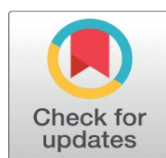# ARTIFICIAL INTELLIGENCE IN TEXTILE AND FASHION WORLD

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ABSTRACT

Before 1949, computers lacked intelligence. They could not record commands, but they could carry them out. However, between 1957 and 1974, artificial intelligence flourished. Computer storage has increased, as has speed, cost, and accessibility. Artificial intelligence (AI) means that machines can perform various jobs that humans or animals need to do with their natural intelligence. The fathers of artificial intelligence, Marvin Minsky and John McCarthy, defined artificial intelligence in 1950. Artificial intelligence enables machines to understand and achieve certain goals. Deep learning, on the other hand, makes it possible to absorb huge amounts of unstructured data in the form of text, images and audio. Artificial intelligence is appearing in almost every industry that is the future of humanity. It will also be the driving force behind new technologies such as big data, robotics and the Internet of Things (IoT) in the near future. Computer algorithms and machine learning have been widely used in textile testing since the 1980s. Testing and quality control functions can be handled by image processing, automation, deep learning and neural networks. Most of the textile industry today uses computer-aided machinery to produce certain designs on a larger scale and more efficiently. AI can access maintenance data in real time to provide insights that can be used to increase operational efficiency. Artificial Neural Network (ANN) technology makes it easier to improve the quality of life in the industry and detect defects, check patterns, match colors and classify fabrics for textile production more objectively. It also precisely defines the advantages of fine, solid and staple fiber. The use of artificial intelligence in the manufacture of textiles has emerged with a new possibility, i.e. smart clothes that use the Internet of Things and electronic sensors to create a more pleasant health experience. In this article, the researcher tried to give an overview of the artificial intelligence used in the textile industry.

Keywords: Textile, Fashion World, Internet of Things

1. INTRODUCTION

A Logic Theorist Program was initialized to proof the concept of AI in 1956. It was a program designed to mimic the problem-solving skills of a human. This program was funded by Research and Development (RAND) Corporation. It was considered as the first artificial intelligence program. It was organised by Marvin Minsky and John McCarthy at the Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI). To create an open-ended discussion on artificial intelligence, top researchers from various fields were invited for this historic conference. Unfortunately, McCarthy and Minsky's expectations were not met as people came

and went as they pleased, and no standard methods for the field were agreed upon. Despite this, everyone agreed that AI is achievable. The significance of this event cannot be minimized since it determines the direction of AI research for the next twenty years. Myers (2011)

There are many applications of AI in this modern age. Some of the areas where AI is used are as follows: Thomas & Powers (2022)

1) **Transportation:** It could take some time for autonomous cars to perfect themselves, but one day they will be able to take us anywhere with the use of AI technology.

2) **Manufacturing:** AI-powered robots assist humans with work like gathering, stacking, and predictive analysis through sensors monitor equipment performance.

3) **Healthcare:** AI can help diagnose diseases more quickly and accurately, speed up drug discovery, monitor patients more efficiently, and provide a more personalized patient experience.

4) **Education:** Along with the assistance of AI, the textbooks are digitizing. It provides early-stage virtual tutoring, and analyze facial expressions to understand which students are struggling or bored in order to tailor the learning experience accordingly.

5) **Media:** It is also benefiting journalism, and will continue to do so. Each year, the Associated Press produces nearly four times more earnings, reports and stories using Automated Insights' natural language capabilities.

6) **Customer Service:** Finally, Google is currently developing an AI assistant that can make appointments at businesses, such as hair salons, in a human-like manner. Besides understanding words, the system also understands context and modulation.

Stuart Russell, one of the innovatory thinkers in the field of AI, says that as of yet, AI cannot fully understand language, as it is not equipped to do so. At the present moment this shows a definite difference between humans and artificial intelligence. If, however, AI is capable of understanding our languages, it would be able to read and understand anything that has ever been written. There is a possibility that sooner it will replace human. According to Elon Musk Artificial General Intelligence (AGI) is one of the greatest existential threats to humanity. Thomas & Powers (2022)

1.1. ARTIFICIAL INTELLIGENCE CAN BE WEAK AI AND STRONG AI.

1) **Weak AI:** Alternatively, it is called Narrow AI. It's an AI system that has been programmed to perform a particular task. For example: Alexa and Siri. In this Artificial Intelligence, the information is categorised by using unsupervised programming. They categorize things according to pre-programmed answers. The algorithm will respond to your request by playing the son. Team Leverage Edu (2022)

