IDEATION PHASE

LITERATURE SURVEY

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Team ID	PNT2022TMID52571
Project Name	Smart Fashion Recommender Application

PAPER 0:

"A Review of Modern Fashion Recommender Systems" - YASHAR DELDJOO∗ ,
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Abstract:

The textile and apparel industries have grown tremendously over the last years. Customers no
longer have to visit many stores, stand in long queues, or try on garments in dressing rooms
as millions of products are now available in online catalogs. However, given the plethora of
options available, an effective recommendation system is necessary to properly sort, order,
and communicate relevant product material or information to users. Effective fashion RS can
have a noticeable impact on billions of customers' shopping experiences and increase sales
and revenues on the provider-side. The goal of this survey is to provide a review of
recommender systems that operate in the specific vertical domain of garment and fashion
products. We have identified the most pressing challenges in fashion RS research and created
a taxonomy that categorizes the literature according to the objective they are trying to
accomplish (e.g., item or outfit recommendation, size recommendation, explainability, among
others) and type of side-information (users, items, context). We have also identified the most
important evaluation goals and perspectives (outfit generation, outfit recommendation,
pairing recommendation, and fill-in-the-blank outfit compatibility prediction) and the most
commonly used datasets and evaluation metrics.

ADVANTAGES:

- Provides an overall view on the existing smart recommender models.
- Proof that an RS is a potential pool of more innovation.

PAPER 1:

Fashion recommendation system using CNN 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:

- Supports large catalogues using machine learning and specialized algorithms.
- Able to intelligently select which algorithms and filters to apply in any given situation, for any given individual shopper.

PAPER 2:

"Smart Fashion: A Review of AI Applications in Virtual Try-On & Fashion Synthesis" - Seyed Omid Mohammadi, Ahmad Kalhor

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:

- Tracks the research progress through the years, and illustrates the field's rapid growth.
- Virtual try-on is a highly active field, primarily due to its potential application in the online fashion retail industry and also offline intelligent software packages used in clothing stores.

PAPER 3:

"Clothing Fashion Style Recommendation System" by Wei Dai

Abstract:

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. We propose a framework that divides the system into three decoupled and autonomous components in order to provide a highly flexible and extensible system. Then we describe an implementation of this framework on a Linux server. To demonstrate this clothing recommendation system we also develop two user interfaces, including a Web Application and an iOS App. Lastly, we discuss the approaches to secure the system and user privacy. We set up a Demo of this clothing recommendation system running on iPhone, which can achieve promising results within 5 seconds.

ADVANTAGES:

- People can easily take of photo of the appealing clothes they saw on magazine, web page or even street, then get the recommended clothing with similar fashion and style in seconds.
- People can even directly link to the online shopping website to purchase if they like it
- This is a well-designed framework for long term maintaining and upgrading

PAPER 4:

Design and implementation of clothing fashion style recommendation system using deep learning - Mohammad Khalid,Maokeming,Tariq Hussain - 2021

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:

- Implementing an already existing CNN model with transfer learning for cloth image recognition using different libraries.
- Offers us a score dependent on the wide assortment of component matches - the higher the score the nearer an image is to the individual's style profile.

POINTS TO FOCUS ON:

- Systems' performance compared to human abilities
- Applicability of methods regarding computational effort and energy efficiency.
- Definition of a well-structured and uniform objective metric to assess the results