



Empowerment In Fashion

AI TECHNOLOGY INTEGRATION IN THE FASHION INDUSTRY

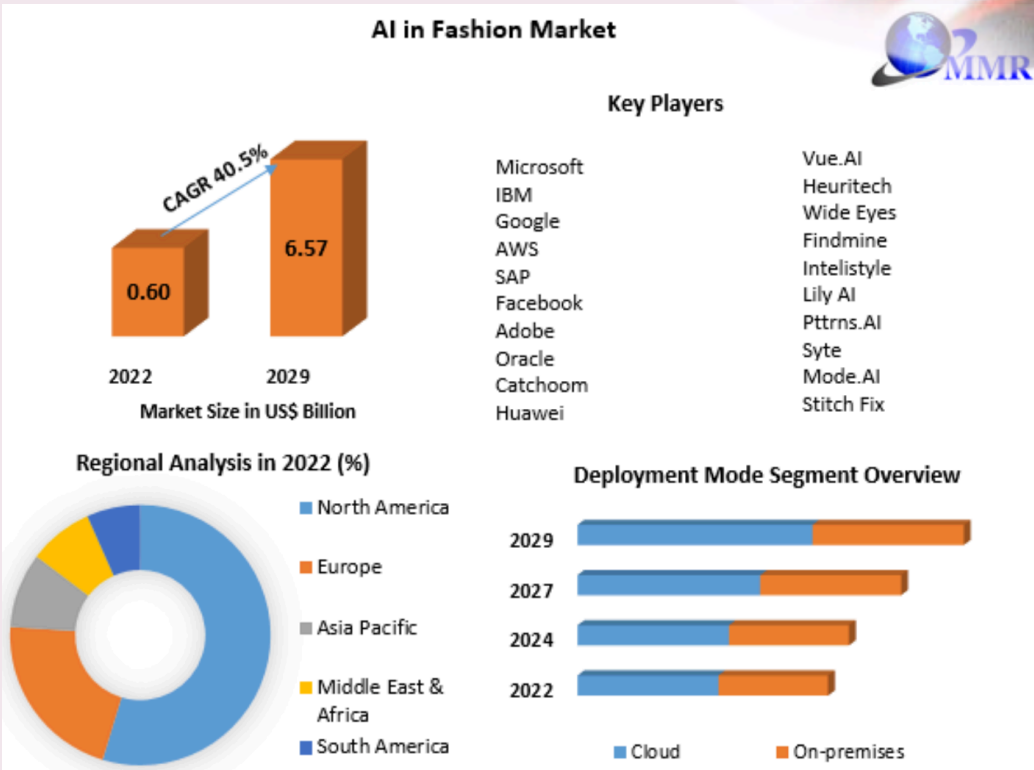
AI EMPOWERMENT IN FASHION

Introduction

The fashion industry is a constantly evolving field that adapts to new trends, consumer preferences and technological advances. Today, the service industry faces increasing global competition and unpredictable shifts in demand. To meet the demand for new approaches, a large (and steadily growing) number of initiatives are exploring and optimising the use of AI and digital across a range of industry applications. From its infancy in 2018 to its widespread use in the fashion industry today, the industry has evolved very significantly.

Machine learning algorithms are being used to analyse consumer data and predict fashion trends, enabling companies to make more informed decisions about inventory and product development. Virtual reality and augmented reality are also being used to enhance the shopping experience, allowing customers to virtually try on clothing and accessories before making a purchase. Overall, AI is playing an increasingly important role in the fashion industry, helping companies to streamline processes, reduce costs and improve the customer experience

