SMART FASHION RECOMMENDATION SYSTEM

ABSTRACT:

The chore of getting outfits that are appropriate for a particular user or identifying complementary goods given a query garment is frequently declined as fashion advice. We have developed a brand-new, ground-breaking method that enables you to conduct online shopping according to your preferences without conducting any research. The chatbot can be used to accomplish this. Nowadays, more and more individuals are interested in fashion. However, because there are so many different types of clothing, customers must try them on frequently, which takes considerable time and effort. Additionally, retailers find it challenging to meet consumer demand in real time. The photos of the upper body and lower body garments, as well as the human model, are the main emphasis of this work. This multi-label hierarchical application-based classification of studies raises the profile of ongoing research, advances the discipline, offers guidance for future study, and makes it easier to find related studies. The outcomes of this experimental model are better than those of the earlier systems.

INTRODUCTION:

Online buying has expanded over the past few years. The entire e-commerce revenue in Europe increased by 17% in 2013 compared to the previous year, and large companies sometimes have thousands of products, if not more, available for us to choose from online. The most significant factor that people should think about every day is clothing. People want to look beautiful, as seen by the abundance of social media platforms like Facebook and Instagram where they can display their fashion photographs to the world. While standard factors like pricing, delivery, and payment methods still apply in this type of online transaction, their influence seems to be somewhat less than usual. Utilizing suggestions makes it easier and more enjoyable for customers to browse an online store.

This study looked at how photographs could be utilised to anticipate fashion trends and make online fashion suggestions. This research article reviewed the pertinent studies in order to achieve this goal. Additionally, it summarised the research designs of these academic articles after analysing them, and this will serve as a reference for future researchers who want to undertake research in this area.

The major goal of this study is to:

• Create a fashion recommendation system that provides responses to questions about shopping for clothing.

• To determine the fashion category of the supplied input photograph.

• If the fashion image provided is accurate, then a similar ensemble of apparel will be suggested.

• Getting products from various e-commerce websites that were found through comparable search terms.

LITERATURE SURVEY:

TITLE : A Trends-Driven collaborative fashion recommendation system.
YEAR: 2019
AUTHOR: Maria Anastassia Stefani, Vassilios Stefanis, John Garofalakis

ABSTRACT:
Fashion has a great impact in everyday life and therefore, people pay close attention to the way they dress. Fashion item recommendation is typically a manual, curated process, where experts recommend items and trends to large populations. However, there is increasing use of automated, personalized recommendation systems, which have valuable applications in e-commerce websites. In this paper, we propose a collaborative fashion recommendation system, called CFRS. Apart from classic features, we propose a new metric, called trend score. Trend score shows how trendy a product is and is calculated taking into account the ratings provided by CFRS users (fashion experts and registered users). In particular, users rate (like/ dislike scale) current trends about colors, prints and materials. Finally, trend score is used a) for sorting products of each category from trendiest options to classic ones and b) to recommend trendy products from different clothing categories.

ADVANTAGES:
We developed a new metric, the trend score, which is crucial to how the system functions.

DISADVANTAGES:
In partnership with industry professionals, we want to use data from an online fashion store to assess how well our system performs in practise.

TITLE : What dress fits me best? fashion recommendation on the clothing style for personal body shape.
YEAR: 2019
AUTHOR: Shintami Chusnul Hidayati , Cheng-Chun Hsu, Yu-Ting Chang, Kai-Lung Hua, Jianlong Fu, Huang Cheng

ABSTRACT:
Clothing is an integral part of life. Also, it is always an uneasy task for people to make decisions on what to wear. An essential style tip is to dress for the body shape, i.e., knowing one's own body shape (e.g., hourglass, rectangle, round and inverted triangle) and selecting the types of clothes that will accentuate the body's good features. In the literature, although various fashion recommendation systems for clothing items have been developed, none of them had explicitly taken the user's basic body shape into consideration. In this paper, therefore, we proposed a first framework for learning the compatibility of clothing styles and body shapes from social big data, with the goal to recommend a user about what to wear better in relation to his/her essential body attributes. The experimental results demonstrate the superiority of our proposed approach, leading to a new aspect for research into fashion recommendation.

ADVANTAGES:
Additionally, we demonstrated how a wealth of stylish celebrity data that is readily accessible online can be used, modelled, and examined to offer fashion styling advice.

DISADVANTAGES:
The system can recommend the most fashionable and well-fitting daily attire by using additional personal information from the user.

TITLE : Fashion Recommendation System using CNN.

YEAR: 2022

AUTHOR: Anjan M, Abhishek V, C.Balamanikantan, Dheeraj , Dr. Venugeetha Y.

ABSTRACT:

Recommendation systems are the techniques that are used to predict the rating one individual will give to an item or social entity. The items can include books, movies, restaurants and things on which individuals have different preferences. These preferences are being predicted using two approaches first content-based approach which involves characteristics of an item and second collaborative filtering approaches which considers user's past behaviour to evaluate its choices. This thesis proposes a fashion recommendation system which will recommend clothing images supported the style sort of the provided clothing images. In this work, we focus on the images of upper body as well as the lower body clothing and with human model in the images. We have created our own datasets through web scrapping of different e-commerce websites. In this paper we have come up with an idea to build a content-based recommendation system using ResNet-50 convolutional neural network.

