SMART FASHION RECOMMENDER APPLICATION

INTRODUCTION

Clothing is a kind of symbol that represents people's internal perceptions through their outer appearance. It conveys information about their choices, faith, personality, profession, social status, and attitude towards life. Therefore, clothing is believed to be a nonverbal way of communicating and a major part of people's outer appearance. Recent technological advancements have enabled consumers to track current fashion trends around the globe, which influence their choices. The fashion choices of consumers depend on many factors, such as demographics, geographic location, individual preferences, interpersonal influences, age, gender, season, and culture. Moreover, previous fashion recommendation research shows that fashion preferences vary not only from country to country but also from city to city. The combination of fashion preferences and the abovementioned factors associated with clothing choices could transmit the image features for a better understanding of consumers' preferences. Therefore, analysing consumers' choices and recommendations is valuable to fashion designers and retailers. Additionally, consumers' clothing choices and product preference data have become available on the Internet in the form of text or opinions and images or pictures. Since these images contain information about people from all around the world, both online and offline fashion retailers are using these platforms to reach billions of users who are active on the Internet. Therefore, e-commerce has become the predominant channel for shopping in recent years. The ability of recommendation systems to provide personalized recommendations and respond quickly to the consumer's choices has contributed significantly to the expansion of e-commerce sales. According to different studies, e-commerce retailers, such as Amazon, eBay, and Shop style, and social networking sites, such as Pinterest, Snapchat, Instagram, Facebook, Chictopia, and Look book, are now regarded as the most popular media for fashion advice and recommendations. Research on textual content, such as posts and comments, emotion and information diffusion, and images has attracted the attention of modern-day researchers, as it can help to predict fashion trends and facilitate the development of effective recommendation systems. An effective recommendation system is a crucial

tool for successfully conducting an e-commerce business. Fashion recommendation systems (FRSs) generally provide specific recommendations to the consumer based on their browsing and previous purchase history. Social-network-based FRSs consider the user's social circle, fashion product attributes, image parsing, fashion trends, and consistency in fashion styles as important factors since they impact upon the user's purchasing decisions. FRSs have the ability to reduce transaction costs for consumers and increase revenue for retailers. With the exception of a single study from 2016 that focuses only on apparel recommendation systems, no current research presents recent advances in research on fashion recommendation systems. Therefore, the purpose of this paper is to present an integrative review of the research related to fashion recommendation systems. Moreover, Guan et al. cited research published until 2015. Therefore, the first objective of this paper is to review the most recent research published on this topic from 2010 to 2020. The previous study did not provide an in-depth analysis of the computational methods or algorithms corresponding to the fashion recommendation systems. This review study aims to fulfil this research gap and rigorously study the principles underlying, the methods used by, and the performance of the state-of-the-art fashion recommendation systems. To the best of our knowledge, this in-depth study is first of its kind. It includes research articles related to image parsing, clothing and body shape identification, and fashion attribute recognition, which are critical parts of fashion recommendation systems (FRSs). This review paper also provides a guideline for a research methodology to be used by future researchers in this field. The first section of this review discusses the history and background of FRSs. The second section presents a concise history and overview of recommendation systems. The third section aims to integrate the scholarly articles related to FRSs published in the last decade. The fourth section defines the metrics that are used by researchers to present and discuss recommendation results. The fifth section forms the major part of this review and focuses on various FRSs followed by different computational algorithmic models and recommendation filtering techniques used in fashion recommendation research. It will help researchers to understand these crucial parts of a FRS. The final section highlighted the existing challenges of using state-of-the-art recommendation systems followed by providing recommendations to overcome them and proposing a novel FRS based on the research findings discussed in section five. The study of the existing literature revealed that fashion recommendation systems have a huge impact on consumers' buying decisions. Hence, fashion retailers and researchers are exploring and developing state-of-the-art recommendation models to

improve the accessibility, navigability and consumers' overall purchasing experience. One of the prime elements that has been continuously researched in these articles was the improvement of existing and the development of new algorithms relevant to the filtering techniques. This review paper has identified state-of-the art algorithms and filtering techniques that have high potential to become more popular in the future. The sections of this paper are arranged in the order of the important FRS components, so that the reader can gain a substantial understanding of components such as algorithmic models before moving to other important components such as filtering techniques. This review paper will guide future aspirants to conduct further in-depth and innovative empirical research on fashion recommendation systems.

