

ABSTRACT

In the world of *fashion*, choosing the right *outfit* not only enhances one's appearance but also reflects one's personality and suitability for the occasion. The problem that arises is the abundance of *outfit* options across various categories, colors, and event types, which often makes it difficult for users—especially women—to make the right choice. This study aims to develop a women's *outfit* recommendation system based on images, considering three main dimensions: *outfit* category, dominant color, and event type. The system is built using a content-based filtering approach that combines the ResNet50 deep learning architecture for classification and visual feature extraction, along with the cosine similarity method to calculate similarity between *outfit* images. The dataset used consists of 12,970 images of women's *outfits* categorized hierarchically based on *outfit* category type (accessories, bottomwear, dress, outerwear, shoes, and upperwear), dominant color (earth, feminine, and monochromatic), and event type (casual, formal, sport). The ResNet50 model is used to build three separate classification models and generate 2048-dimensional embedding vectors from each image. The recommendation process is carried out by calculating the cosine similarity between the input image vector and the image vector in the database, so that the system can provide *outfit* recommendations that are visually similar and relevant to the predicted context. The test results show that the *outfit* category classification model achieved an accuracy of 96%, the color classification model achieved an accuracy of 91%, and the event classification model achieved an accuracy of 84%. Additionally, the recommendation system generated a mean average precision evaluation score of 0.9212, indicating that the system is capable of providing relevant and targeted recommendations. This research contributes to the development of contextual and visually-based *fashion* recommendation systems.

Keywords: recommendation system, women's *outfits*, ResNet50, content-based filtering, cosine similarity, image classification