

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

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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- prameai. 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.

Keywords

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

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Introduction

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

CITATION

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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.

Theoretical framework for research:

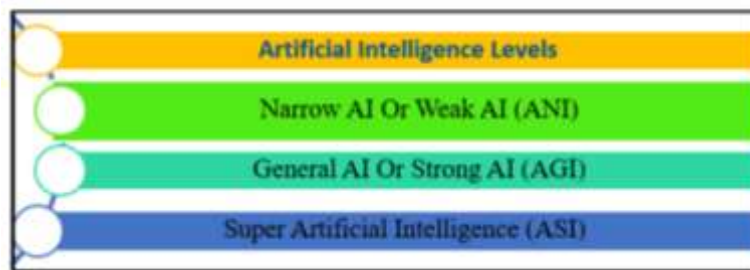
Artificial Intelligence (AI) :

Artificial Intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include specialized systems, image processing, language recognition, and machine vision, where computer programs have been developed to think like humans through their ability to make different deductions and their ability to learn from their mistakes, which makes them perform their tasks and work with great speed and skill (Zhang, Y., & Li, J, 2021) .

This definition includes a wide range of generative AI applications with an emphasis on ethical considerations. Moreover. The variation in definitions of AI reflects its dynamic nature and the different perspectives within the field. From early attempts to imitate human intelligence to current concerns about ethical implications, definitions show the complexity and depth of AI as an evolving branch of science and engineering (HEC Paris, 2019).

Types of Artificial Intelligence:

The types of artificial intelligence can be divided according to its capabilities into three main types ranging from simple reaction to cognition and self-interaction (Heer, Jeffrey, 2018).



Schematic diagram of the researcher's work (1) to illustrate the types of AI

Narrow AI Or Weak AI (ANI)

Artificial Intelligence (AI), also known as Narrow AI, is a type of artificial intelligence designed to perform a specific task brilliantly. Unlike general AI, which seeks to emulate the full capabilities of the human mind, narrow AI focuses on solving a limited issue or set of issues. This type of AI is common today in many applications, such as virtual assistants, machine translation, and image recognition systems (MARTINEZ, 2019).

General AI Or Strong AI (AGI)

It has the ability to gather and analyze information and accumulate experiences from situations that enable it to make autonomous and intelligent decisions - for example, Instant chat bots and self-driving cars (BABU, et al, 2024).

Super Artificial Intelligence (ASI)

Artificial Intelligence (AI) is a type of artificial intelligence that has superhuman capabilities, outperforming experts in performing complex tasks. It is characterized by its ability to continuously learn, make decisions and make judgments accurately and efficiently (Walker, 2024).

Advantages of using generative AI to create innovative designs:

- Artificial intelligence has a great impact on the designer, as it can perform tasks more quickly in saving the designer's time and effort, and it can show characters in a 3D modeling method, so the designer can take a realistic image to the digital world.
- Achieving multiple experiences and forms creatively to enter into modeling systems in design programs enrich design and

imagination, as it allows for better and easier design and does not cancel the value of the designer.

- Artificial intelligence has a better memory than human memory, as it allows part of the data to be used when needed and can remember the data for a longer period of time and the percentage of repetition and similarity in the design is weak.
- The availability of AI systems by specialized companies that work through advanced algorithms to help designers create multiple ready-made designs (Latif , et al, 2023).

How generative AI works to produce designs:

The generative artificial intelligence technology is based on prompt engineering, where it is written to clarify the formative elements from which the design is to be formed with the possibility of determining the artistic style, colors used, so that the artificial intelligence imagines the general vision of the design and produces designs according to the data entered by the designer using different artificial intelligence algorithms; The results of the outputs of each site differ from the other due to the difference in the data entered into it.

Previous versions of(Gen AI) required a complex process of submitting data via an API and developers had to use specialized programming languages such as Python. However, pioneers of production AI are now designing better user experiences that enable requests to be described in simple language. In addition, users can further customize the generated designs by providing feedback on style, art style, and other elements (CHENG, 2023). As in Figure (2)



Figure (2): The researcher's work to illustrate how generative AI works

Design field:

Generative AI develops techniques and tools to enhance and optimize creative artwork. Through the use of artificial intelligence techniques in analyzing artistic data and generating new artistic content aimed at enhancing the interaction between the designer and the recipient, one of the most important possibilities offered by generative artificial intelligence in the artistic field:

Analyzing art data:

AI is used to analyze art data such as artworks, trends and art styles, and digital learning techniques are applied in extracting patterns and artistic characteristics from the input data.

