Final-Project-Group7-Proposal

Binbin Wu, Charles Garrett Eason Machine Learning 2 – Group Project Proposal

- Automated Box Annotation:

  Training neural networks often relies on data generated by hand. In object detection tasks, hand annotations and user defined boundary boxes are necessary for the training of convolutional neural networks (CNN's). In order to aid in the training of these networks, we propose an automated system to generate annotation boxes given an already annotated or classified photo (without box annotation). Our approach is to use an already trained classification neural network to classify images. Using these classified images, we will then pass them through a cropping algorithm and back through the neural network to re classify. The goal will be to iterate this approach and reduce the image size until the annotation boxes are found.

- Dataset:

  We will be using the Fruit-360 dataset: https://www.kaggle.com/moltean/fruits

- Architecture:

We will be using a typical CNN / DenseNet built using the Keras framework. Keras will be used because it is quick and we just need a basic classifier for our project. Accuracy and F1 will be used as our performance metric.

- Key problems include:

1. Setting up the pre-trained network.
2. Building the cropping algorithm.
3. Establishing metrics to determine annotation boxes.