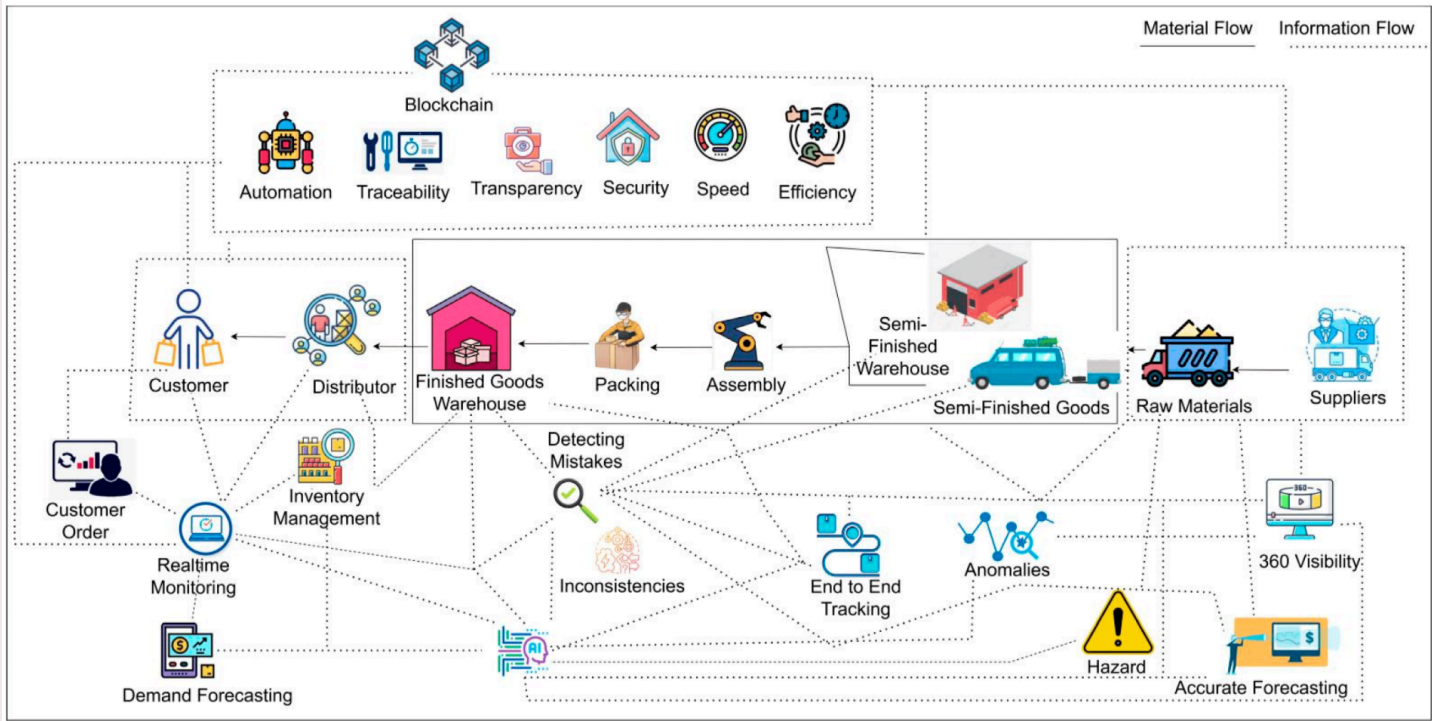
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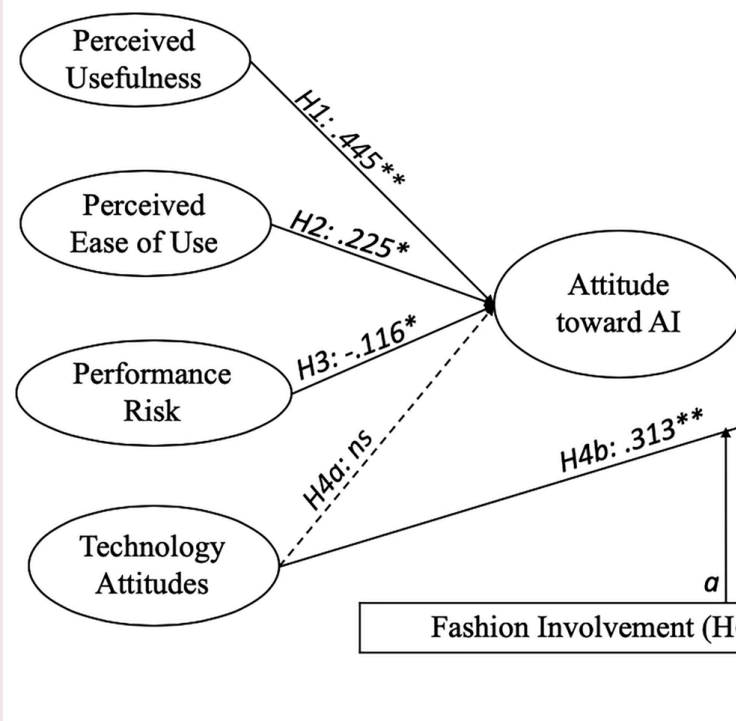
AI in Fashion Market- Global Industry Analysis and Forecast (2023-2029)

