



Texting or Driving?

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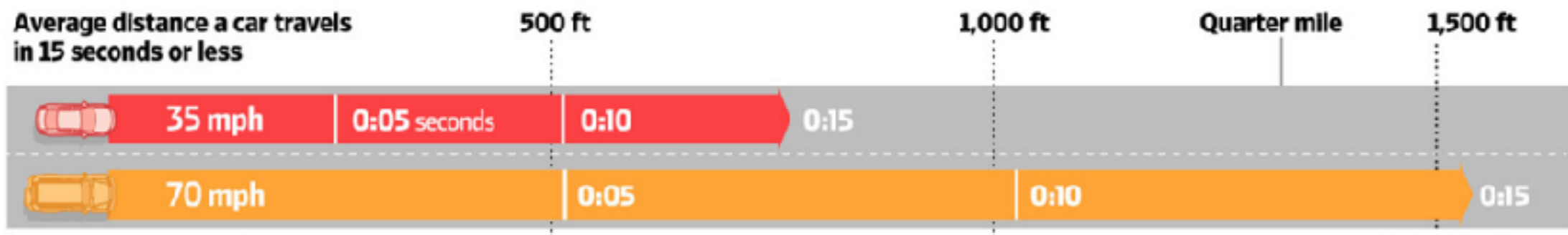
Statistics

- 1 out of every 4 car accidents in the United States is caused by texting and driving.
- More than 3,000 people were killed in distraction-related crashes every year.
- Texting while driving is 6x more likely to cause an accident than driving drunk.

