international DESIGN JOURNAL
Print ISSN 2090-9632
Online ISSN 2090-9640

Using Generative Artificial Intelligence Applications to Design Printed Women's Clothing Accessories Inspired by the Egyptian Identity

Prof. Manal Yuossef Nagib
Professor of Design, Department of Textile Printing, Dyeing and Finishing, Faculty of applied arts, Benha University. Ma nal.ibrahim@faba.bu.edu.eg
Prof. Heba Mohamed Okasha Abu Elkamal Elsayegh
Professor of Design, Department of Textile Printing, Dyeing and Finishing, Faculty of applied arts- Benha University. heba.okasha@fapa.bu.edu.eg
Hala Mostafa Ali Elmorsy
Teaching assistant ,Faculty of Applied Arts - Benha University. hala.elmorsy@faba.bu.edu.eg

Abstract:

The concept of the research is summarized in the development of designs with a contemporary abstract formulation that expresses the Egyptian identity through the use of artificial intelligence (AI) applications used in generating images, where some AI applications were used through the study, so that many generative AI applications that are used in generating images from written texts were found, and the characteristics of these applications were identified. It was found through this study that these applications are similar in many of the characteristics and methods of use, while they differ in the quality of the designs created through these tools and their compatibility with the written text Prompt Engineering and accordingly, (6) AI applications were selected (Microsoft Bing- Microsoft Bing- Microsoft Copilot- Lexica) Microsoft Copilot- Lexica- (Leonardo- promeai. The Microsoft Bing application to be the subject of the design study, which resulted in many results that achieved the aesthetics of the design, and achieved the innovative and applied values of the innovative designs, so that these designs were then employed in the creation of contemporary printed women's clothing accessories expressing the Egyptian identity that can be marketed and sold in museums and tourist places in conjunction with the experimental opening of the Grand Egyptian Museum in October 2024. The world has witnessed a tremendous development in technologies and applications of artificial intelligence, which represents the most important outputs of the fourth industrial revolution due to the multiplicity and breadth of fields that can be employed in its development and quality improvement. AI is the engine of progress and growth, as this type of technology provides the opportunity to develop many products better and faster than traditional methods (Nahed, 2024). It has entered all fields of science, from technical to humanities, and has recently emerged in the field of design, with many artworks and designs produced by generative AI, and its research has led to the development of programs that help designers to complete their work quickly and more accurately, allowing them to focus on developing ideas and creativity (Christopher, 2020).AI is also capable of analyzing massive amounts of data, suggesting modifications to designs based on these analyses. Using the results of these analyses, the designer can choose the appropriate adjustments that achieve the best results (Chen, X., & Yang, J, 2021). Based on our ancient civilization with an authentic character, the current research seeks to develop many artistic designs and employ them in a contemporary artistic style that keeps pace with the tremendous development witnessed by the current era, in an attempt to combine the past in its originality and the present with its development through the introduction of generative artificial intelligence according to the designer's vision with ease and high quality with the possibility of diversifying designs by controlling colors, spaces and lines, which gives the designer the freedom of creativity in his ideas and artistic aspirations.

Statement of the Problem:- How to use and employ some generative artificial intelligence applications to formulate innovative designs with a contemporary character. - How to use AI to help textile print designers to create print designs that fit the functional purpose by designing contemporary women's clothing accessories that express the Egyptian identity.

Research Objectives: -The research aims to use and employ some generative artificial intelligence applications to formulate innovative designs with a contemporary character. -The research aims to use artificial intelligence applications to create printed designs that suit the functional purpose of designing printed women's clothing accessories that express the Egyptian identity. - The research aims at the

importance of using generative artificial intelligence applications in creating printed designs that can be employed for the formal and functional characteristics of the printed product using computer programs.

Research Significance: - Keeping up with the global trend towards applied innovation through the use of generative artificial intelligence applications. - Root the Egyptian cultural identity by combining the Egyptian heritage with a contemporary trend in the design of contemporary women's clothing accessories that express the Egyptian identity. - Creating a set of designs for women's clothing accessories with new design visions using Adobe Photoshop CC2017.

Research Hypothesis: - The research hypothesizes that the use of generative artificial intelligence applications may change the concept of traditional design from designs based on the designer's skill in using design programs to designs based on the designer's skills in formulating specific keywords and textual descriptions that result in innovative typographic designs. - The research hypothesizes that typographic designs with a predominantly Egyptian identity can be developed and employed to create contemporary printed women's clothing accessories that express the Egyptian character and that can be marketed and sold in museums and tourist places to coincide with the trial opening of the Grand Egyptian Museum in October 2024.

Research Delimitations: -A study of the value and impact of using generative artificial intelligence to create printed designs for women's clothing accessories with a predominantly Egyptian identity.

Research Methodology: - Experimental approach: In which technical design experiments and employment proposals are conducted in the field of designing contemporary women's clothing accessories that express the Egyptian character and rely on the applications of generative artificial intelligence. - Descriptive-Analytic Approach: Through a descriptive and analytical study of the technical analysis of innovative designs using generative artificial intelligence applications.

