CS441/541 Winter 2023 Team Shasta Project Proposal

Members: Teo Schutfort, Jonas Persson, and Cole Risch

"If you don’t know where you are going, you’ll end up someplace else."
- Yogi Berra

Project Statement

The scope of this project will be to train two Keras models on the Fashion MNIST training set, evaluate the models with the test set, and compare and contrast results from both models. The experience will be the training set images, the task will be image classification, and the performance will be the prediction error.

We will be comparing and contrasting the performance of a convolutional neural network (CNN) with a more conventional machine learning logistic regression algorithm support vector classifiers (SVC).

Motivation

Image classification has a wide range of applications from facial recognition to object detection for driverless vehicles. Finding an optimal classification algorithm that can accurately classify data sets is vital for these applications. Our project dataset uses images of articles of clothing that could be used for online marketplaces to help automatically sort listings into categories to facilitate user discovery.

In addition to the Fashion MNIST being directly related to an ecommerce application, it has the ability to display the performance of image classification algorithms on static images. The Fashion MNIST dataset contains 10 labels with 60,000 test images. Under the assumption that an image classification algorithm works similarly well for static images of other objects than it does with apparel, we should gain an understanding of the general performance of a static image classification model based on the Fashion MNIST data set. This has implications for other industries such as classifying car types or different animal species.

Implementation

Language:
-Python

Libraries:
-Keras
-Sklearn