2) **Strong AI:** It is also called as artificial general intelligence It is similar to the human brain. It executes new tasks and directives with the help of its cognitive abilities. Without relying on a pre-programmed algorithm, it can solve a problem. Visual perception, decision-making, speech recognition, and language translation are some of the strong AI. Team Leverage Edu (2022)

1.2. THERE ARE THREE TYPES OF ARTIFICIAL INTELLIGENCE INTERVIEW BIT (2022)

1) **Artificial Narrow Intelligence (ANI):** It is the only kind of AI which is most effectively created yet. It is often called as narrow AI or weak AI. It is a goal-oriented system, originated to complete a single task. Example: facial recognition, driving, speech recognition/voice assistants or surfing the web.

2) **Artificial General Intelligence (AGI):** It is also called as deep AI or strong AI. Basically, machines with general intelligence can perform a variety of tasks and can solve any problem by applying its intelligence. AGI is capable of thinking, understanding, and acting in a way that is indistinguishable from human behaviour in every situation.

3) **Artificial Super Intelligence (ASI):** It is a hypothetical Artificial Intelligence. This AI goes beyond mimicking or understanding human behavior and intelligence. It is a computer that is conscious and able to excel in human ability and intelligence.

2. REVIEW OF LITERATURE
2.1. USES OF AI IN TEXTILE AND FASHION TECHNOLOGY

By using automation and artificial intelligence, the textile industry can reduce labor costs and improve customer service. The emerging technologies such as the Internet of Things (IoT) and artificial intelligence can enhance the textile industry. Artificial Intelligence is becoming increasingly important to the apparel industry over the last two decades. AI-driven automation in spreading, cutting, sewing, and materials handling can reduce production costs and minimize errors. Prisma (2022)

2.2. THE APPLICATION OF AI IN FIBER AND YARN PRODUCTION

The essential raw material required for the manufacturing of clothing and other textiles are fibers. Visual inspection alone is not always enough to identify unknown fibers because there are many types of textile fibers. The traditional practices for fiber identification includes destructive tests use flame or chemicals to identify fiber whereas in modern times optical microscopes, raman spectroscopy and fourier transforms infrared are used. These are few of the recent advancements. The artificial intelligence can also be used to identify and grade textile fibers based on their color and properties and the consequence of spinning performance on yarn properties. AI has been used in yarn manufacturing for several reasons, such as modeling yarn from fiber properties, predicting yarn tensile properties, and predicting yarn unevenness. TechKnowGram (2021)

2.3. THE APPLICATION OF AI IN FABRIC PRODUCTION

Fabric is the crucial raw material used in clothing industry. The quality of the garment, productivity, and the ease with which garments can be manufactured will be based on the quality of the fabric used. Depending on the type of apparel and their end-use, the fabrics are selected. The fabric features for making any apparel can be categorised as primary and secondary. The main specification will be physical dimensions, secondary forces act on the fabric when it reacts to external forces. The

important parameters that are considered from a consumer perspective are apparel appearance, comfort, and resilience. TechKnowGram (2021)

Artificial Intelligence can be used to handle these parameters:

- **Forecasting fabric properties:**

With the help of AI, the fabric properties are predicted before manufacturing. A neuro-fuzzy model could be applied to fibers, yarns, and fabrics based on their constructional characteristics. However, the cost of production increases as the application of AI is very costly. Investigating the comfort properties can be possible with the help of AI. With sensory comfort in mind, various fabrics can be categorised according to their hand value by applying artificial intelligence. TechKnowGram (2021)

- **Colour solutions:**

Colour is one of the crucial characteristics of textiles. Consumers respond to this element of design first. On the basis of color appearance, the consumers decide whether to buy it or not. Thus, the dyeing and printing processes must be precisely controlled to obtain the right color. As it can impact the volume of sales. The printing and dyeing procedures should aim to achieve the required colourfastness, depth of shade, surface and color matching characteristics. A deviation from these parameters may result in rejection or reprocessing of the entire fabric batch. With AI, these problems can be solved, for example, recipe forecast, matching color, controlling the process during dyeing and printing, shade sorting and assessment of the final dyed or printed fabric. When the roving is converted into yarn, AI is applied during the fiber blending stage for a color solution. It can assist in forecasting the color obtained when fibers of different colors are mixed together. A homogenous blend can be predicted more perfectly using empirical models and theoretical. TechKnowGram (2021)