When AI touches on artworks and art styles, it works on analyzing visual data and associated information, such as shapes, compositions, lines, colors used and artistic techniques used, and deep AI models are trained on this data to extract patterns and technical information. Thus, analyzing the artworks of ancient painters and identifying the artistic methods used in each time period, such as the ancient Egyptian heritage, which requires a deep understanding of the historical, cultural and artistic context in which these works were produced, and through analyzing ancient artworks, artificial intelligence was able to identify the art styles used in each period, such as ancient Egyptian

AI Applications in generating images:

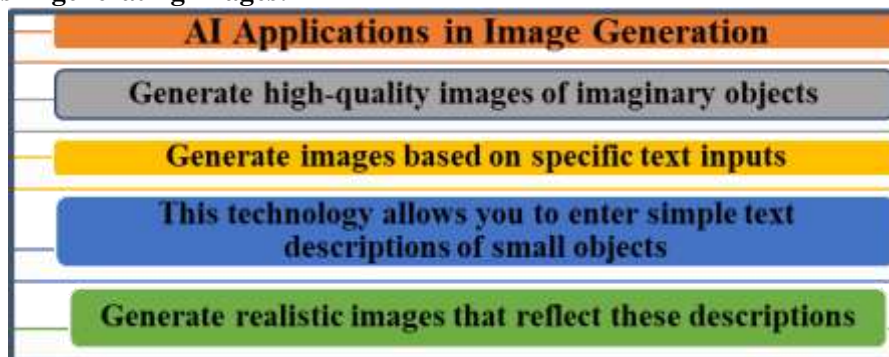


Figure (3): The researcher's work to illustrate the applications of AI in image generation

Text to Image Generation:

Microsoft has introduced a new artificial intelligence (AI) technology in its research labs called Drawing Robot that can create and generate images from specific text descriptions.

The computer creates the image from scratch, pixel by pixel, and the images also contain additional details not found in the written text, suggesting that this artificial intelligence also contains artificial imagination (J. Koch, 2017).

The drawing robot technology is based on a technology consisting of two machine learning models: The first generates images that express the textual description, and the other is for recognition, which judges the extent to which the generated

heritage.

This has made AI a useful tool for historians, artists, and researchers who are interested in studying and understanding the techniques and artistic styles that were used in the past (Bordas, et al, 2024).

Generating artwork:

AI is used to create new artworks based on the analyzed data entered into it.

Artistic interaction:

Artificial Intelligence enhances the interaction between the artist and the audience by providing interactive experiences, such as interactive art and performances that react to the audience's movement or reflect their facial expressions.

Art & Fashion Trends:

Artificial Intelligence can analyze artistic and creative trends and keep up with fashion by analyzing data related to works, art exhibitions, and cultural events, helping artists and designers understand the job market and adapt to current changes.

Providing creative tools:

AI is used to develop creative tools such as programs and applications that facilitate the process of artistic creation as development (T. Guo, R. Eckert, 2020).

image matches the textual description, splitting the input text into individual words and matching these words with specific regions of the image.

The idea of generating images from textual descriptions is based on data sets containing large numbers of images, each of which is paired with specific verbal descriptions, allowing machine learning models to learn how to match words with the visual representation of these words (Marie, 2020).

Image generation using (AI) tools:

The process of generating images from written texts has evolved through a model known as the Stable Diffusion Model, where the written text is entered in natural language in what is called the Prompt

model, which is responsible for telling the machine the image we want to generate in an understandable way (Rahman, 2021). Through the process of encoding the words that make up the text, the ideas in the text are captured and converted into a digital image in what is known as text encoding, and then this information is presented to the image generator, and the image generator goes through

two stages: The first stage is the image information generator, which begins to create matrices that are organized lists of numbers that create a noisy image, followed by a second stage, the decoder image, which processes the information matrices and converts them into a clear final image as in Figure (4) (Mira, 2019).



Figure (4) image generation through the Stable Diffusion Model

https://gigazine.net/gsc_news/en/20221006-visuals-explaining-stable-diffusion/

Practical framework for research

Artificial intelligence for design in general and textile printing design in particular uses a set of artificial intelligence algorithms to process and represent artistic content.

