

Proposal: Project Computer Vision

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Abstract

Computer Vision for improving the Cloth E-Commerce experience

Nowadays E-Commerce is very popular for big companies and people who want to sell their products around the world. This way of trading has also been boosted thanks to Covid-Pandemic. Our goal is to provide a platform to make the "Made in Italy" excellencies easier to buy worldwide without losing product quality. In this project we want to develop an application to improve the cloth trading. Thinking about this type of goods, the main problem every customer encounter is in guessing the right size and how the dress would fit once received. The idea is to develop a pipeline to understand, from a picture, what a person is wearing and what he/she would like to wear. The first step is retrieving and classifying its clothes. The second step is to extract a feature vector from the clothes and provide some recommendation on what he/she would like according to similar items in our dataset. For the last step, the goal is to apply geometric transformations to our recommended clothes pictures to fit them on our customer body to see how the product fits.

1 Pipeline

1.1 Image Processing

- Applying some filters on the image
- Person and clothes segmentation

1.2 Geometry Algorithm

- Finding body measures and the right dress size.
- Modifying the person picture to extract clothes correctly.
- Modelling data set pictures to fit them on our customer

1.3 Retrieval Algorithm

- *Identifying people parts(body, head, legs...)*
- Clothes retrieving and classification.
- *Template matching to find the clothes brands*

1.4 Neural Networks and Deep Learning

- Classifying principal items(*dress, t-shirt, trousers, shoes e accessories*)
- Suggesting similar clothes starting from the wore ones.
- Developing a network to overlap people and clothes pictures.

1.5 Dataset

Our idea was also born from the possibility presented by Prof. Cucchiara during the lesson, to be able to work on a dataset held by the university suitable for those kind of projects. We are kindly asking to work on those data to develop our idea.

2 Why we select this project

We are proposing these idea since we think it covers the pipeline given as guide line and, as soon as it works, it would solve an actual problem.