- **Fabric fault detection:**

During garment manufacturing if a bad-quality fabric is used, its consequences could be substandard garments and also it will reduce productivity. Apparels can be rejected if there is any defect in the fabric. Therefore, before manufacturing the garment, it is important to inspect the quality of the fabric. Experts use lighted tables and equipment to inspect fabrics traditionally. Oftentimes, this process can pass faults from garment to garment due to its time-consuming nature. This will result in a rapid reduction in the efficiency of fabric inspectors. However, because of AI this task can be performed, the rate of work is faster, the accuracy is higher, and the fatigue is lower. TechKnowGram (2021)

Currently, fabric pattern inspections are done manually through visual checks. Working long hours each week can result in fatigue and mistakes when inspecting unique fabrics. Vision-based technology utilizing AI, like the ANN system, can assist Indian fabric producers in eliminating these issues. Damodar Menon International (2023)

2.4. THE APPLICATION OF AI IN APPAREL MANUFACTURING

Pattern making is one of the main steps in manufacturing of apparel. Designers make paper patterns and then digitize them for use on a computer. For a garment, many 2D (two-dimensional) patterns are created, which form the fundamental blocks of a three-dimensional (3D) apparel. A variety of CAD software is used in the apparel industry to digitize, grade, and plan markers. Because of the CAD software, the productivity is high and enhanced quality is achievable. However, the apparel

patterns or designs for a specific style cannot be generated automatically on the CAD software. As well as this, experienced pattern makers continue to make garments by the traditional method in many garment industries. In addition to integrating AI with CAD systems to generate designs automatically, researchers have also tried integrating these systems with AI to aid in the design process. TechKnowGram (2021)

The garment manufacturing process is becoming more automated in order to meet consumer demand, reduce faults, and keep costs low. Production Planning Controlling (PPC), various operations of sewing, and quality control, use AI to forecast the performance of a sewn seam and to design the garment. For predicting the apparel properties after a certain process AI is used as a part of intelligent manufacturing of clothing. Hasan (2020)

Several variables relating to the material and process are present during the production of textiles and clothing. Due to the high variability of raw materials and the multiple processing stages, it is difficult to handle the process specification to attain the desired outcome. Till today human expertise is used to establish a proper relationship between these variables and the properties of a fabric. Many at times, because of human working and due to the complexity of remembering so many variables, there is a possibility of error. This is made easy and accurate by the application of artificial intelligence; various systems have been created to deal with multiple variables due to advances in computation and simulation. To establish an effective relationship between variables and product properties, the model can work with a wide range of datasets during training. Hence, the textile and clothing manufacturing industries have been rapidly integrating AI into various applications over the last decade. TechKnowGram (2021)

Sewability is the term which refer to seam's ability to form and perform. This are the essential parameters. In addition to tensile, shear, bending, and surface properties, low-stress mechanical properties can also affect sewing ability. During garment production, the sew ability of different fabrics can be determined using an AI system. A good quality seam is important for a good quality garment. A seam's performance is evaluated based on its puckering, yarn severance and slippage, which can be forecasted by AI. TechKnowGram (2021)

2.5. THE APPLICATION OF AI IN PRODUCTION PLANNING AND CONTROL (PPC)

It is responsible for coordinating between several production departments to meet delivery dates and deliver orders on time to customers. Majority of the problems are related to the sewing floor, such as machine layout, line balancing, and managing operators. This problem can be solved or optimized using artificial intelligence. In determining the most suitable production facility for a certain customer order, an artificial intelligence-based decision support system was used. To reduce the rejections, inspecting the finished and semi-finished garments during their manufacturing is important. Experienced people determine the final quality of a garment based on the sewing quality and other faults present in it. There is a lot of time spent on it, and it is often subjective. Physical and mental conditions of the inspector affect the results of the inspection. Hence, to attain increased efficiency and accurate results, automated inspection devices are essential. In order to inspect the quality of finished garments, the AI uses image processing. Using machine vision, wrinkle rating is also done. In this the evaluation of wrinkle is done using a laser sensor. TechKnowGram (2021)

2.6. THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN MARKETING AND SUPPLY CHAIN MANAGEMENT

Consumers are difficult to understand and predict, so apparel manufacturers must produce a diverse product mix. Demographics and physiography are highly variable, and their choice is unstable and unpredictable. It is important to understand that the quality of a product is determined by several factors, including the yarns used to manufacture it, the fabric preparation (weaving and knitting), and the fabric chemical processing that takes place. Artificial intelligence can therefore be applied to the whole apparel manufacturing process to better control all these factors. TechKnowGram (2021)