To create artistic designs by applying machine learning and deep learning techniques to data related to artworks, the research was based on fixed inputs that were applied to (6) artificial intelligence sites to clarify the difference in design results in each site from the other due to the difference in their respective databases.

Moreover, the idea of the research is based on developing typographic designs with a predominantly Egyptian character and employing these designs in making contemporary printed women's clothing accessories that express the Egyptian identity, which can be marketed and sold in museums and tourist places to coincide with the experimental opening of the Grand Egyptian Museum in October 2024, by introducing a unified text with a slight difference in the expression We can take advantage of the aesthetic and symbolic

elements of ancient Egyptian art, such as bright colors, geometric shapes, and hieroglyphic symbols, and combine them with Mondrian's abstract style, which relies on straight and geometric lines and primary colors.

The combination of ancient Egyptian heritage and Piet Mondrian's architectural designs are as follows:

Colors: Use the primary colors made famous by Mondrian (red, blue, yellow) with bright colors that were used in ancient Egyptian art such as gold and green.

Geometric shapes: Merging Mondrian's simple geometric shapes with complex shapes and Egyptian hieroglyphic symbols.

Lines: Using straight and geometric lines such as Mondrian squares and rectangles with Egyptian inscriptions, motifs, and wall drawings.

Prompt Engineering: Contemporary abstract rendering of ancient Egyptian art motifs to enrich the design of the decorative painting and Mondrian's style to create various figurative works in the colors of ancient Egyptian art.

promelai.pro	Bing	Midjourney	Copilot	Leonardo	Lexica	Comparison AI Websites
https://www.promelai.pro/ai-image-	https://www.bing.com/images/create/the-influence-of-ancient-egyptian-art-on-egyptian-1-	https://midjourney.fm/app?prompt=Contemporary%20abstract%20formulation%20of%20an	https://copilot.microsoft.com/	https://app.leonardo.ai/ai-generation-s	https://lexica.art/prompt/fb219747-7050-4511-9a58-c3965582cac8	

promelai.pro	Bing	Midjourney	Copilot	Leonardo	Lexica	Comparison
A free tool that allows the user to create 100 images a month or more	A free tool that allows the user to create 100 images a month or more	A tool that allows the user to create only 25 designs for free and then subscribe to a paid plan with monthly or yearly dollar amounts	A free tool that allows the user to create 100 images a month or more	A free tool that allows the user to create 100 images a month or more	A free tool that allows the user to create 100 images a month or more	Service cost
The tool gives 4 image suggestions for each text description at a time	A tool that gives 4 image suggestions for each text description at a time	A tool that gives 4 image suggestions for each text description at a time	A tool that gives 4 image suggestions for each text description at a time	The tool gives 3-4 suggested images for each text description at a time	The tool gives a large variety of suggested images for each text description at a time	Number of generated images
The tool is fast in generating designs	The tool is moderately fast in generating designs	The tool is very slow at generating designs	The tool is moderately fast in generating designs	The tool is very slow at generating designs	The tool is fast in generating designs	Speed of design generation
Recall images that were previously created through History on the site	Recall images that were previously created through History on the site	Images can't be recalled	Recall images that were previously created through History on the site	The updated images can be recalled as the tool stores them in your account on the site	Recall images that were previously created through History on the site	Store the required images with the program
An account on the site is created directly with the user's name by registering in advance from @gmail	An account on the site is created directly with the user's name by registering in advance from @gmail	The program needs you to have a Discord account so you can log in to www.midjourney.com and give commands to the app	An account on the site is created directly with the user's name by registering in advance from @gmail	An account on the site is created directly with the user's name by registering in advance from @gmail	An account on the site is created directly with the user's name by registering in advance from @gmail	Type of account

Table (1) shows a comparison of (6) AI applications

Application (AI Artistic- Midjourney AI)

<https://midjourney.fm/app?prompt=Contemporary%20abstract%20formulation%20of%20ancient%20Egyptian%20art>

**Prompt Engineering**

- Contemporary abstract rendering of ancient Egyptian art motifs to enrich the design of the decorative painting and Mondrian's style to create various figurative works in the colors of ancient Egyptian art.



