

Fashion and Apparel Classification

Guided by-
Prof Dr. Pravin Futane Sir



PROBLEM STATEMENT

DEVELOP AN AI-BASED PRODUCT THAT WILL HELP CUSTOMERS TO KNOW THE EXACT NAME AND RELATED KEYWORDS OF THE PRODUCT.



Domain : Fashion

Overview

In this project, we have attempted to solve the challenge that the e-commerce fashion business is facing. The issue is that the customer may not always know the correct keywords to use when searching for or describing the item he is looking for.

To address this problem, a deep learning-based Convolutional Neural Network (CNN) model was created to classify fashion apparel images. The model was trained on the Fashion Product Images (Small) dataset which consists 44k-image. After that, we deployed this model into a FastAPI web application that can categorize various apparel images uploaded by users.



IMPLEMENTATION



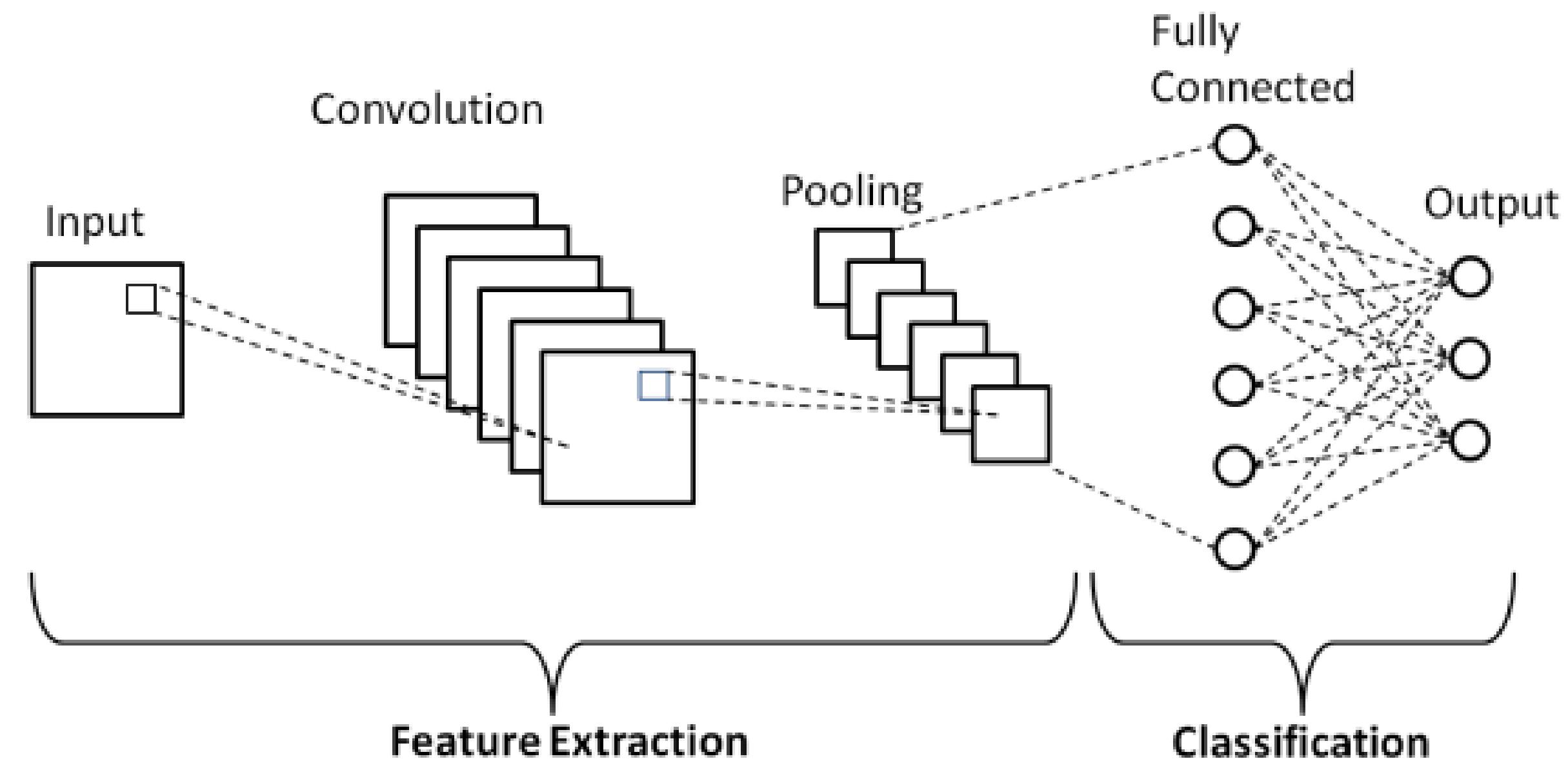
Data
Gathering

Data
Preprocessing

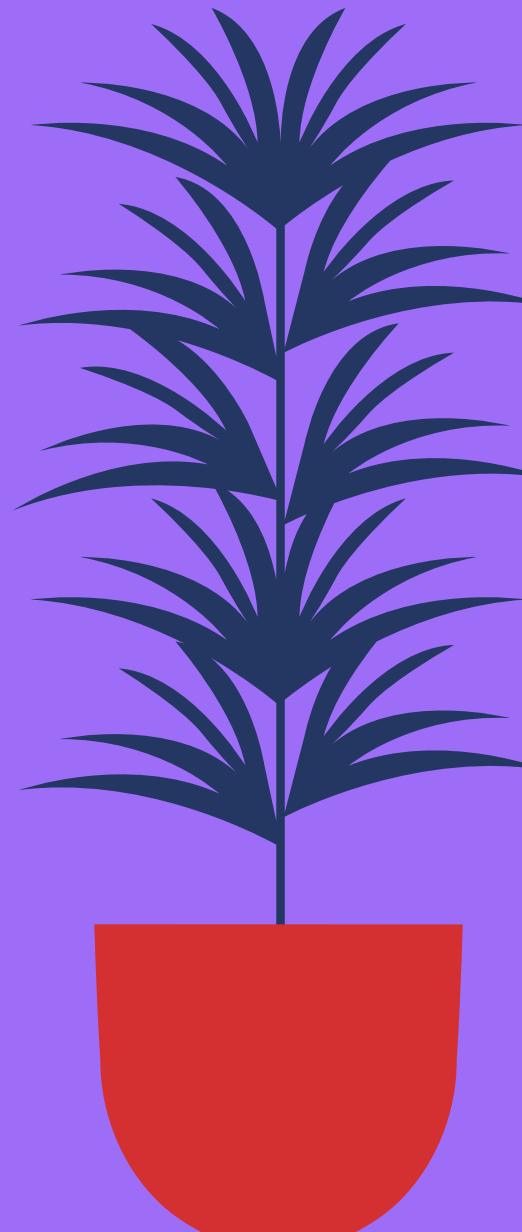
Model
Building

Deploying
Model

CONVOLUTIONAL NEURAL NETWORK (CNN)



CNN ARCHITECTURE



Convolutional Layers (Feature Extraction)

Conv2D(32,(3,3), activation = 'relu')

MaxPooling2D(pool_size=(3, 3))

Flatten()

Fully Connected Layers (Classification)

Dense(units=32,activation = 'relu')

Dense(units=64,activation = 'relu')

Dense(units=128,activation = 'relu')

