VeggieScan

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Rotten or Forgotten?   Zohaib Khawaja

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Introduction

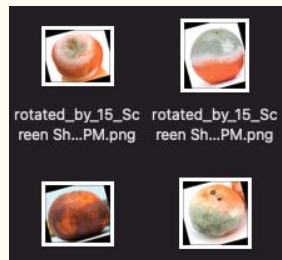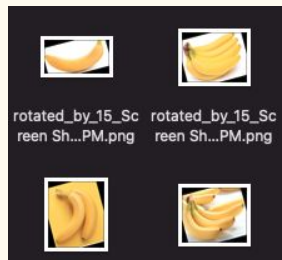Classifying a photo of a vegetable/fruit as stale or fresh

Trained model with near 11,000 images with 6 different fruit/vegetables

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Found 14682 files belonging to 12 classes.
Using 11746 files for training.
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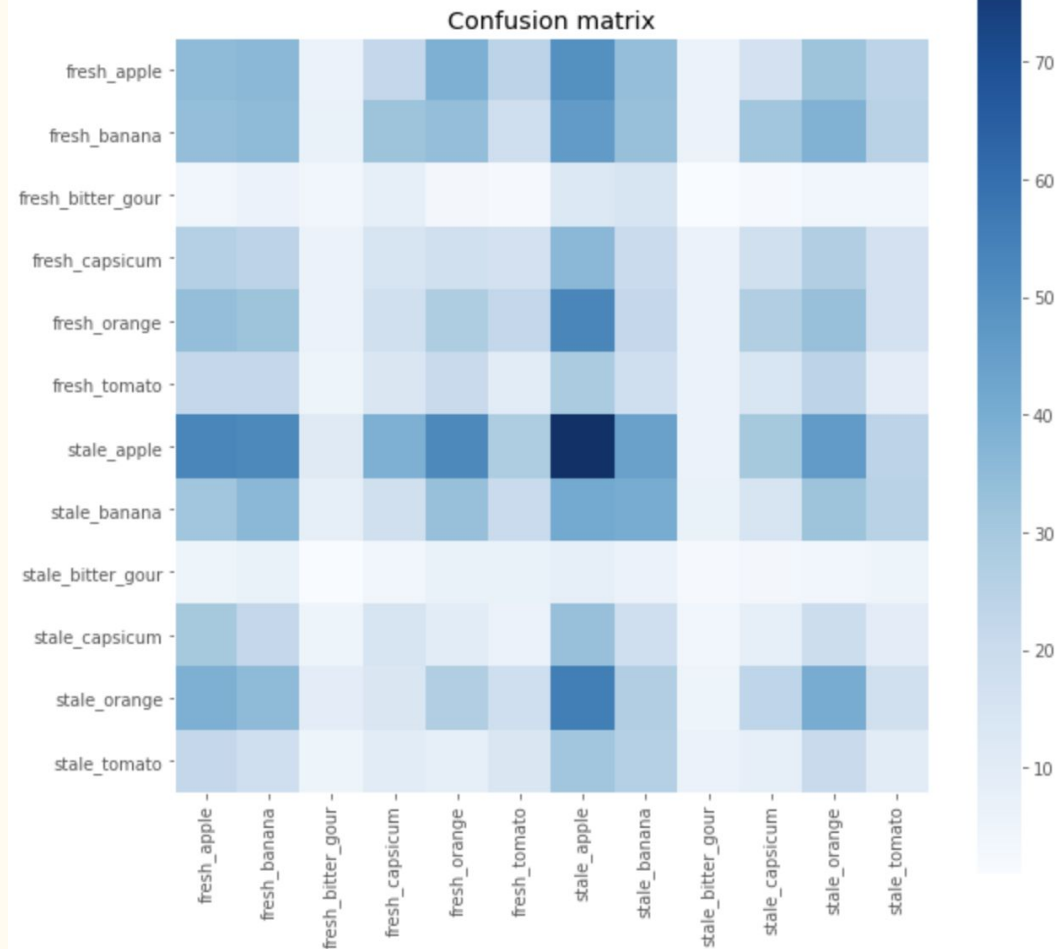# Dataset samples

Dataset samples

Model Analysis/Accuracy

Settled on convolutional neural networks as a classifier
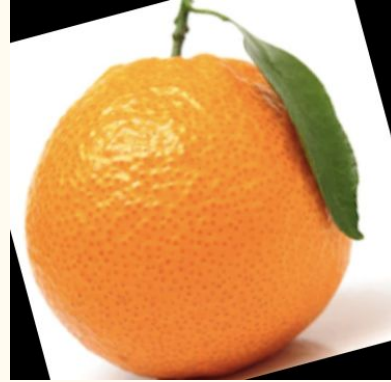
Accuracy of ~97.5% with Baseline accuracy of 16%

Dataset of ~16000 images, trained with 11000, validated with 2000

Run time of approximately 11 minutes for training

Confusion matrix

Model Analysis/Accuracy - What it gets right

Incorrect Classifications

Vast majority of incorrect classifications were stale oranges that appeared green

Model often detected it as a fresh Granny Smith apple

Incorrect Classifications

Most other incorrect classifications were fruit that seemed round and discolored into a color that matched a fresh apple

Will use tens of thousands of more images to train model to higher accuracy

No incorrect classifications that had high confidence

Plans for future growth

Model that can run in real time via camera footage of a veggie/fruit stand

Real-time notification program that will notify fruit stand owner of stale fruit

Utilities Used

Additional Information

Dataset: https://www.kaggle.com/raghavrpotdar/fresh-and-stale-images-of-fruits-and-vegetables

Github: https://github.com/LeggoBoyo

Linkedin: https://www.linkedin.com/in/zohaib-khawaja