Research

Artificial Intelligence excels at personalisation, which is a focus for many brands. By analysing consumer data and preferences, AI enables personalised targeted advertising and dynamic pricing models. This will increase sales and loyalty. Artificial Intelligence (AI) has revolutionised fashion forecasting by analysing data to predict outcomes and help with inventory and decision making (Technology Card 2019). This flexibility encourages brands to create a-kind products that allow companies to remain competitive in the fashion marketplace. The impact of artificial intelligence on supply chain optimisation has been the subject of extensive research. By utilising AI for forecasting, inventory management and production process optimisation, companies are able to minimise waste, reduce lead times and improve efficiency.



AI and blockchain incorporated supply chain framework



Theoretical Background

Artificial intelligence (AI) is a field that aims to create systems or software that can perform tasks that require human intelligence. This includes understanding language, recognizing pictures, solving problems, learning and adapting to new situations, and more. (Li et al., 2021) The figure below illustrates how each segment of the fashion industry can be paired with the corresponding technology models. Using machine learning and data analysis capabilities, AI can accurately predict fashion trends and help designers create clothing that meets consumer preferences. In addition, the control of autonomous decision-making of robots based on goals and rewards based on reinforcement learning is also a successful progress. (Malik, Budhwar and Kazmi, 2022) These evolving applications of artificial intelligence offer huge potential for smart futures in all aspects of fashion industry.

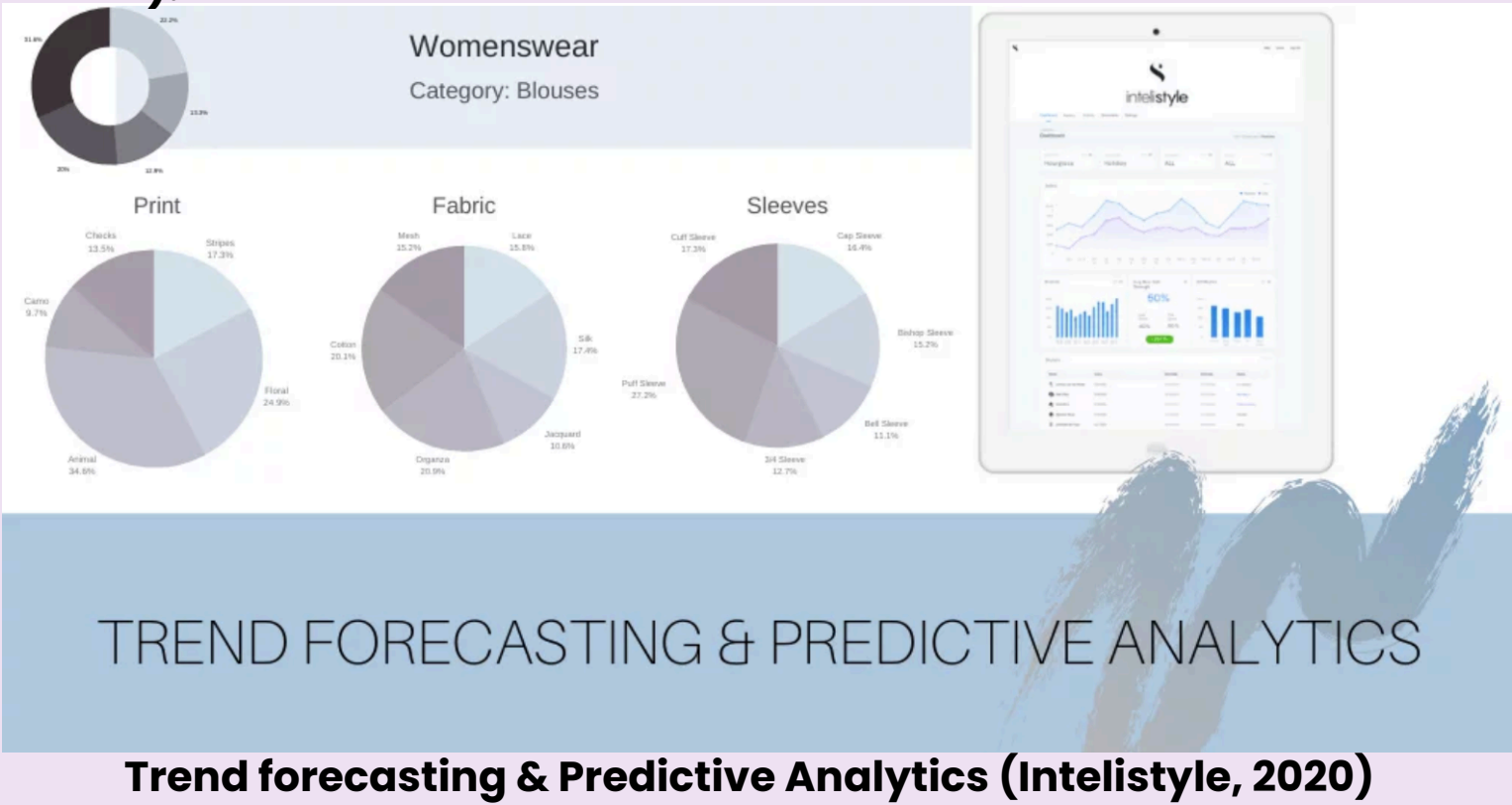
The taxonomy of fashion studies.

