Topic: Fashion Apparel Detector with Additional Features

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Abstract
This paper comprises a project proposal for the course, “Fundamentals of Artificial Intelligence”. In a team of two people, we have decided that we are going to build a fashion apparel detector with additional features such as pattern detection and color detection along with clothing items/accessories detection.

Motivation
Our motivation for this project came from a concern we had while shopping for clothes online. We had a picture of a person wearing jeans and a t-shirt but we were unable to find these specific items (with the same design and color) and that made us wonder if we could build a fashion apparel detector, it could be so helpful for users. Something that we wanted to consider was that not all pictures are perfect, so we had to train our model in a way that it can identify clothing items/accessories from almost any kind of picture - or at least it would tell you what type of top/bottom is the person wearing in the picture.

Significance
One of the most important uses of AI and computer vision technology for developing effective recommendation systems is Fashion apparel detection. The implementation of this model would benefit most fashion businesses on bridging the gap between online and in-store buying as well as achieving a competitive advantage by establishing efficient procedures and providing a smooth shopping experience to their clients, reflecting on increasing profitability**.**

Objectives
The fashion detector model will be developed by getting the clothing dataset that is available online, splitting the data into training and testing sets to train our model, and finally evaluating the model's accuracy. Then, the features of pattern detection, color detection, and clothing accessories detection are created, and then training our model for each feature, evaluating their performance, and testing the model for detecting the clothes' types, colors, and patterns.

Features
As mentioned above, this program will be able to detect fashion items such as t-shirts, jeans, trousers, shoes, caps, etc. It is well understood that there are similar projects that exist on the internet but to make our project a bit different, we are going to add extra features such as clothing pattern detection and clothing color detection. The model will be trained in a way so that the accuracy is at least 90%. We are going to get some random pictures from the internet as well to test how our program acts when given a “less professional” picture.

Dataset: Yolo v5 clothing dataset
Github Link: https://github.com/AsmaaAlghamd1/CSCE---Fundamentals-of-AI

References

Sukkar, M., Kumar, D., & Sindha, J. (2021, July). Real-Time Pedestrians Detection by YOLOv5. In *2021 12th International Conference on Computing Communication and Networking Technologies (ICCCNT)* (pp. 01-06). IEEE.