Table (2) shows some diverse examples of AI designs inspired by the combination of ancient Egyptian art and Piet Mondrian's artistic work (AI Artistic- Midjourney AI)(22)






<p>Application Copilot https://copilot.microsoft.com/</p>	<p>Prompt Engineering</p>
	<p>- Contemporary abstract rendering of ancient Egyptian art motifs to enrich the design of the decorative painting and Mondrian's style to create various figurative works in the colors of ancient Egyptian art.</p>
	
	

Table (3) shows some diverse examples of AI designs inspired by the fusion of ancient Egyptian heritage and Piet Mondrian's geometric designs
 By application Copilot (23)

Application Bing

<https://www.bing.com/images/create/the-influence-of-ancient-egyptian-art-on-egyptian->

**Prompt Engineering**

- Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic color.

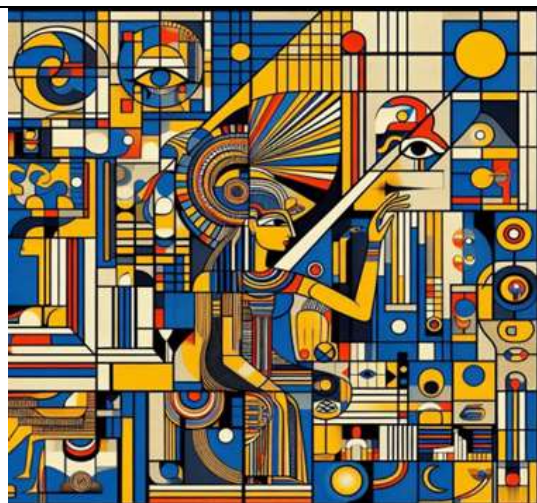


Table (4) shows some diverse examples of AI designs inspired by the fusion of ancient Egyptian heritage and Piet Mondrian's geometric designs – Bing (24)

<p>Application Lexica</p> <p>https://lexica.art/prompt/fb219747-7050-4511-9a58-c3965582cac8</p>	<p>Prompt Engineering</p>
	<p>- Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic color.</p>
	 
	 

Table (5) shows some diverse examples of AI designs inspired by the fusion of ancient Egyptian heritage and Piet Mondrian's geometric designs – Lexica (25)

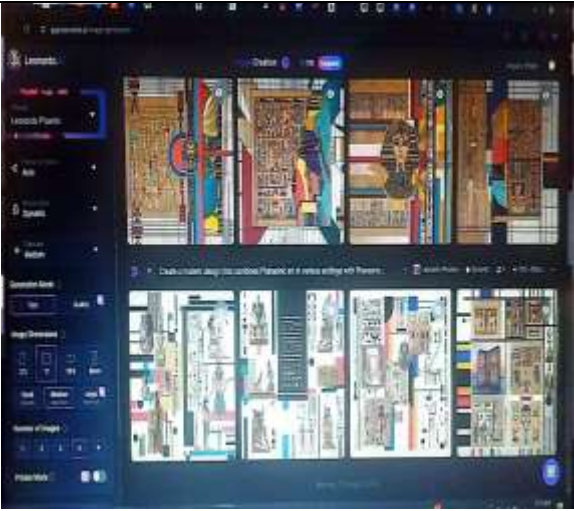





Application Leonardo https://app.leonardo.ai/ai-generations	Prompt Engineering
	<ul style="list-style-type: none"> - Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic colors. - geometric shapes, showcasing a fusion of traditional and modern aesthetics, as if ancient Egyptian temple walls had come alive in a vibrant, stylized, and abstracted form, with hints of mysticism and ancient wisdom.
	 
	 

Table (6): shows some diverse examples of AI designs inspired by the fusion of ancient Egyptian heritage and Piet Mondrian's geometric designs – Leonardo (26)

Application promeai https://www.promeai.pro/ai-image-	Prompt Engineering
	- Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic colors.
	 
	 

Table (7): shows some diverse examples of AI designs inspired by the fusion of ancient Egyptian heritage and Piet Mondrian's geometric designs- promeai (27)

The empirical of the study was adopted in this research:

On the use of multiple generative artificial intelligence tools that were previously explained in the theoretical framework to come up with innovative designs that emphasize that artificial intelligence will play a more accurate role in design, and will become the best friend of designers in increasing their efficiency and speed, making their jobs more manageable, executing tasks more efficiently, and making the most important

decisions, and therefore the general framework for designing typographic designs with an Egyptian character and employing these designs in making contemporary printed ladies' clothing accessories that express the Egyptian identity.

