

# A Study on Artificial Intelligence and Apparel Industry

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**Abstract:** *'Clothes make the man, 'said Mark Twain. This work represents how machine can help people working in apparel industry. 'Can an AI machine be a fashion stylist?' of course, yes. Style-me is a machine learning app that learns through the customer customized style looks based on changing fashion trends and his style history. In apparel industry same kinds of functions need to be done again and again. AI can be a helpful tool for that. It can help in aligning supply and demand, scaling personal computer service and assisting designs.*

**Keywords:** Artificial Intelligence, Apparel Industry, Fashion, Consumer, Machine learning

## I. INTRODUCTION

Currently, retailers and the people working in apparel industry use a limited amount of data to predict the future requirement, trends and styles liked by most of the people and the colors in a particular design. After going through this much data they get a rough estimate of discount they should give on a particular design or when to replenish them. If their estimation goes wrong then it will result in loss of income. AI can be helpful here. It can analyse a huge amount of data. Machine can learn from consumer choices and can know his history of purchasing and depending on his taste and fashion trends can feed him the same kind of data. In that case it will save consumer time and effort also. As human beings learn from past experience, machines can be taught to learn from previous data.

Retail is very inefficient business and in spite of various methods it's not able to understand the consumer and their everchanging needs. For success of every business, it's very important to provide the right product, at right time, at right place, at right price to target consumer. The traditional methods provide only the past trend and buying behavior to forecast but it doesn't provide solution for changing behavior, lost opportunities and new trends.

Artificial Intelligence can help Retail industry in various ways right from saving costs, increase productivity, automation of processes, innovation and ability to experiment and increase knowledge of employees. It would be very interesting to study, understand & contribute to the role and its positive impact in retail business which is part of everyone's day to day life. - Artificial Intelligence- Hence its topic of my Research.

### 1.1 OBJECTIVES

1. To study the effect the artificial intelligence on the apparel industry.
2. AI can help people in purchasing and offering them other options available. Hence saving their time and effort.
3. Machine can be trained to do many things again and again and hence reducing labor.

## II. REVIEW OF LITERATURE

Suppose I go to buy a t shirt in a mall. There is a big screen in store like the size of a poster which can read the sensor fixed on the cloth and can show me the other options which can be paired up with that piece of cloth like what pant will match with that shirt, shoes which can be worn, hair accessories, purse, sun glasses and bracelet etc. There is a button on the screen after pressing that I can ask for the things I need with that shirt. So, in this way this technique helps the customer in checking all the available options in the store and saves his time and effort. On the other hand, brand can advertise all the products available to the customer and can increase its sale. It saves labor work also. In apparels, people need to do same work again and again. For example, same design will be made in different colors and different sizes .AI can help the industry in this by learning the pattern they need to repeat. If a staff member cannot remember the

personal shopping of each and every customer, AI can do it. Fashion AI allows the brand to overlook the full picture of customer journey. For instance, the frequency of picking up each item or cloth or jeweler piece can be recorded. It learns from customer 's taste and shows him the same kind of data. As in the case of You tube and Facebook apps, the kind of videos you watch the machine learns and shows you the same kind of videos. This is also called Machine learning which is a subfield of Artificial Intelligence. The difference is in machine learning the machine can learn on its own without being explicitly programmed and Artificial Intelligence gives the machine the ability to do it.

### **III. AI HELPS IN TEXTILE INDUSTRIES**

Here I'm explaining how AI helps in various works for making garments ready At an apparel manufacturing firm, cutting room is the most advanced department. There is a software in cutting room that schedule jobs to production, selects raw material that is optimal, generate cut plans, track production activities and provides management reports for analysis and future planning. There are automatic machines to spread the cloth which reduces the work load of the spreading operator and increases the production. There are automated marking methods available that match the material pattern. Fully automated knife cutting methods are the most effective means of cutting the fabrics. These all methods ensue accuracy and a very high productivity. By the help of automated advanced fusion process the shrinkage of the cloth can be avoided and best quality cloth can be made ready.