ADVANTAGES:

It enables marketers to instantly offer customers pertinent product recommendations.

DISADVANTAGES:
The engine is capable of making intelligent decisions regarding which algorithms and filters to use for each specific circumstance and shopper.

TITLE : Outfit recommendation system based on deep learning.
YEAR: 2017
AUTHOR: Ying Huang a, Tao Huang b

ABSTRACT:

In this paper, we propose an outfit recommendation system based on deep learning. Our goal is to use the system not only to judge an outfit if it is good or not but also to recommend good outfit to users when it is given a pool of cloth items. Our proposed model includes two parts: one is feature extractor based on ResNet-50, and the other is a binary classifier which is to classify the outfits into good ones and bad ones. Since our model is based on deep learning, it is necessary to use huge data to train the model. We collected a dataset which consists of 409,776 outfits with 644,192 items from the famous fashion website called Polyvore.com. With this dataset, we trained our model and the performance of it is over 84%. And our model can also recommend daily outfit to users.

ADVANTAGES:
ResNet is used as a feature extractor in the model we suggested, while a 2-layer MLP serves as a binary classifier. We focused on training our binary classifier because the ResNet was already well-trained.

DISADVANTAGES:
The 4096-fully-connected model performs the best out of numerous impractical models that we tested.With great performance, our model can evaluate if an outfit is good or awful.

TITLE : A Comprehensive Review on image based style prediction and online fashion recommendation.

YEAR: 2020

AUTHOR: Samit Chakraborty1∗ ID, Md. Saiful Hoque2 , S.M. Surid3

ABSTRACT:

Image analysis, processing, classification, and segmentation have become pivotal in style prediction and fashion recommendation. Fashion retailers have shown an increasingly growing interest in adopting this branch of artificial intelligence in their supply chains. Computer scientists and engineers have published several scholarly works on this topic since the last decade. Based on the previous studies, this is the first academic paper that has presented comprehensive review on this topic. These scholarly articles are related to imagebased style prediction and online fashion recommendation. This is a form of method paper that illustrates research designs of the selected articles and research methods used by the researchers. Both style prediction and online fashion recommendation have been reviewed together in this paper, because study on recommendation system can facilitate an easy understanding of fashion style prediction and vice versa. Finally, the study will be helpful for fashion retailers and future researchers to understand the nature of style prediction and online fashion recommendation using image processing technique. The scientific contribution of this paper is that it has proposed a novel approach of reviewing research methods used in style prediction and fashion recommendation systems. Additionally, the article has also proposed a personalized recommendation model for the image-based fashion recommendation system.

ADVANTAGES:

The majority of image analysis studies use quantitative methods and entail creating an experimental model using convolutional neural networks(CNN).

DISADVANTAGES:
More studies need to be done on social media images because they differ from celebrity shots with high pixel counts and bright backgrounds in terms of resolution and technological aspects.

TITLE : Design and implementation of clothing fashion style recommendation system using deep learning.
YEAR: 2021
AUTHOR: Muhammad KHALID1 , Mao KEMING1 , Tariq HUSSAIN2

ABSTRACT:
In recent years, the huge amount of information and users of the internet service, it is hard to know quickly and accurately what the user wants. This phenomenon leads to an extremely low utilization of information, also known as the information overload problem. Traditionally, keywords are used to retrieve images, but such methods require a lot of annotations on the image data, which will lead to serious problems such as inconsistent, inaccurate, and incomplete descriptions, and a huge amount of work. To solve this problem, Content Based Information Retrieval (CBIR) has gradually become a research hotspot. CBIR retrieves picture objects based entirely on the content. The content of an image needs to be represented by features that represent its uniqueness. Basically, any picture object can be represented by its specific shapes, colors, and textures. 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. Based on data-driven, this thesis uses convolutional neural network as a visual extractor of image objects. This experimental model shows and achieves better results than the ones of the previous schemes.

ADVANTAGES:
We built the model of stacked CNN to predict the features relevant to these attributes after laboriously preprocessing and cleaning the data in a dataset.We then trained the models with the dataset to produce precise predictions for practically all types of photos.

DISADVANTAGES:
The final examination to determine whether deep learning for style recovery is at a high development and may be applied in selecting clothing.