In this paper, the effective practice of the researcher related to the knowledge and skills resulting from the study of the new artificial intelligence tools and how to use and apply them. Previously, the textile print designer had an essential role in creating and assigning design patterns, new trends, color

harmony and others, but the role has changed with the artificial intelligence tools, as the research aims to do. However, this role has changed with the AI tools as the research aims, as the researcher's role as a designer during this pilot study turned into part of the management, organization and employment that suits the functional and formal purpose, and therefore this indicates that AI has become part of the design process partially and not completely.

The design idea (1-2-3-4-5-6) and its utilization using a computer:

The researcher was inspired by the design idea (1-2-3-4-5-6) from AI applications inspired by the process of combining the ancient Egyptian heritage with the engineering works of the artist Piet Mondrian, and the design approach that the researcher followed while using AI tools can be summarized in three stages: -

- Creating the design experiment (using textual descriptions)
- Result of the design experiment (proposed designs resulting from the use of textual descriptions)
- CAD simulation

These three phases crystallized the design experiences desired from the current study, as in the following design experiences that fit the functional and formal purpose.

Computer Aided Design Simulation (CAD)


Designers can use many design computer programs to apply many creative ideas for designing

pendants, furniture and fashion, as digital technology is widely used in our current era. The use of computer programs is not limited to providing some tools used to draw directly and process images on the computer, but also give distinctive flows and effects that differ among them according to the design to be created and other features that vary according to the program used (DONG, Aihua, et al, 2019) .

One of the most important programs used to create print designs with a predominantly Egyptian character and employ these designs in making contemporary printed women's clothing accessories that express the Egyptian identity is the computer program Adobe Photoshop CC2017, a program used in the field of drawing and design produced by Adobe and is considered one of the most famous programs for creating and modifying raster images and is also used in image editing and enters many different fields of art. It has powerful tools for designing graphics, reducing the number of steps and increasing the production rate, through which it can be relied upon in building design ideas, and in the field of textile printing design in particular, there are many sources that the designer can resort to reach creative ideas and distinctive designs to implement them using one of these computer programs, through which he can distinguish them from other designers (SURYANTO, Tulu's, et al, 2022).

Design Experiment (1)	Employment (1) Handbag	Employment (2) Scarf (complete outfit)
<p>-Design Experiment(1): Artificial intelligence inspired by the fusion of ancient Egyptian heritage and Mondrian's geometric divisions with an application Copilot.</p> <p>-Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic color.</p>		

			
Design Experiment(2-3)	Employment (3) Cravat	Employment (4) Handbag	
<p>Design Experiment(2-3): By artificial intelligence and inspired by the process of merging the ancient Egyptian heritage and Mondrian's geometric divisions by applying Lexica.</p> <ul style="list-style-type: none"> - Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic color. 			
			
Design Experiment(4)	Employment (5) Handbag	Employment (6) Handbag	
<ul style="list-style-type: none"> - Design Experiment (4): By artificial intelligence and inspired by the process of merging the ancient Egyptian heritage and Mondrian's geometric divisions by applying Leonardo. - Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic color. - geometric shapes, showcasing a fusion of traditional and modern aesthetics, as if ancient Egyptian temple walls had come alive in a vibrant, stylized, and abstracted form, with hints of mysticism and ancient wisdom. 			
			
Design Experiment (5)	Employment (7) Cravat	Employment (8) (Scarf - handbag - jewelry - shoes)	
<p>Design Experiment (5) :By artificial intelligence and inspired by the process of merging the ancient Egyptian heritage and Mondrian's geometric divisions by applying promeai.</p> <ul style="list-style-type: none"> -Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic colors. 			