Field	Subfield	Methods
Fashion Recognition	Clothing/Human Parsing	Graphical Model, Non-parametric Model, Parselets Representation Method, CNN Model, Adversarial Model
Fashion Understanding	Landmark Detection	Deep Learning Methods
	Clothing Attribute Prediction	Single-task Learning, Multi-task Learning, Transfer Learning
	Fashion Style Prediction	Supervised Learning, Unsupervised Learning
Fashion Applications	Fashion Retrieval	Cross-scenario Retrieval Model, Interactive Retrieval Model
	Fashion Recommendation	Complementary Recommendation Model, Personalized Recommendation Model, Scenario-oriented Recommendation Model, Explainable Recommendation Model, Generative Model
	Fashion Compatibility	Pairwise Compatibility Learning, Outfit Compatibility Learning
	Fashion Image Synthesis	Pose Guided Generative Model, Text Guided Generative Model, Virtual Try-on Model, Image Transformation Model, Fashion Design Model
	Fashion Data Mining	Fashion Trends Analysis, Hybrid Analytics

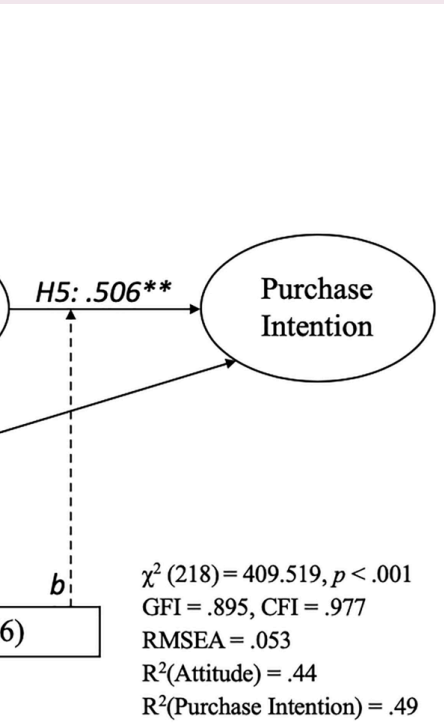
The taxonomy of fashion studies (Gu, X., Gao, F., Tan, M. and Peng, P., 2020, p2).

