Fruits 360

Krister Looga
Raul Erik Kattai
Oliver-Erik Suik
Karl Marten Mägi
Previously - Goals

- Learn new concepts using simple data
  - Kaggle dataset 90000+ images
- Classify images
- Object detection
Previously - Results

- Data exploration
  - Class merging
- Scripts for local development
  - Data fetching, Data merging
- 3 different models
  - Sequential model 75% acc, trained 10 minutes
  - Transfer Learning with fine tuning 92% acc, trained 160 minutes
  - Efficient net 95% acc, trained 240 minutes
- Selfie test was oddly confident
This time

- Object detection
  - Research
  - Multiple models

- Need new data
  - Images in dataset are only good for testing
  - Need annotations to train the model
New data

- Need a lot of data
- Create our own synthetic data
- ELI5 explanation
  - Use fruit images
  - Use random google images
  - Put random fruits on random background
  - Whilst doing that we can store the annotations
Roboflow

- Our saviour
- Models take data in with different formats
- Roboflow hosts data
- Provides tools for augmentation
- Converts data and annotations suitable for each model
Results

- Retinanet - acc 1.5%, 190 min
- EfficientDet v2 - acc 65%, 333 min
- Yolo v4 - acc 18%, 360 min

- Trained in colab
- 5000 train images
Learnt lessons

- Find the right tools for the task
  - A lot of models
  - A lot of examples
- Save your model
  - Collab might not be reliable
  - Models take time!
- Can apply learnt
Github link - https://github.com/RaulEK/ml-fruits360