Paper History:

Paper received January 09, 2024, Accepted March 03, 2025, Published on line May 1, 2025

Keywords:

Generative AI, Artificial Intelligence application, Egyptian Identity, Women Fashion Accessories, Textile Printing Design

References:

1- Nahed, Baba, 2024. AI-Generated Imagery: A New Frontier for Nubian Artistic Expression, Art and Design Magazine, 2(5), pp. 144-157.
2- Christopher, Manning, 2020. Artificial Intelligence Definitions, Proceedings of the National Academy of Sciences, 117(48), 30046- 30054. p.1.
3- Chen, X., & Yang, J, 2021. Intelligent Glass Packaging: Challenges and Opportunities .International Journal of Applied Glass Science, 12(2), pp. 143-155.
4- Zhang, Y., & Li, J, 2021. Artificial Intelligence in Glass and Perfume Bottle Manufacturing.International Journal of Advanced Manufacturing Technology, 114(5-6), pp.1055-1065.
5- HEC Paris, 2019. "Can Artificial Intelligence Create Art?" Master Thesis, HEC University, Paris, June.
6- Heer, Jeffrey, 2018. "The partnership on AI." AI Matters 4.3, pp. 25-26.
7- MARTINEZ, Rex, 2019. Artificial intelligence: Distinguishing between types& definitions. Nevada Law Journal, 19(3), p.9.
8- BABU, M. V. S., & BANANA, K, 2024. A STUDY ON NARROW ARTIFICIAL INTELLIGENCE–AN OVERVIEW. International Journal of Engineering Science and Advanced Technology (IJESAT) 24 (4), p. 210.
9- Walker, Leslie, 2024. Societal Implications of Artificial Intelligence: A Comparison of Use and Impact of Artificial Narrow Intelligence in Patient Care between Resource-Rich and Resource-Poor Regions and Suggested Policies to Counter the Growing Public Health Gap. Diss. Technics Universidad Wien.
10- Latif, Ehsan, et al, 2023 "Artificial general intelligence (AGI) for education." arXiv preprint arXiv: 2304.12479, 1.
11- CHENG, Shih-Hung, 2023. The Impact of Generative Artificial Intelligence on Design Concept Ideation: Case Study on Lightweight Two-Wheeled Vehicles. In: International Conference on Human-Computer Interaction. Cham: Springer Nature Switzerland, pp. 39-57.
12- Bordas, A., Le Masson, P., Thomas, M., & Weil, B, 2024. What is generative in generative artificial intelligence? A design-based perspective. Research in Engineering Design, pp. 1-17.
13- T. Guo, R. Eckert, and M. Li, 2020. “Application of Big Data and Artificial Intelligence Technology in Industrial Design,” vol. 5, no. 1.
14- J. Koch, 2017. “Design implications for Designing with a Collaborative AI,” presented at the The

AAAI 2017 Spring Symposium on Designing the User Experience of Machine Learning Systems, pp. 415–418.
15- Marei, Hisham Ahmed, 2020. Applications of artificial intelligence in photography, International Design Journal, Scientific Society of Designers, 10(4).
16- Rahman, M. M, 2021. Applications of the digital technologies in textile and fashion manufacturing industry. Technium: Romanian Journal of Applied Sciences and Technology, 3(1).
17- Mira, Amal Kazem, 2019. Applications of artificial intelligence in education from the perspective of university teachers, research presented at the First International Scientific Conference for Human Studies, College of Education for Girls, University of Baghdad, Iraq.
18- DONG, Aihua, et al, 2019. Costume Expert Recommendation System Based on Physical Features, In Artificial Intelligence on Fashion and Textiles, Proceedings of the Artificial Intelligence on Fashion and Textiles (AIFT) Conference, Hong Kong, July 3–6, 2018, Springer International Publishing.
19- SURYANTO, Tulu's, et al, 2022. Virtual Reality Technology-Based Impact of Fashion Design Technology Using Optimized Neural Network. In: 2022 International Interdisciplinary Humanitarian Conference for Sustainability (IIHC). IEEE, pp.1034-1039.
20- Amina, Emam, 2023. Robot-aided manufacturing and its impact on the future of the furniture industry in Egypt, International Design Journal, Vol. 13 No. 2, March 2023
21- https://gigazine.net/gsc_news/en/20221006-visuals-explaining-stable diffusion/
22- https://midjourney.fm/app?prompt=Contemporary%20abstract%20formulation%20of%2
23- https://copilot.microsoft.com/
24- https://www.bing.com/images/create/the-influence-of-ancient-egyptian-art-on-egyptian-
25- https://lexica.art/prompt/fb219747-7050-4511-9a58-c3965582cac8
26- https://app.leonardo.ai/ai-generations
27- https://www.promeai.pro/ai-image-

CITATION Manal Nagib, et al (2025), Using Generative Artificial Intelligence Applications to Design Printed Women's Clothing Accessories Inspired by the Egyptian Identity, International Design Journal, Vol. 15 No. 3, (May 2025) pp 243-261