Market Opportunities

Artificial Intelligence (A.I.) plays a pivotal role in market analysis and trend forecasting by analysing large amounts of data to discover market trends and consumer behaviour patterns. For example, companies such as Stitch Fix use A.I. algorithms to recommend personalised clothing products to customers based on their preferences and previous shopping history (Fix, 2023). Similarly, The Yes, which was acquired by Pinterest, uses an AI-powered fashion shopping platform that allows people to buy personalised rundowns based on unsolicited user input on brands, styles and sizes (Pinterest, 2022).



for fashion brands. By
used marketing strategies,
ease consumer engagement
n market analysis and trend
h inventory management
ables the creation of one-of-
an ever-changing
n and manufacturing
sing AI for demand
timisation, fashion
mprove overall operational

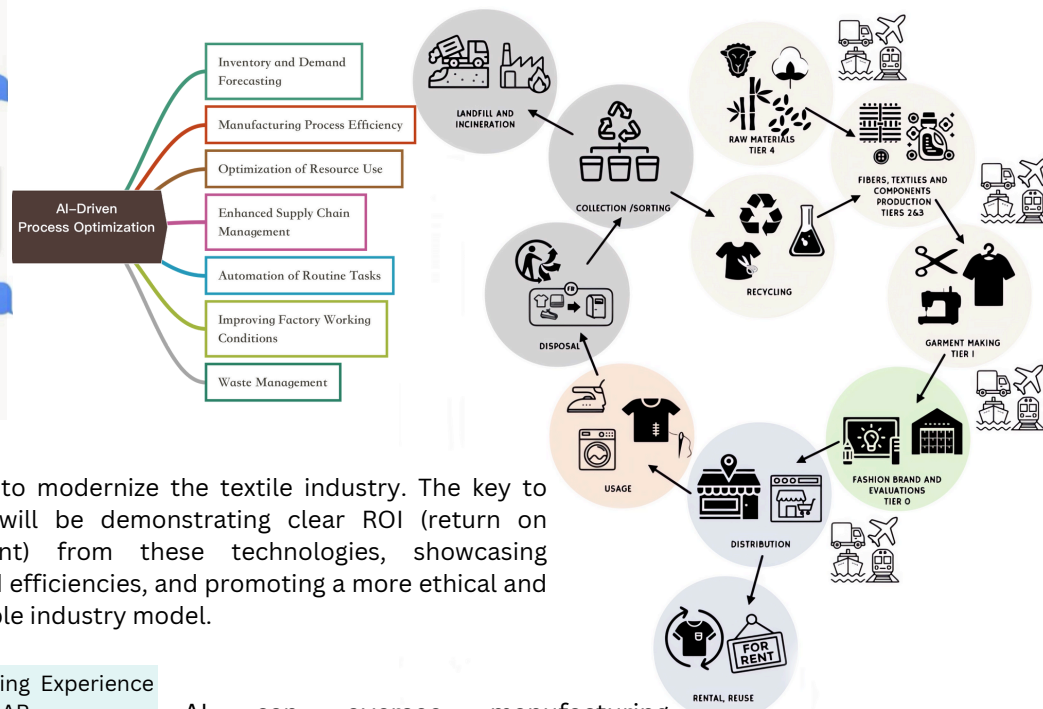
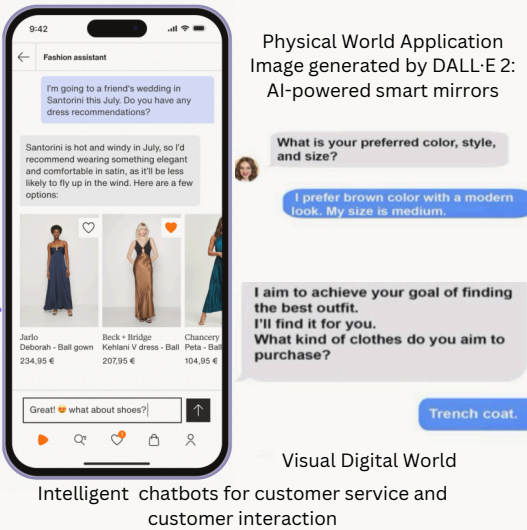


AI-DRIVEN INTEGRATION: ELEVATING CONSUMER EXPERIENCES AND ENABLING SUSTAINABLE PRODUCTION

WRITTEN BY: YIRUN WANG

Introduction

AI is gradually transforming the fashion industry, from data analytics and intelligent supply chain management to personalized and intelligent shopping experiences. **Generative AI**, in particular, has the potential to revolutionize the entire fashion value chain. AI seamlessly integrates with other cutting-edge technologies, such as **Virtual Reality (VR)**, **Augmented Reality (AR)**, **Blockchain**, and systems involved in **supply chain management**, **manufacturing processes**, and **waste management**, acting as a supplementary and optimization tool. This integration can significantly **enhance the digital transformation of the fashion business**, improving **operational efficiency**, **sustainability**, and providing **personalized, engaging shopping experiences** for consumers.



