ARTIFICIAL INTELLIGENCE RESTYLING THE FASHION INDUSTRY

Rubaani Manrai, Student Department of Computer Science, Birla Institute of Technology, Mesra,
Radha Kashyap, Head & Prof. Department of Fashion & Textiles, IIS (deemed to be University), Jaipur

Abstract

The world is consistently dynamic and evolving at a speedy rate. This dynamic nature has placed pressure on firms to initiate, collaborate and design business processes that best work for their business. Digital technologies bring each opportunity and challenges for the development of firms. With the deep integration of intelligent technologies, there has been a digital transformation that has modified the standard production and operations management methods that offers the potential for the development, production and client service. Digital technologies such as artificial intelligence, robotics and automation are transforming the world of work. Big data analytics, cloud computing and cyber physical systems enable operation of industries in a flexible, efficient, and sustainable. Amongst these Artificial intelligence (AI) is an integral part in restyling the fashion industry.

Introduction

AI refers to the ability of robot-based technology to carry out operations and produce outcomes that are comparable to those of intelligent beings. This is mostly employed to produce conclusions based on an intricate comprehension of numerous processes that have concluded, such as discovery, generalization, and the capacity to interpret them as an intellectual human characteristic.

AI is a combination of numerous computer-based and robot-based algorithms for problem-solving, decision-making, and reasoning, just as human intelligence cannot be defined in terms of a single attribute. Manufacturers and retailers regularly collect information of clients on attitudes and behavior across channels, touchpoints, devices, and platforms. This information is integrated from multiple sources and stored or warehouse, usually during a cloud-based environment. Then computer algorithms and programs are created for these models. These machine learning models are the backbone for the generation and development of AI-assisted decisions. In several cases, such choices are automated using systems like chatbots and robots. For instance, chatbots assist in client service and robots facilitate warehouse and sales outlet automation.

In other words, AI is a dynamic, from style design to manufacturing, logistic supply chain and marketing. These days AI in the fashion industry is playing a big role in transforming this industry and giving a new look to it.

Applications of AI

Fashion is one of the most important sectors globally. It has created a thoughtful revolution in the fashion industry. The most widely used applications are discussed below:

Fashion Design & Forecasting trends

AI plays a critical role and can detect the new trends. AI algorithms perceive designs through different images to copy popular styles. It is widely used in Fashion Design process. In 2018, a leading Italian e-commerce company, presented 8 by Yoox, the first fashion collection designed using AI. The software used images and texts from social networking sites and articles from online publications; then an AI predictive engine and consumer estimations create mood boards for production of fashion apparel and accessories (Mazza 2018; Marchetti 2019).

Customer Experience Enhancement In-store

Digital technologies are enhancing customer experience in stores and malls through smart mirrors. Now-a-days, fashion luxury brands are using smart mirror technologies along with their physical stores. Smart mirror is an electronic display hidden behind a mirror. It is a type of two-way mirror. They are computers enabled by a whole stack of technological components, starting from depth-sensing hardware to software with cutting-edge computer vision algorithms. The mirrors give users the ability to compare different outfits and accessories side by side as well as examine how they appear in a specific piece of clothing in numerous colors and clothing types. In this way, the customer's shopping experience is greatly improved and simplified.

Kering, for example, has created an algorithm that uses AI to identify customers who are most likely to respond to personalized marketing efforts. They have integrated smart mirrors that take measurements and suggest items that are in stock. It also creates avatar and show, how an individual look while wearing a particular garment. Alibaba and Taobao have adopted this technology.The tool, is named Fashion++. It uses visual recognition systems to analyze the colour, pattern, texture, and shape of the garments within an image. It offers several alternative outfits to the user.

Chatbots

The increasing scale of personalization in online fashion is apparently unmanageable without AI applications. Chatbots or AI smart assistants are the virtual machines that relate to shoppers via chat, respond to customer service inquiries, help users navigate apparel for both online and in-store. Additionally, fashion apparel and accessories best suit a particular consumer as if they were human shopping assistants working 24 hours a day. It is able to interpret human language and is capable of coming up with answers to queries that have not been predefined. Now-a-days, there are specialized chatbots available for retail applications. These chatbots use Natural Language Processing (NLP) that makes it possible to tailor marketing activities like linguistic context like email, social media posts, customer service contacts and product reviews. Dior also uses a chatbot to interact with customers via Messenger on Facebook through the platform which is called Dior Insider. This service offers the chance of using slideshows and link to the website, making the shopping experience much easier. ASOS, an online fashion company, has increased purchases by 300% using a chatbot, while Levi's, which is a pioneer in the use of chatbots and has partnered with AI firms such as mode.ai, assists customers to find the perfect pair of jeans.