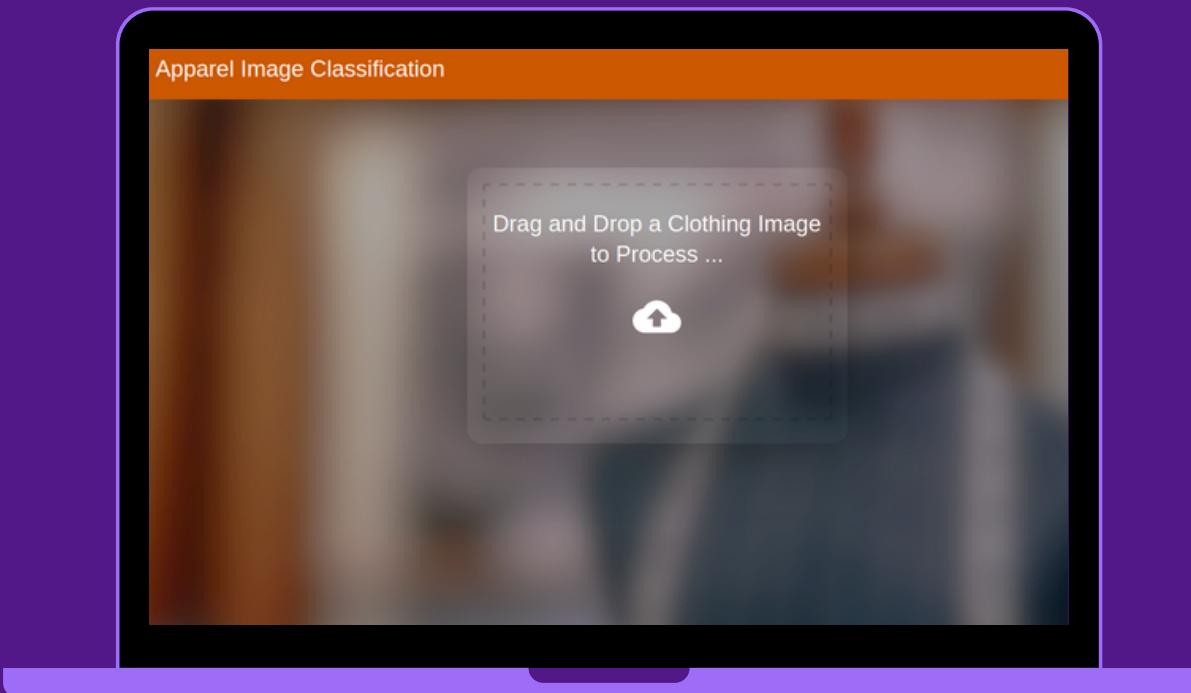
Dense(units=256,activation = 'relu')

Dense(units=256,activation = 'relu')

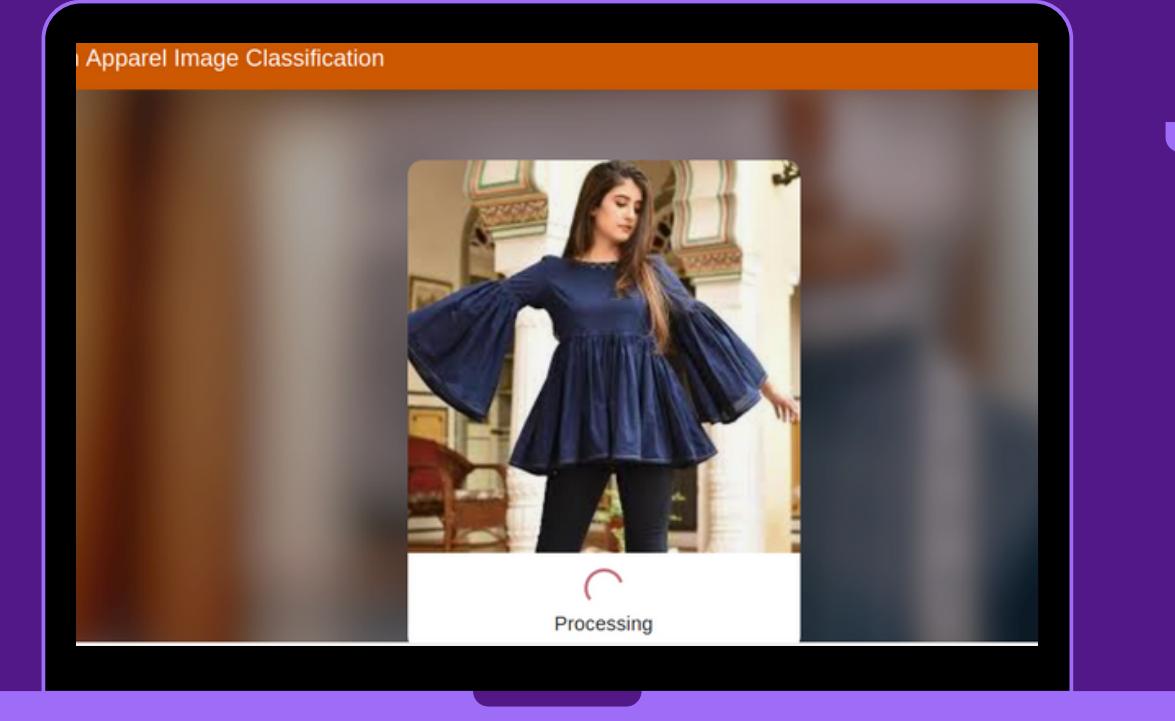
Dense(units=6,activation = 'softmax')

This model was capable of attaining accuracy of 85% during testing.