Applications

-Demand Side

AI Branches

Computer Vision(CV)

Natural Language Processing(NLP)

Machine learning

Personalized Shopping Experience with Gen AI, VR, and AR

- **Avatar creation**
- **Virtual World Construction**
- **User Interactivity**
- **Text/Audio understanding**

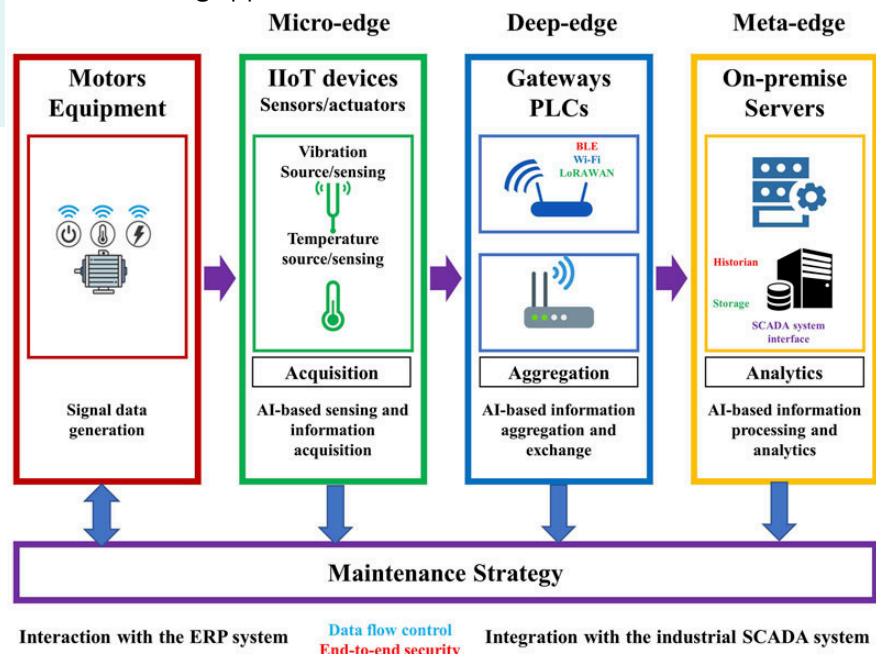
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AI can oversee manufacturing processes using sensors and machine learning to predict and prevent equipment malfunctions, optimize energy use, and ensure quality control. This results in fewer errors and reduced waste, promoting a more sustainable manufacturing approach.

Solutions

-Supply Side



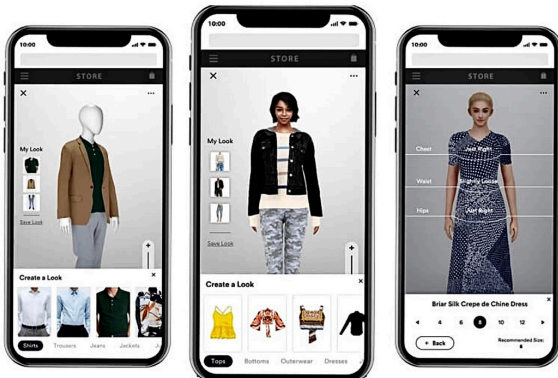
AI TECHNIQUES IN FASHION DESIGN: PRINCIPLES IN APPLICATION AND CURRENT DIFFICULTIES

WRITTEN BY: ZIYI WANG
26. APRIL. 2024

INTRODUCE

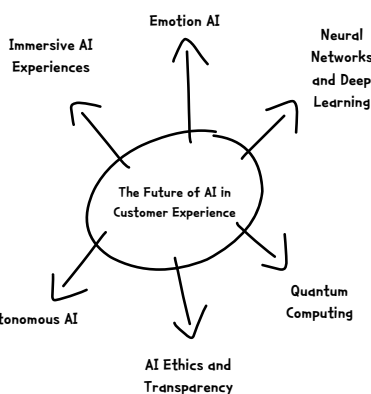
"From design to production and consumption, technology and artificial intelligence have had a significant impact on every aspect of fashion. Fashion has always been a forward-thinking phenomenon, willing to adopt emerging technologies. Artificial intelligence is no exception as it is evolving as fast as fashion." (Edit, 2020). And the integration of Artificial Intelligence (AI) has become a major catalyst for innovation and creativity in the dynamic field of fashion design.