#### **Material handling**

Textile industry has to meet the growing demands of the market. Automated handling is very useful in that. Textiles are the flexible materials. They have special properties which deviate a lot from material used in mechanical engineering. And there are large deviations among the different materials available. So, the steps of process such as separation, handling and forming different grippers have been developed. The focus is damage free manipulation of the textiles. However, new transport technologies are giving far better solutions for that. And digital tracking will improve the overall efficiency of material flow in production.

#### **Robotics in garment manufacturing**

As the demand of clothes is increasing, the big problem that arises is the labor cost. Automation in the sewing industry has solved this problem also. In the beginning, when sewing automation started the focus was on the technical problems. It has been proved that robots can handle the textile flexibly during the sewing process. Semiautomated sewing units had taken over some steps of the sewing processes like the sewing of the trousers pocket. New techniques have been developed to achieve high quality seam less designs with low machine investment.

#### **Automation in sewing technology**

Sewing automat are the kind of machines which have the option of automatic bobbin changer and proved as a stepping stone in automation. These automats are then further classified into different categories like gent's shirt, lady's shirt, formal pant, casual wear, party wear etc.

#### **3-d body scanning**

While selecting a cloth a person goes for its looks, style, color, cost and the fit. In older days, the clothes were sold in a retail shop but with the changing time the garments are purchased over the internet. And it makes the physical fitting impossible. So, the technology of 3-Dbody scanning became very important. 3-D scanners are easy to use devices. There is a process called virtual fitting through which 3D scans the outer part of the body and interfaces it with the selected cloth. The actual fit can be visualized with the help of color maps which represent the distance between the gap between the body and the skin. You can easily find out whether the cloth is loose fit or the tight fit for you.

#### **Designing of the garment and pattern making**

Technology is changing every day. Consumers needs are growing fast. Competition in the market is increasing at a very fast speed. An industry has to update itself in every aspect and use latest technology to match with the demands of the market and satisfy the clients. Textile industry has shown a tremendous growth in its field. And this has been possible

because of use of computers at each stage. CAD finds its utility in textile, apparel and fashion industry right from design initiation, production stage to spreading, patternmaking, cutting and finally sewing. 3 D scanning, mapping, customized avatars in accordance with facial features are some innovative and exciting things available with CAD software.

#### **Advancements in production planning and control**

The changes which are happening very rapidly in the fashion industry has given rise to the need of shortening the time at the production level. And this in turn had given rise to the need of automation in the garment industry. As the demand for quality clothes is increasing, automation is the approach that offers the potential and the interesting possibilities for the production of high-quality garments with low cost and in quick response of the customer. The number of companies are increasing day by day who are going to follow automation and the cost of automation is also reducing to accommodate more customers.

#### **Use of advanced tools in textile industry**

Clothing industry is labor intensive and time consuming. To ensure the efficiency is a great task here both in terms of work productivity and to set the use of operational time database. MTM (methods time measurement) Are the basis of some software applications which are developed to design the work methods. Automation in quality monitoring of garments and seams With the introduction of automation, it is also important to implement the capable quality monitoring system Use of cameras and proper lighting conditions must be provided. Whenever defect occurs, extra cost incurs due to efforts and time used in the production of these products. Therefore, it is the aim of the manufacturer to minimize these costs by detecting the defects before they happen. And to achieve this automated detection system is used.

#### **Recent developments in the supply chain**

Many new technologies have been inserted into the different stages of the garment supply chain right from manufacturing to distribution and to retail. This is the way to small retailers and to supply right material at right time, the right quantity at the right place. Speed is the key to modern garment supply chain. It like is used by retailers Zara and H&M.

So, this all brings us the concept of fast fashion in which garments are offered at reasonable price and reaching the customer quickly and keeping the inventory to a minimum.

### **IV. RESEARCH METHODOLOGIES**

- 1 The gathering of data from various studies online, understanding the role and innovations which Artificial Intelligence can bring on the table.
- 2 Gathering of practical data from the industry players and their challenges
- 3 Understanding of practical usage of AI in their business and challenges henceforth
- 4 Understanding of execution
- 5 consumer research to understand the changing behavior and analyses how AI can provide a solution to the same.

### **V. SUGGESTIONS**

My Recommendations to the industry on usage of AI for right cause in right way for better results.

As artificial Intelligence is the new emerging topic and it's trying to provide solutions in every industry. My in-depth study and research in the retail industry and its challenges, understanding