Artificial Intelligence expands its impact on supply chain management by automating various processes like transportation and packaging. Robotic Process Automation (RPA), machine learning, and the Internet of Things (IoT) are utilized to enhance warehouse management, product sorting, and communication, facilitating smooth material flow between suppliers and producers. Additionally, AI improves merchandising through capabilities such as data analysis, personalized customer experiences, tracking behavior, and predicting trends. Yimiao (2024)

2.7. THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN RETAILING

Creating a link between fashion goods manufacturers and consumers is the goal of fashion retailing. Technology advancements and consumer behavioral changes have transformed fashion retailing into one of the most competitive retail sectors in the last couple of decades. Retailing has several applications for AI, the company specializes in a wide range of areas, including sales forecasting, fashion retail forecasting, customer relations management, demand forecasting, customer satisfaction, and fashion coordination. Often, it is nearly impossible to differentiate between two styles that differ so minutely. Therefore, AI can be used to differentiate between two or more styles. Additionally, AI can be used for the selection of clothes that provide comfort, including appearance, that can be used by customers. TechKnowGram (2021)

In the near future, AI will undergo rapid progress. With this system, garment manufacturers will be able to enhance quality, increase production, reduce operating costs, and control overproduction in-house, resulting in quick response and just-in-time operations. Especially in apparel retail, e-commerce is driven by global fashion trends. Using artificial intelligence, images are identified and products are recommended online based on those images that customers are more likely to purchase. Through artificial intelligence, e-commerce platforms are able to leverage customer information, such as their preferences, similarities, and differences in the kinds of products and applications they seek. By using AI in this way, a personalised shopping experience can be created. TechKnowGram (2021)

2.8. THE APPLICATION OF AI IN CLOTHING- SMART CLOTHING

Internet of Things (IoT) and electronic sensors have enabled "smart apparel" or "smart clothes," in order to improve the user experience. This technology can enable smart clothes to offer more comfort and healthcare to their wearers. Due to their larger area of contact with your body, physiological measurements can be taken with smart apparel than something such as a smartwatch. Our heart rate, for

example, is continuously monitored. It can be possible because of Smart clothing. The monitoring of potential cardiac diseases over a long period of time allows physicians to better identify or diagnose them.

During the COVID-19 outbreak, wearable products have become increasingly focused on healthcare and medical attention, and smart apparel is following suit. Embedded Bluetooth Low Energy technology allows clothes to feel, sense, and regulate data. In addition to improving the overall wearing experience, fabric-based sensors will also help reduce abrasions on the fabric. In the textile industry, AI isn't the only technology driving progress. There are also several other essential components, including cloud data, edge computing, highly accurate sensors, and ultra-low-power technologies. BLE and IoT-enabled smart clothes need a long-lasting battery source in order to provide a satisfying and useful experience to consumers. Cermark (2021)

2.9. THE APPLICATION OF AI IN CLOTHING IN FASHION AND TEXTILE INDUSTRY HASAN (2020)

1) **Trend-Spotting:** It takes days or even months for fashion brands to track the **latest fashion trends** before AI made it possible for them to quickly track them in just minutes.

2) **Machine-assisted designs:** By analyzing and learning the interred images, the AI tool can create an entirely new style.

3) **Customers Experience:** Assisting customers with personalized advertising notifications, letting them know when prices drop, answering their questions with chat bots, and providing personal styling services. Fashion brands can elevate their customer experience with AI by offering instant outfit suggestions.

4) **Improve yield and efficiency:** With the help of AI, manufacturing industries can increase overall equipment efficiency, yield, quality and consistency, which helps manufacturers forecast more accurately.

5) **Forecasting:** Utilizing cognitive computing technologies, organizations can improve their analytics capabilities, make better forecasts, and reduce inventory costs. In the future, because of improved analytics capabilities, companies will be able to switch over to predictive maintenance and reduce maintenance costs as well as downtime.