TITLE : Fashion Evaluation Method for Clothing Recommendation Based on Weak Appearance Feature**.**

YEAR: 2017

AUTHOR: YanZhang,1,2 Xiang Liu,1 Yunyu Shi,1 Yunqi Guo,3 ChaoqunXu,3 Erwen Zhang,4 JiaxunTang,1 and Zhijun Fang1

ABSTRACT:

With the rapid rising of living standard, people gradually developed higher shopping enthusiasm and increasing demand for garment. Nowadays, an increasing number of people pursue fashion. However, facing too many types of garment, consumers need to try them on repeatedly, which is somewhat time- and energy-consuming. Besides, it is difficult for merchants to master the real-time demand of consumers. Herein, there is not enough cohesiveness between consumer information and merchants. Thus, a novel fashion evaluation method on the basis of the appearance weak feature is proposed in this paper. First of all, image database is established and three aspects of appearance weak feature are put forward to

characterize the fashion level. Furthermore, the appearance weak features are extracted according to the characters' facial feature localization method. Last but not least, consumers' fashion level can be classified through support vector product, and the classification is verified with the hierarchical analysis method. The experimental results show that consumers' fashion level can be accurately described based on the indexes of appearance weak feature and the approach has higher application value for the clothing recommendation system.

ADVANTAGES:

Makeup, accessories, and hair colour are excellent indicators of a consumer's fashion sense. The support vector product is utilised in the paper to define and categorise the fashion level model.

DISADVANTAGES:
The accuracy is more than 92%, and consumers' fashion level is accurately classified. As the accuracy is only 92.3 ,it can be developed based on any other algorithm to maintain accuracy more than 95 .

TITLE : Smart fashion:A review of AI application in virtual drive-on & fashion sysnthesis.
YEAR: 2021
AUTHOR: Seyed Omid Mohammadi1 , Ahmad Kalhor2

ABSTRACT:
The rapid progress of computer vision, machine learning, and artificial intelligence combined with the current growing urge for online shopping systems opened an excellent opportunity for the fashion industry. As a result, many studies worldwide are dedicated to modern fashionrelated applications such as virtual try-on and fashion synthesis. However, the accelerated evolution speed of the field makes it hard to track these many research branches in a structured framework. This paper presents an overview of the matter, categorizing 110 relevant articles into multiple sub-categories and varieties of these tasks. An easy-to-use yet informative tabular format is used for this purpose. Such hierarchical application-based multi-label classification of studies increases the visibility of current research, promotes the field, provides research directions, and facilitates access to related studies.

ADVANTAGES:
This article provides some insight into many systems-related applications, chronicles the evolution of the field's study across time, and highlights its explosive development.

DISADVANTAGES:
The performance of the systems in comparison to human capabilities is one major problem.

TITLE : Fashion recommendation system, model and methods: A Review.
YEAR: 2021
AUTHOR: Samit chakraborty, Md.Saiful Hoque, Naimur Rahman Jeem , Manik Chandra Biswas, Deepayan Bardhan , Edgar Lobaton

ABSTRACT:
In recent years, the textile and fashion industries have witnessed an enormous amount of growth in fast fashion. On e-commerce platforms, where numerous choices are available, an efficient recommendation system is required to sort, order, and efficiently convey relevant product content or information to users. Image-based fashion recommendation systems (FRSs) have attracted a huge amount of attention from fast fashion retailers as they provide a personalized shopping experience to consumers. With the technological

advancements, this branch of artificial intelligence exhibits a tremendous amount of potential in image processing, parsing, classification, and segmentation. Despite its huge potential, the number of academic articles on this topic is limited. The available studies do not provide a rigorous review of fashion recommendation systems and the corresponding filtering techniques. To the best of the authors' knowledge, this is the first scholarly article to review the state-of-the-art fashion recommendation systems and the corresponding filtering techniques. In addition, this review also explores various potential models that could be implemented to develop fashion recommendation systems in the future. 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.

ADVANTAGES:
Based on scholarly literature on the subject, this report reviewed fashion recommendation systems,algorithmic models, and filtering strategies.

DISADVANTAGES:
Additionally, in order to create a useful recommendation system, future research should focus on incorporating time series analysis and precise categorization of product photos based on variations in colour, trend, and clothing style.

TITLE : Fashion Remcommendation Based on Style and Social Events**.**

YEAR: 2021

AUTHOR: Federico Becattini, Lavinia De Divitiis, Claudio Baecchi and Alberto Del Bimbo.

ABSTRACT:

Fashion recommendation is often declined as the task of finding complementary items given a query garment or retrieving outfits that are suitable for a given user. In this work we address the problem by adding an additional semantic layer based on the style of the proposed dressing. We model style according to two important aspects: the mood and the emotion concealed behind color combination patterns and the appropriateness of the retrieved garments for a given type of social event. To address the former we rely on Shigenobu Kobayashi's color image scale, which associated emotional patterns and moods to color triples. The latter instead is analyzed by extracting garments from images of social events. Overall, we integrate in a state of the art garment recommendation framework a style classifier and an event classifier in order to condition recommendation on a given query.

ADVANTAGES:

To train a style classifier that we utilised to filter the output of a memory network-based garment recommender we benefited from Kobayashi's work.

DISADVANTAGES:
A range of outfit styles that are appropriate with the inquiry garment are suggested by the recommendation system, according to experiments, which also demonstrate that our system can generalise about colour trends and social occasions.