**Introduction**

Visual query system for vehicle re-identification
- Input: image of vehicle
- Output: N images of the same vehicle

**Dataset**

VeRi [1]. 50,000 images from ~20 nearby security cameras in China. Each car imaged multiple times by multiple cameras.

**Common Approaches**

- Vehicle embeddings (like word2vec)
- Vehicle attributes (like license plate, make, model)
- Detection attributes (like where and when we detected the vehicle)

**My Experiment**

Most approaches have 2 models:
- Object detection
- Embedder

Can we use the object detection bounding box feature vector as the embedding?

Model: YOLOv3 [2] trained on MS-COCO. (80 classes, ~385k images), length 255 feature vector

**Results**

Twice as good as random chance, half as good as 2016 state-of-the-art “Cumulative matching characteristic”.

**Conclusion and Future Work**

- Just YOLOv3 actually works some of the time
- Worth investigating further!

**Future Work**

- Further train YOLOv3 on surveillance data
- Try embeddings from Faster-RCNN, Mask-RCNN
- More visual inspection of results

**References**


...many more in paper