2.10. SOME APPLICATIONS OF AI

A groundbreaking fabric-roll traceability tool is presented at the ITMA by Smartex, a hardware-based software company. Utilizing the success of their Smartex Core product, which incorporates AI for quality control, Smartex Loop allows suppliers to benefit from fabric-roll level data collection, improve supply chain communication, and respond to the demand from fashion brands for more transparent supply chain data.Smartex Loop enables users to quickly scan a fabric roll's Loop Passport or view all rolls on the Smartex Platform via desktop or mobile devices. This access provides detailed information about each fabric roll's production history and quality. Developed by Smartex.ai in Porto, Portugal, this powerful tool empowers textile manufacturers to enhance product value and boost productivity. Smartex (2023)

Walmart is world's largest retailer. In order to patrol its vast aisles, Walmart plans to use robots. Additionally, dozens of its stores are testing shelf-scanning

robots, which can detect missing products, restock items, or change price tags. It will be easier for human employees to spend more time with customers due to robots, and it will be possible to avoid leaving empty shelves on the shelves for customers to browse. McKinnon & Rudolph (2020)

Amazon and its revolutionary Amazon Go store definitely belong on this list of retail AI companies. Without having to go through a cashier, customers can walk into the store and grab what they want off the shelves. In the store, sensors and cameras track customer purchases, and when they leave, Amazon charges their account. Customers no longer have to wait in line for seamless and quick shopping experiences thanks to artificial intelligence. McKinnon & Rudolph (2020)

Creating an exemplary in-store experience, Uniqlo uses science and artificial intelligence. UMood kiosks in select stores exhibit a variety of products and measure customers' reactions through neurotransmitters to the color and style. The kiosk then recommends products based on each individual's reactions. There is no need for customers to push buttons; it is enough for the system to know how they feel about every item based on their brain signals. McKinnon & Rudolph (2020)

Keeping up with trends is key to H&M's success. Using AI, receipts and returns are analyzed for each store to determine the value of each purchase. As a result of the algorithm, the store knows which items to promote and stock more of in certain areas. By analyzing the statistics, urban stores may be able to determine that floral skirts are the most popular item and change their inventory accordingly. McKinnon & Rudolph (2020)

Customers often choose to buy online and pick up in store. They can now pick up their orders using robots at Zara. They can also enter a pickup code in the store to start warehouse robot moving. The robot delivers the order via drop box after finding it. Orders are delivered quickly and efficiently this way. McKinnon & Rudolph (2020)

Nike Fit is a recent addition to Nike's app. To determine a customer's true shoe size, the feature uses augmented reality and artificial intelligence. Users can enable the app's functionality by pointing their phone's camera at their feet. It takes less than a minute for the customer to complete all of this from the comfort of their own home. A customer's shoe size is stored in the app after it has been determined. During an in-store visit, an associate can scan a QR code to determine the customer's size. The app helps customers find the right shoe size since more than 60% wear the wrong size. McKinnon & Rudolph (2020)

GUESS and Alibaba recently opened an AI-based fashion concept store at Hong Kong Polytechnic University. Customers were shown a vision of the future store powered by artificial intelligence (AI). Using their mobile shopping app, customers can check into the store. RFID tags were attached into clothing hangers so customers could use their application to track what they viewed while shopping. Customers picked up merchandise and it immediately appeared on smart mirrors in front of clothing racks. With smart mirrors, customers could combine items from different categories. Additionally, the layout of the store showed customers where complementary goods could be found. By partnering with artificial intelligence platform Findmine, Adidas reduced the time it takes for customers to receive outfit recommendations when shopping digitally. This saved a lot of time. McKinnon & Rudolph (2020)

Customers can try on clothes more easily by using AR-based smart mirrors at retail chain Shoppers Stop. Further, interactive kiosks will be installed and the business's POS system will be upgraded. Additionally, the business plans to use

location technology and heat maps to collect comprehensive customer data so that it can tailor its store to meet the needs of customers. Several technologies have already been implemented to modernize the retail experience of consumers who shop online and in-store. There are a number of pick-up and delivery options available, including shop-near-me and click-and-collect. Recently, Shoppers Stop also launched a Personal Shopper program and a "Browse and Buy" program, both with an omnichannel approach. Crossley (2018) Innoviti Payment Solutions, one of India's largest providers of payment solutions to enterprise merchants, and Shoppers Stop have launched Dual-Display-UPI, which makes it safer and faster for consumers to use UPI while shopping at Shoppers Stop outlets. Additionally, it displays any offers related to UPI payments for that transaction. With the secure transaction token, the bill is reconciled straight-through if the offer is applicable. When the payment and packing steps are parallelized, the transaction time of a typical UPI transaction is reduced from about 20 seconds to 10 seconds. Both the cashier and customer do not touch the display during the transaction, minimizing the surface area of contact between them. Gupta (2021)

3. CONCLUSION

The labour-intensive textile industry has now transformed because of the rise in the new technologies. The majority of textile factories now use machines operated by computer. These machines can make designs on larger scale more effectively than human workers. Cermark (2021) Industrial automation has also led to increasing in textile manufacturing, producing fresh new varieties of clothing, fabrics and fibres, increasing the efficiency of human employees and enhancing their abilities with AI. With the constant inflow of new technologies and innovations, textile technologies will face a lot of change in the future.

