

## Recycling Fabrics into Contemporary Youth Fashion Designs Using Artificial Intelligence (Ai) Applications to Achieve Sustainability in the Fashion Industry

**Shaimaa Mostafa Ahmed Mohamed**

Assistant Professor at Apparel Department, Faculty of Applied Arts, Helwan University  
shaimaadesign@yahoo.com

### **Abstract:**

Artificial intelligence software techniques depend on analyzing and processing data and information that are entered and transformed into visual designs or products that help increase growth rates and revenues for the company and thus increase customers. It can also predict fashion. Recent trends in sustainable clothing production indicate that the clothing industry is seeking to achieve green clothing and environmentally friendly clothing. The research problem can be formulated through the following questions: What is the possibility of developing modern fashion designs using leftover fabrics through artificial intelligence programs? What is the possibility of achieving sustainability through artificial intelligence? The significance of this research are: contributing to creating new design ideas for contemporary youth fashions, contributing to reducing waste of leftover fabrics by recycling them, achieving the idea of sustainability in fashion, and highlighting the applications of artificial intelligence and its uses in fashion design. The objectives of this research are to develop sustainable fashion designs using artificial intelligence programs, reducing the time and effort spent on creating many ideas with high quality. The research hypothesis is: Artificial intelligence programs can be used to create many sustainable fashion designs. The research follows the descriptive approach and the experimental approach, which is based on conducting experiments to prove hypotheses through attempts to create many contemporary youth fashion designs. In this research, artificial intelligence programs were used to create a number of (15) designs for modern, sustainable youth fashions from recycled fabrics. A questionnaire was designed to evaluate the fifteen proposed designs. The questionnaire was presented to a number of (25) arbitrators from faculty members at Egyptian and Saudi universities and a number of Egyptian fashion designers. The questionnaire included four main axes (the innovative aspect, the aesthetic aspect, the use of artificial intelligence programs, and achieving sustainability in design). The results confirmed that: There is a strong positive correlation between the four study variables (questionnaire axes). The research hypothesis that states, "AI programs can be used to create many sustainable fashion designs" has been proven correct. Among the study's recommendations are suggested: turning to artificial intelligence programs and considering it a tool in the hands of the fashion designer to find new and innovative design ideas. Increasing the direction of scientific research towards the issue of sustainability in fashion, as the clothing industry is the second source of environmental pollutants.

Artificial Intelligence (AI) is the most important product of the Fourth Industrial Revolution, and it has multiple uses in various fields. It is expected to open the door to endless innovation and lead to many industrial revolutions, which will result in fundamental changes in human life, with the rapid and massive development of technology that the world is witnessing (Al-Qatari, Abu Radi, 2023). Nowadays, sustainability is a crucial issue in many areas. Consumers have the power to influence the fashion industry with their choices, and can therefore play an essential role in the transformation of the fashion industry. "If demand changes, supply must change too." While recycling and reusing clothing can have a positive impact, sustainable fashion is not just a trend; it is the ethical future of the fashion industry. (Eleonora Gelmetti, et al., 2021).

### **Keywords:**

Artificial intelligence, Sustainable clothing, Fabrics recycling

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