LITERATURE REVIEW:

[1]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
JULY -2021	Fashion recommendation systems – models,methods	Samit Chakraborty	https://www.mdpi.com/2227-9709/8/3/49/pdf-vor

This paper will help researchers,academics, and practitioners who are interested in machine learning, computer vision, and fashion retailing to understand the characteristics of the different fashion recommendation systems.

[2]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
Nov-2021	A review of AI application in the fashion and apparel industry	Seyed omid mohammaadi	fashion recommendation

These visual characteristics of the image are used as input conditions for the query system, and a result the system will recommended nearest images and data set. This research designs and implements two-stage deep learning-based model that recommends a clothing fashion style. This model can use deep learning approach to extract various attributes from images with clothes to learn the user's clothing style and preferences. These attributes are provided to the correspondence model to retrieve the contiguous related images for recommendation.

[3]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
Jan-2021	Image based fashion recommendation system	Shaghayegh shirkhani	Image recommendation

Fashion is perceived as a meaningful way of self-expressing that people use for different purposes. It seems to be an integral part of every person in modern societies, from everyday life to exceptional events and occasions. Fashionable products are highly demanded, and consequently, fashion is perceived as a

desirable and profitable industry. Although this massive demand for fashion products provides an excellent opportunity for companies to invest in fashion-related sectors, it also faces different challenges in answering their customer needs. Fashion recommender systems have been introduced to address these needs.

[4]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
Apr-2018	Outfit recommendation system	Nikitha ramesh	https://core.ac.uk/download/pdf/159401019.pdf

The online apparel retail market size in the United States is worth about seventy-two billion US dollars. Recommendation systems on retail websites generate a lot of this revenue. Thus, improving recommendation systems can increase their revenue. Traditional recommendations for clothes consisted of lexical methods. However, visual-based recommendations have gained popularity over the past few years. This involves processing a multitude of images using different image processing techniques. In order to handle such a vast quantity of images, deep neural networks have been used extensively.

[5]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
Feb-2022	Review of modern recommender system	Fatemeh nazary	https://arxiv.org/pdf/2202.02757

Recommender systems help users navigate large collections of products to find items relevant to their interests leveraging large amounts of product information and user signals like product views, followed or ignored items, purchases or web-page visits to determine how, when and what to recommend to their customers. Recommender systems have grown to be an essential part of all large Internet

retailers,In this work we are interested in recommender systems that operate in one particular vertical market: garments and fashion products.

[6]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
May-2015	Clothing fashion style recommender system	Wei dai	Clothing fashion

This thesis proposes a clothing recommendation system that can recommend clothing images based on the fashion style of the provided clothing images. In this work, we focus on the images of upper body clothing and with human model in the images.In the first part, we present a clothing dataset collected from Internet containing 27,375 men's and women's clothing images of 11 clothing categories. We develop a recommendation system that can differentiate fashion categories of query images.

[7]

DATE OF PUBLICATION	PAPERNAME	AUTHOR NAME	LINK
Jun-2017	FASHION RECOMMENDER SYSTEM	Adres kolstad	Fashion clothing

With increasingly low prices on clothes and a tremendous interest in fashion, results in that people's wardrobes keep piling up. This causes people to struggle with daily selection of an outfit that includes clothing items that are matching and that suits the day's weather. Moreover, the environmental sustainability could benefit from people recycling their textile waste. This thesis investigates how exploiting new technologies, such as Big Data, recommender systems, semantic web, and Internet of Things can guide people in organizing their wardrobes more

efficiently.The thesis proposes the architecture of a system consisting of a smart closet where the usage history of the user's clothing items can be tracked using RFID technology.

[8]

DATE OF PUBLICATION	PAPER NAME	AUTHOR NAME	LINK
Mar-2011	Recommender system handbook	Francesco ricci	Recommender system

Recommender Systems (RSs) are software tools and techniques providing suggestions for items to be of use to a user [60, 85, 25]. The suggestions relate to various decision-making processes, such as what items to buy, what music to listen to, or what online news to read."Item" is the general term used to denote what the system recommends to users.A RS normally focuses on a specific type of item (e.g., CDs, or news) and accordingly its design, its graphical user interface, and the core recommendation technique used to generate the recommendations are all customized to provide useful and effective suggestions for that specific type of item.