Artificial intelligence has been applied to textile industries due to the increasing demand for quality in recent years. In the overall textile production various machines like spreading, cutting, sewing, and material handling is used, which can reduce the manufacturing cost and reduce faults. Many a times there are high chances of error in textiles production. Using AI, the production can be done without error. Hence, various applications of AI are rapidly growing in the textile industry. Hasan (2020)

The use of AI for reinforcement learning allows computers to learn how to take different actions according to situational circumstances. This will save a lot of time and high accuracy can be maintained. The businesses can automate conversations with the buyers using Artificial Intelligence. This will offer customers a more personalised experience. It will suggest you, different prints, colours, silhouettes, etc. that will suit your body shape and personality. Also, it will show you how you will look in that garment without even actually trying it. With artificial intelligence intervention, merchandising operations can be made more accurate and more aligned to customer preferences by analyzing large data volumes as well as predicting consumer trends. Hasan (2020)

The need for smart textile and smart apparel has increased because of the high demands for health concerned products like fitness trackers and wearable technology. Also, it is because people have become more health conscious. Cermark (2021) At present, artificial intelligence in pre-production textile processing appears to be limited to just a few applications, such as identifying and grading textile fibers and yarns. However, in future, fiber identification and grading in terms of color, length, uniformity ratio, tenacity, etc. can also be possible. As a result, various vendors may offer Artificial Intelligence services for applications such as

yarn tensile properties and yarn unevenness prediction (Cornell), as well as virtual modeling of yarn based on fiber properties. Bharadwaj (2019)

Similar to other industries, textiles have a bright future with artificial intelligence. An estimated USD 5.55 billion will be spent on elegant textiles by 2025, according to a recent market report Cermark (2021)

Some of the examples of applications that businesses might see becoming commercialized in the future include: Bharadwaj (2019)

- On the production side, Artificial Intelligence might be used to detect visual defects in shirts or collars, or it may be used to automatically detect and measure the wrinkles on fabric. A garment's visual aesthetics are influenced and determined by measuring wrinkles in fabric material. For measuring fabric wrinkle performance AATCC (American Association of Textile Chemists and Colourists) methods are frequently used. However, this process requires a great deal of time and there may be frequent disagreements between trained experts on the results. Using machine vision for wrinkle measurement can reduce costs and time for textile manufacturers.

- Artificial Intelligence in textiles will also be used to identify previously hidden patterns through machine learning. Textile players may also adopt "transferrable" data science and data mining techniques from the finance or healthcare industries. Example: A large amount of data is generated by the textile industry when it comes to raw materials, machine settings, and quality parameters. Business might be able to find patterns and correlations between fiber properties, process parameters, and yarn properties, or yarn properties, machine settings, and fabric properties using machine learning. Businesses of the future may be able to discover previously unknown relationships, improving efficiency and maintenance. In manufacturing, AI applications can be used to improve production processes by collecting information about the production process.

- In many industries fabrics play a crucial role in design and prototyping. AI might help design engineers to create '3D-model' yarn fibers in their designs and prototypes. Traditional methods of modelling fibers are very time consuming. It's possible to model yarn and fiber properties automatically and realistically without much human intervention using artificial intelligence algorithms developed by Cornell researchers.

4. CHALLENGES BHARADWAJ (2019)

- There might be a challenge in finding system integrators and Artificial Intelligence consultants who are particularly focused on the textile industry.

- Initially, only larger and more tech-savvy textile companies are likely to adopt this technology due to the difficulty of setting up, integrating, and scaling such an application across the company.

- The textile industry uses AI systems for integrating the following features: production, quality, costs, information, applied mathematics method management, just-in-time production, and digital integrated production. The textile industry will be revolutionized and disrupted by artificial intelligence in a way that has not been seen before.

CONFLICT OF INTERESTS

None.

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