		
Design Experiment (6)	Employment (9)	The scarf Employment (10) Handbag
<p>- Design Experiment (6): By artificial intelligence and inspired by the process of merging the ancient Egyptian heritage and Mondrian's geometric divisions by applying Bing.</p> <p>- Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic colors.</p>		
		
Design Experiment(7)	Employment (11) Handbag	Employment (8) (Scarf - handbag - jewelry - shoes)
<p>-Design Experiment (7): By artificial intelligence and inspired by the process of merging the ancient Egyptian heritage and Mondrian's geometric divisions by applying Leonardo.</p> <p>-Contemporary abstract formulation of ancient Egyptian art decorations to enrich the design of the decorative painting and Mondrian's style to create diverse plastic works with Pharaonic color.</p> <p>- geometric shapes, showcasing a fusion of traditional and modern aesthetics, as if ancient Egyptian temple walls had come alive in a vibrant, stylized, and abstracted form, with hints of mysticism and ancient wisdom.</p>		

Research results and discussion:

The role of generative AI applications in helping designers be creative:

The researcher believes that the application lacks design concepts based on integration, analysis, deduction and various methods of inspiration, as it relies on direct inspiration, works according to direct orders and always chooses the most popular, or according to what it has in the data, and sometimes artificial intelligence applications have a prior imagination about the design due to the information stored previously, and then it produces designs that are very close to the designer's thought, as happened in both (Microsoft Bing - Microsoft Copilot), but the designs are not completely designed by artificial intelligence, but it was influenced by the historical heritage of ancient Egyptian art and the works of the artist Mondrian, who designed it himself. Microsoft Copilot, but the designs are not completely designed by AI, but it was influenced by the historical heritage of ancient

Egyptian art and the works of the artist Mondrian, who designed them himself, and thus relied on the creative thinking of humans, so it is not possible for AI to replace the designer in the design process completely.

- Artificial intelligence does not cancel the existence of human intelligence, as the human being is the creator and developer of artificial intelligence and is able to analyze and deduce to solve many issues by integrating mental functions such as memory, language, perception, attention, learning, flexibility and adaptation to the surrounding environment, while the artificial model is a representation of a man-made model into which data is entered through digital programming and mathematical matrices that are retrieved when needed, and this is evident from the change in the results of artificial intelligence programs in the field of design according to the different data and information introduced (Amina, 2023).

The researcher's method of modifying and combining the modules and experiments produced using AI, re-simulating them using Photoshop CC 2017, and producing an innovative design that fits the required functional and formal purpose.

After modification



Researcher Design Experiment (1)



The researcher's design idea was utilized to employ (13) on a handbag as a complement to the outfit

Some diverse examples of AI modules inspired by the fusion of ancient Egyptian art and Piet Mondrian's art - with the application Lexica.

Before modification



The researcher's design idea was utilized to employ (14) On both (handbag - scarf) as a complement to the outfit



The researcher's design idea was utilized to employ
(15) Women's head covering



The researcher's design experience (1-A)
Employment (17) Handbag

The researcher's method of modifying and combining modules and experiments produced using artificial intelligence and re-simulating them uses Photoshop CC2017 to come up with an innovative design that suits the required functional and formal purpose.

After modification



Researcher Design Experiment (2)



The researcher's design idea was utilized to employ
(16) on a scarf as a complement to the outfit



The researcher's design experience (1-A)

Some diverse examples of AI modules inspired by the fusion of ancient Egyptian art and Piet Mondrian's art - with the application Copilot.(23)

Before modification





The researcher's design experience (18)
 Employment (Scarf – handbag)



The researcher's design experience (19)
 Employment (Scarf -Hand propeller)



The researcher's design experience (20)
 Employment (Scarf – handbag)



The researcher's design experience (21)
 Employment (handbag)

Table (8) to illustrate the comparison between the generative AI experiments and the researcher's artistic design experiments after modification and introduction of artistic effects

Conclusions:

- AI develops the design process in less time and more easily.
- AI relies on algorithms that provide huge databases that have the ability to continuously improve themselves.
- AI has become an important player in simulating typographic designs.
- AI applications can be relied upon as a starting point from which the designer can start modifications and additions to reach the desired design.
- Through AI, innovative typographic designs were obtained as a result of specific keywords and textual descriptions that the designer inserts into the design tool and transforms them into machine learning models and then

into design models, and this tool is considered a great success in the direction of the development of what is known as the automated designer.

Recommendation:

- Textile printing designer should be guided towards using AI as part of the design process, without relying entirely on it in the creative process.
- The textile printing designer needs to learn, increase knowledge, and further research, study, and thinking in the field of artificial intelligence .
- Recognize the changes that occur in the industry, and look forward to the continuous development resulting from this technology in the field of textile printing design.
- Artificial intelligence should be utilized in the

fields of textile print design to enrich the designs and as a supportive tool for the designer.

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