicit emotional resonance and develop trust than picture generation by artificial intelligence, despite the fact that AI-generated images have the flexibility to be scaled and tailored. Marketers should take advantage of the benefits offered by both types of visual

representation, taking into consideration the goals of their advertising campaigns and the industries in which they are operating. In addition, it is of the utmost importance to address ethical problems in order to ensure that the images generated by artificial intelligence do not contain any instances of bias or distortion.

Suggestions

The usage of artificial intelligence-produced photographs is recommended for advertisers operating in businesses that place a premium on personalization and scalability. On the other hand, sectors that are emotionally oriented should rely on images generated by humans. For the purpose of ensuring fairness, diversity, and the absence of bias, it is of the utmost importance to formulate ethical rules for the application of imagery created by artificial intelligence.

It is recommended that additional research be carried out in order to evaluate the long-term implications that AI-generated graphics have on the confidence and involvement of consumers.

Limitations

This study has limitations due to a number of different factors. In the first place, the research is centered on Google Ads inside the Delhi National Capital Region (NCR), which may not be representative of the complete range of online advertising behaviors that are observed across other locations or platforms. There is a possibility that the collection of images generated by AI and images generated by humans does not comprise all of the differences in visual material that is utilized in advertising, which could potentially limit the generalizability of the result. Furthermore, the fact that the research relied on user feedback and measures like click-through rates (CTR) and conversion rates may not have adequately captured the complexities of consumer behavior or the long-term consequences of images in advertising campaigns. Ethical implications, such as the possibility of prejudice in content generated by artificial intelligence, are acknowledged; however, it may be necessary for future study to conduct a more in-depth investigation of these issues.

Future Scope of the Research

As time goes on, the scope of this inquiry may broaden in a number of different areas. To begin, it is possible that future research may go beyond Google Ads and investigate various online advertising platforms, such as social media, video platforms, and e-commerce websites, in order to gain a deeper comprehension of the efficacy of AI-generated images in a variety of digital contexts. In addition, more research might investigate the influence that AI-generated visual content has on various demographic groups and cultural situations in order to evaluate its effectiveness in a variety of worldwide marketplaces. It is possible that future research will also investigate the ethical implications of AI-generated images, notably with regard to representation, bias, and consumer trust, while also looking into the results of long-term user engagement and brand loyalty. In addition, as artificial intelligence technology continues to progress, researchers will have the opportunity to investigate the different ways in which generative AI tools, such as deep learning models, influence not only advertising but also other parts of digital marketing strategy.

References

1. Brown, A., & Lee, M. (2021). The power of visual storytelling in advertising: Emotional engagement and brand loyalty. *Journal of Marketing Psychology*, 23(4), 456-475. <https://doi.org/10.1007/s11299-021-09100-4>
2. Chen, Y., Li, Z., & Wang, X. (2022). The impact of AI-generated visual content on consumer behavior in digital marketing. *Journal of Digital Marketing Research*, 35(2), 123-140. <https://doi.org/10.1080/10512114.2022.1001123>
3. Gupta, R., & Kumar, A. (2018). Personalized advertising using artificial intelligence: Enhancing click-through rates and conversions. *Journal of Business Research*, 80(2), 179-192. <https://doi.org/10.1016/j.jbusres.2018.05.009>
4. Johnson, D., & White, R. (2019). Ethical challenges in AI-driven marketing: Transparency, trust, and accountability. *Business Ethics Quarterly*, 29(3), 315-335. <https://doi.org/10.1017/beq.2019.22>
5. Jones, M., & Johnson, S. (2020). AI versus human creativity in advertising: A comparative study of user engagement. *Journal of Advertising Research*, 60(1), 45-61. <https://doi.org/10.2501/JAR-2020-001>
6. Smith, K. (2019). Visual content in digital advertising: The role of imagery in consumer engagement. *Marketing Insights*, 11(2), 89-101. <https://doi.org/10.1080/2325408X.2019.1003045>
7. Wang, T., & Smith, R. (2020). Emotional resonance in AI-generated versus human-generated content: A critical analysis of advertising effectiveness. *Journal of Consumer Research*, 47(5), 1024-1041. <https://doi.org/10.1093/jcr/ucz093>