Virtual search

It is a subset of reverse image search; it provides the chance of finding new items using an image. This, for example would analyze an image look for similar pair of shoes, accessories, costumes, etc. While computer vision makes seeing objects possible, machine learning and neural networks makes them recognizable. The combination of both computer vision and neural networks leads to different applications of AI in fashion. The online fashion retailer ASOS has created a visual search tool that turns the customer's smartphone camera into a sort of discovery tool. It enables the customer to take a picture of a product, and the ASOS tool can match the product's shape, color, and pattern with its own inventory to find similar merchandise. Google lens is another example of virtual search.

Fashion Design- Predicting Fashion Trends

The design and patterns with a proper colour combination are the key factor to design a costume and make it attractive among the customers. AI plays a critical role in this and it can help detect new trends. Trends in the fashion industry change very rapidly with new designs or patterns which come every day in the market and designers need to keep pacing with new styles every time. AI algorithms perceive designs through different images to copy popular styles. Retailer giants like Amazon and Walmart currently now have their own clothing brands and are using the machine learning systems and AI technology to identify the spot.

Fashion Styling

The application of AI in fashion also allows to find perfect outfits that suit the body type and fashion preferences. AI enabled clothes and outfits are not only tailored for different occasions and weather, but also for user's taste and demand such as style, body type, colors, and the latest fashion trends. ILUK is an AI-based personal stylist, that uses computer vision and 3D reconstruction technology which makes personal styling based on technology possible. For example, they can process large amount of data faster when learning about the users' style and memorizing the users' feedback. AI programs can also store descriptions of users' items and help them become more organized and efficient.

For instance, Fineryis awardrobe management application. It claims to be able to verify what apparel are already within the user's wardrobe. Using this data, the company claims that its algorithms can suggest looks using the user's existing pieces, and clothing recommendations that could match the user's current style. The Wishlist feature of the application identifies aspects of the wardrobe recommends items that could complete the user's wardrobe.

Applicationsof AI in Supply chain of apparel industry

Besides the above mentioned applications, AI can perform the task with a better accuracy and at a faster speed, reducing the extra cost on workers. AI for example, can stitch the fabrics with perfection while at the same time it can also detect various faults in fabric and give the assurance of best quality. AI has a lot of potential for tedious jobs which are commonly seen in apparel manufacturing. Applications of AI in supply chain are as follows:

Inventory

Using AI technology in supply chain management canspeed-up by improving routes, cutting the logistic supply and shipping cost. Also, visual perception based AI models are available which help store owners to take care of records of the inventory and also sort items in their store. This helps store owners to manage their inventory

with AI-backed automated solution. Using AI, companies automate the logistics and supply chain processes for faster delivery. For instance, finding alternative or completely different routes for traffic affected by unforeseen circumstances such as bad weather or road construction.

Fashion Retail

AI and machine learning in retail provides an automated solution to trace the customer's activities while shopping and visualize their sentiments and needs to know what kind of products they like to buy and what they ignore. AI can also find and trace footprints in retail shops or record the shopping experience of the customers with the option to get feedback on how their experience was while shopping at the retail shop with the aim to enhance the services of the stores.

Warehouse Management

Additionally, AI is used for warehouse management and the operational procurement process. Indeed, there are improvements in AI and navigation technologies which are letting automated guided vehicles (AGVs) move materials between buildings and different departments. Till recently, they needed a significant physical path guiding mechanism such as wires or tracks. Furthermore, chatbots are used in operational procurement as they help to reduce transaction costs and sales cycle time. Overall, the use of AI in supply chain management helps in reducing the 'click to ship' cycle time and also the dropout rate.

Quality assurance

Manufacturers and designers involve AI in their production methods. For example, quality assurance is enabled by a computerized method for detecting faults in the fabric and color of the textile. This helps in saving time. For example, CognexViDi is a vision-based platform designed for fabric pattern recognition in textiles such as weaving, knitting, printing, beading, and finishing. The company suggests that its platform requires no development period for integrating it into a manufacturing system, and it can be trained using predefined images of what a good fabric sample looks with this machine vision.

