

A study of generative artificial intelligence' applications and industrial design of robots in innovate a prototype used in textile designing and printing

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Abstract:

This Analytical study concerns with analysis some new technologies trends and the latest of Generative AI and Robotics worldwide which can be used in textile designing and printing industry, and make major difference to increase the efficiency of the production, studying the effect in Design, Data color, color ways, Bespoke printing designs (tailored to one's needs) and Development of Innovative Technologies and Products because. In theory, if you combine generative AI and a robot, you get an artificially intelligent robot with a high level of automation; it will act like smart robots, able to optimize tasks it is assigned to do. Generative AI models are based on deep learning techniques and use neural networks and architectures to create new data based on the data in the training set; it includes building these models Basic steps, the most prominent of which are: preparing data, building the model, testing the model, publishing the model, and improving the model. Generative AI is a subfield of deep learning uses networking technologies, deep neural simulation ability Humans create new data, or original and innovative content in designingetc.

Textile designers can use algorithms to explore new alternative designs and characteristics of fabrics. The study conducted innovative idea for arm prototype depend on automated system worked by generative AI (trained model to make machine learning) in creating new one piece and repeated designs with many color themes and implemented on fabrics by using silk screen printing. The research problem: How to benefit from generative AI and robotics' industrial design to automate textile designing & silk screen printing to achieving textile printing automation, achieving sustainability, improve and increase efficiency and productivity, also to reduce Textile printing industry footprint and all kinds of waste. The research importance: The utilization and combining generative AI and arm robot with a high level of automation; potential to generate new prospects in textile industry, to facilitate the process of Textile designing & printing by getting an artificially intelligent arm robot, will act like smart robots, able to optimize tasks it is assigned to do. The research Objectives: Proposed and innovate idea of industrial prototype arm robot that could be used in textile designing and silk screen printing and Automate the design process and printing silk screen process by using generative AI to reduce Textile printing industry footprint.

Keywords:

Generative AI-Textile printing industry-Industrial Design- Robotics- Sustainability- Efficiency in textile printing- Machine deep learning

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