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Final Project Summary

Classification of Clothing Items

Clothing is a very important part for most people. A lot of people today have turned to online shopping in order to browse or buy clothes. Therefore there is a huge demand to online clothing stores. For online retailers, being able to correctly tag a piece of item with the correct label helps them organise their catalog. This in turn allows customers to filter the website and look at the labels they are interested in, instead of having to scroll the website thereby vastly improving their shopping experience.

In this project, I use image classification to detect images of clothing. Image classification is the process by which we are asked to predict a categories for a set of test images and measure the accuracy of the images, given the a set of images which are labeled with those categories. Instead of specifying what each of the image category looks like in the code, we provide the computer with many images of that type of category and then develop learning algorithms that look at these images and learn about the visual appearances.

I use a Convolutional Neural Network (CNN) in order to train the model to classify the images. In a CNN instead of feeding the image as an array of numbers, the image is broken up into a number of tiles. The machine then tries to predict the image based on the prediction of all the tiles.

For this project, I use the Fashion MNIST dataset. It consists of 70,000, 28x28 pixel grey-scale images derived from the online retailer Zalando. It consists of 10 different labels of the fashion items. Each image is annotated with the label indicating the correct type of clothing item/accessory. This dataset promises to be more diverse so that the model has to be more advanced to correctly classify the images.

Using this modal, I am getting a accuracy of about ~91%. I built a fairly complex modal, with a number of convolutions and feature maps. I fit this model with 50 epoches with a batch size of 32. It was trained on 60,000 samples and validated on 10,000 samples.

2-minute video youtube link: https://youtu.be/gHL2ggJRzm8

15-minute video youtube link: https://youtu.be/Ii9cFvA-EiQ