Manufacturing

AI is used by designers not only for quality control but also for garment production. Various technologies, including computer-controlled lasers, knives, water jets, plasma, and ultrasound, can be used to produce large quantities of material. It has also lead to automation of service. In 2019, ITMA Juki Advanced Network System (JaNet), combined software and supporting hardware to collect data on production processes involving interconnected sewing machines. As a result, digital sewing machines have become indispensable for detecting sewing errors in mass production.

For example, Datacolorclaims to develop an artificial intelligence pass/fail feature to assist and improve the accuracy and efficiency of instrumental tolerance. In their AI process, textile experts first visually inspect every individual batch produced. The operators enter the color measurements and tolerances for all the batches in the Datacolor software to help train the system. The AI P/F system can then be tested for new batches to automatically set AI tolerances, training the system to determine which samples pass and fail the color accuracy.

Operations automation

As per Luce (2019), the word robot is usually applied in the Fashion industry to define a robot as a programmable machine responsible for carrying out composite actions. In industry, a robot is typically defined as a programmed machine in charge of performing a variety of tasks. It is considered to be the physical representation of AI that functions in the real world.. Manufacturing robots are frequently employed in the fashion industry for both supply chain management and sewing. Sewing is done by robots in factories. Utilizing sewing robots may significantly reduce costs, re-shore manufacturing, cut waste and protect the environment while also boosting sustainability and manufacturing flexibility.

For example, Uniqlo is coming close to full automation at its flagship warehouse in Tokyo. According to reports, Uniqlo's parent company Fast Retailing has partnered with a Japanese start up that develops industrial robots to create two armed robots that pick-up t-shirts and box these up- a task that could previously be done only by humans. This is an important innovation as it could enable a factory which can replace 90% of its workers with robots to roll out a fully automated process.

Besides supply chain AI can also be used for recommending the prices of the manufactured products. AI can keep an eye on the prices of the competitor brands as well as serve with automated calculations algorithms that can get inputs in form of raw material product cost and even expected profit amount. It can be used as both small scale and large scale production units.

Conclusion

AI in fashion is transforming the way the industry works. It will keep the industry at the top of its game. It will allow designers and brands to create and deliver better products and services by analyzing and understanding the sentiments of their customers. It will also help fashion companies cut down on errors and improve the quality of their products. It will help in analyzing and predicting what will be in style.

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Some growers begin hoading cotton on terraces

For the first time, some Indian cotton farmers, particularly in Karnataka and Telangana, have begun storing raw cotton (kapas) on their terraces and backyards, waiting to get better prices for their produce.

"I personally saw farmers in 2-3 villages near Raichur in Karnataka storing cotton on their terraces. Similarly, farmers are storing cotton in Yadgir district. A lot of kapas are being held back in many cotton-growing villages," said Ramanuj Das Bood, a sourcing agent for multinationals in Raichur, Karnataka.

Since the beginning of the current cotton season which began on October 1, 2022, farmers have been holding back their produce as cotton prices have declined by over 40 per cent from the peak of over ₹ 1 lakh per candy (356 kg) witnessed in May-June 2022. According to data from Agmarknet, a unit of the Agriculture Ministry, cotton arrivals between October 1, 2022, and February 6 were at least 30 per cent lower at 125 lakh bales (170 kg) from 190.5 lakh bales during the same period a year ago. "These farmers had got ₹12,000-13,000 a quintal for kapas last season. This season they are getting ₹8,000 only," said Das Boob.

Currently, cotton is quoted at ₹61,500 a candy in Gujarat compared with ₹ 62,500 few weeks ago. The modal price (the rate at which most trades take place) for raw cotton in Rajakot's Gondal agricultural produce marketing committee (APMC) yard had dropped to ₹ 8,205 a quintal from ₹ 8,405 few weeks ago.

"Farmers all over the country are holding back cotton. That's way arrivals have been lower this year. This may be new in Telangana and Karnataka, but it is nothing new in Gujarat," said Anand Popat, a trader in cotton, yarn and cottton waste in Rajkot.

In Gujarat, cotton farmers are holding back at least 75 per cent of their harvested crop. "For years, farmers in places such as Jamnagar have been storing cotton on their terraces. In Saurashtra, too, farmers tend to hold back on their terrace or godowns set up in their houses when they are not happy with the prices," he said.

Prabhu Dhamodharan, Convenor, Indian Texpreneurs Federation (ITF), said with demand challenges continuing in all markets, the lower level of industry utilisation will keep a check on cotton prices. "Alternate low-cost fibres are at an advantage, having taken away the market share of cotton permanently in multiple areas of fashion," he said.

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