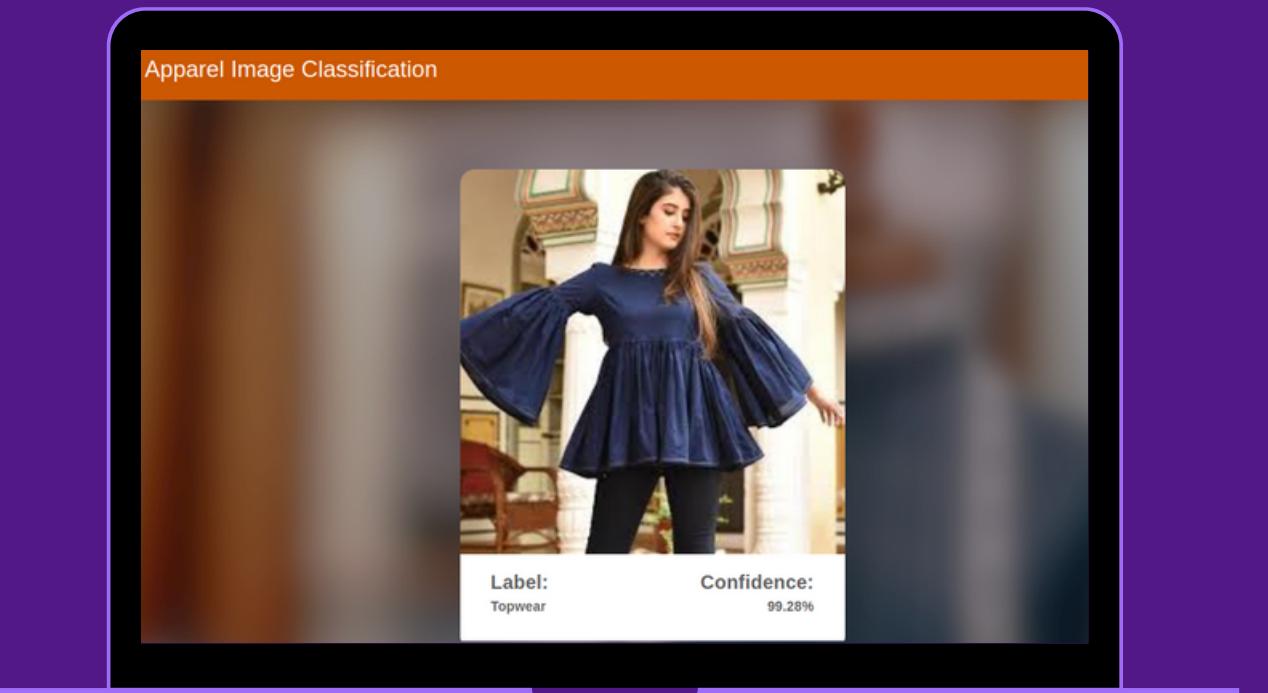
HOW IT WORKS



1. Drag and Drop any clothing image in the given box.
2. The web application will send the uploaded image to FastAPI backend.



3. The pre-trained deep learning model will classify the image among 6 different classes namely, Bottomwear, Kurti, Loungewear and Nightwear, One Piece Dress, Saree, Topwear.



4. The predicted class of the image with confidence will be returned by the backend API.
5. The result will be displayed to user.

FEATURES



Image to Text

The exact name are displayed which can be further used on other platforms as well.



Convenience

Mimic your favorite influencer or celebrity's style from social media.



User-friendly

Easy to use and responsive UI. Drag and Drop functionality to upload pictures.

FUTURE SCOPE

Natural Language Processing (NLP) techniques like word2vec can be integrated with the CNN model to predict text content from visual data. This can help sellers improve their experience while listing products on the site. Sellers can upload images of their fashion items, and image-to-text machine learning algorithms will automatically generate appropriate tags to categorize them. This can help to eliminate product labeling mistakes, which can have a negative impact on demand because the products may not be shown appropriately in search results.

MEET OUR TEAM

Riddhi Pawar
332070

Anand Shirole
332059

Namrata Thakur
332068

Ishank Sharma
332057

Ekta Mulkalwar
332039