

## Project Proposal – Group 4

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For this project we decided to build a fruit classification network. Potential applications include automating Customs and Border Protections processes or for use in the agricultural industry. A Kaggle dataset with over 20,000 images of 33 types of fruit will be used.

Initially, our group is thinking of building a 2-Dimensional Convolutional Neural Network within PyTorch. PyTorch is the preferred framework given our familiarity with it. It is likely that we will need to include dropout layers within the network to reduce overfitting. To evaluate performance, we plan to create a confusion matrix that tracks the misclassifications of the network output on the testing set.

Currently we are doing preprocessing related tasks as well as background research for similar applications. The next step is to build out the network architecture and begin the training process. By next weekend we plan to meet again and talk about optimizing the network for this specific problem. Once that is complete, we can test the network, evaluate, and write the various reports.