VIRTUAL TRY-ON TECHNOLOGY



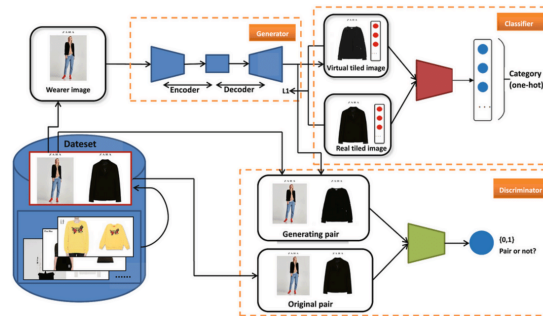
Virtual fitting experiences are becoming the new normal for online buyers (Maksym, 2024). These virtual fitting solutions not only bridge the gap between online and offline retail, but also increase convenience, reduce the probability of returns, and improve overall customer satisfaction.

OPTIMISING THE CUSTOMER EXPERIENCE



The customer experience has been taken to the next level with the personalised use of AI technology in the fashion industry, excellent engagement and a great sense of interaction (Jaby, 2023).

TECHNICAL SUPPORT

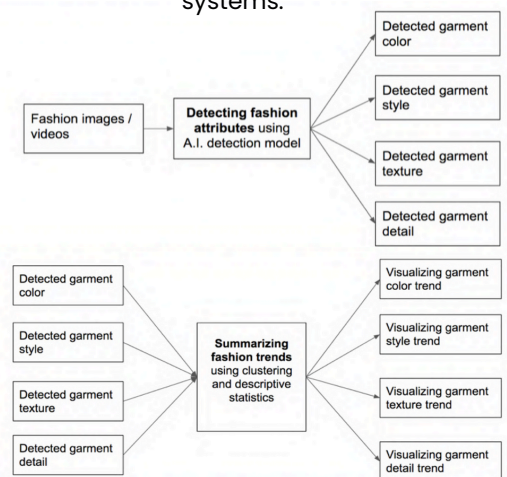


Willingness to pay is much higher for GAN-generated products. In addition, the highest assessments of functional value, emotional value and willingness to pay were found when GAN techniques were used but not disclosed (Sohn et al., 2020).

It consists of neurons that learn parameters such as weights as inputs pass through and reach the output (Seo and Shin, 2019). Convolutional neural networks (CNNs) play a crucial role in optimising visual recognition tasks in fashion design, revolutionising processes such as trend forecasting, image classification and style icon systems.

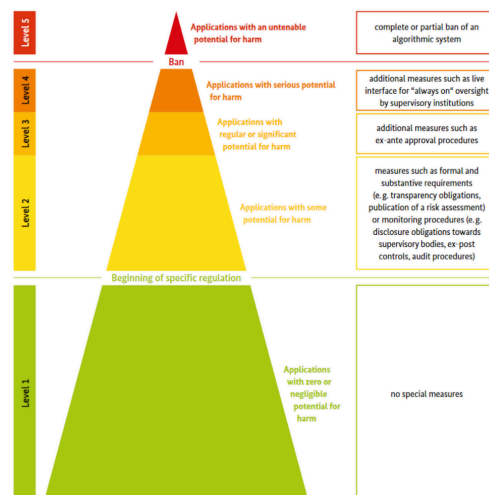
ARTIFICIAL INTELLIGENCE FOR FASHION TREND PREDICTION

This technology allows for the retrieval of images, videos and clothing shows by training AI to categorise and identify them, specific to patterns and more obvious fabrics (Shi, 2020). The AI model can analyse all images and provide a more comprehensive overview of all fashion trends in a more efficient way.



CHALLENGE

The less human oversight there is of AI systems, the more testing and governance will be required to ensure that systems produce accurate and reliable outputs (Scanlon, 2022). Not only do ethical aspects need to be considered, but also issues of privacy, algorithmic bias and human oversight. Fashion designers, data scientists, ethicists and policy customisers need to work together to improve the problems that AI currently faces as a whole.



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