Heads Up

How far you can travel while you look at the dashboard for a few seconds

Average distance a car travels
in 15 seconds or less

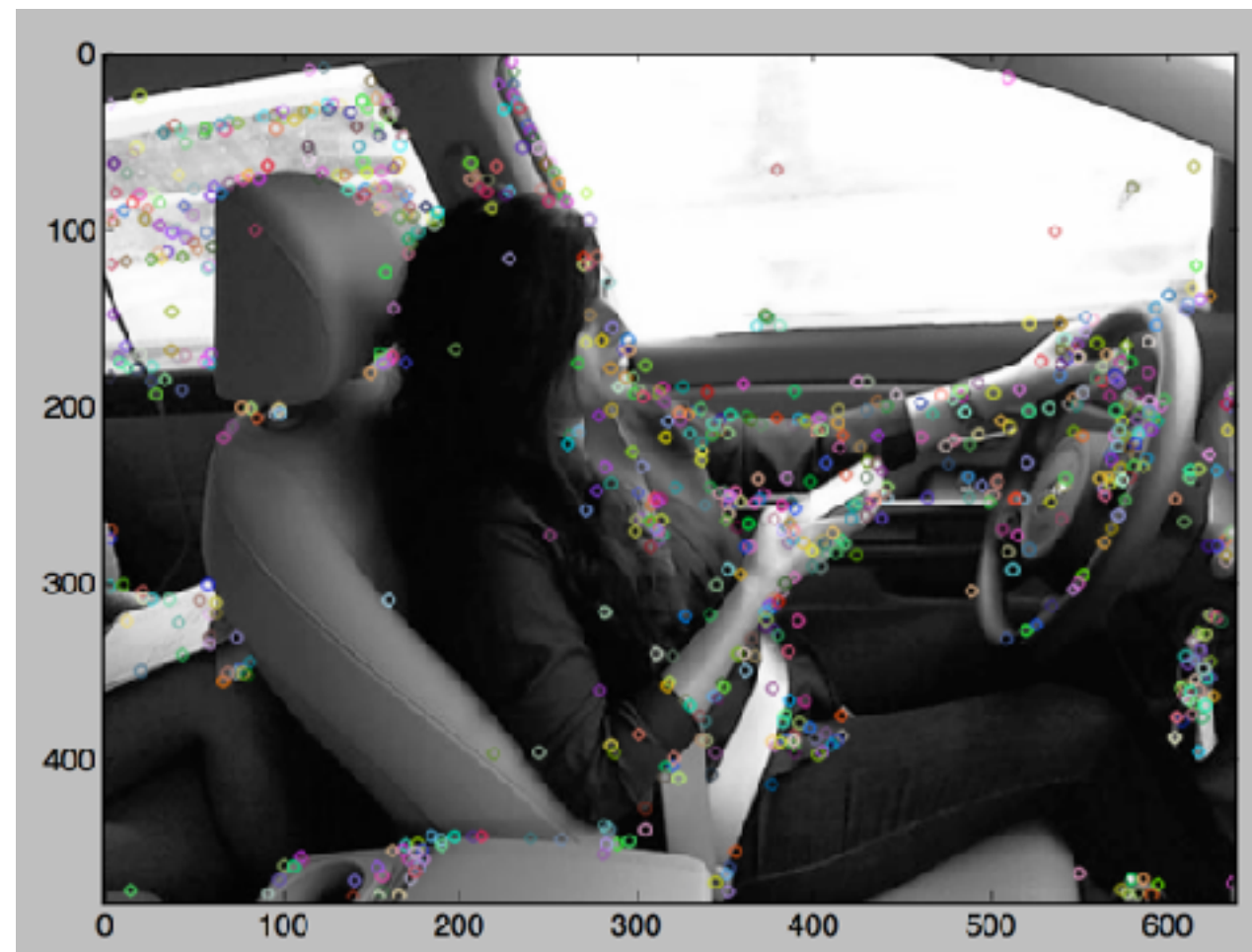


Can computer vision detect a texting driver?



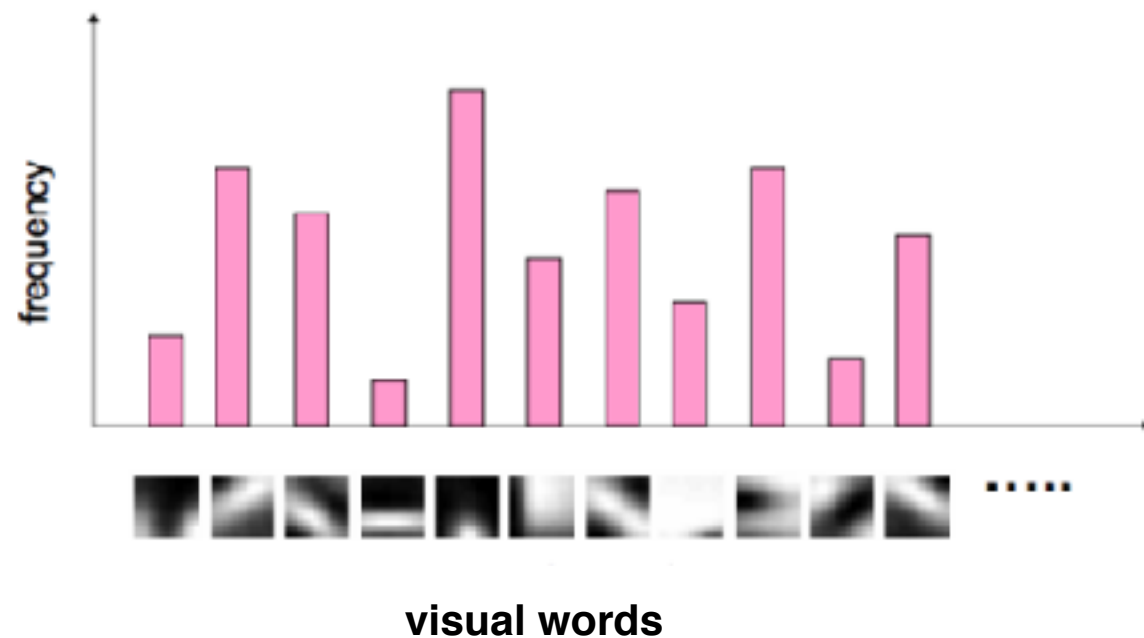
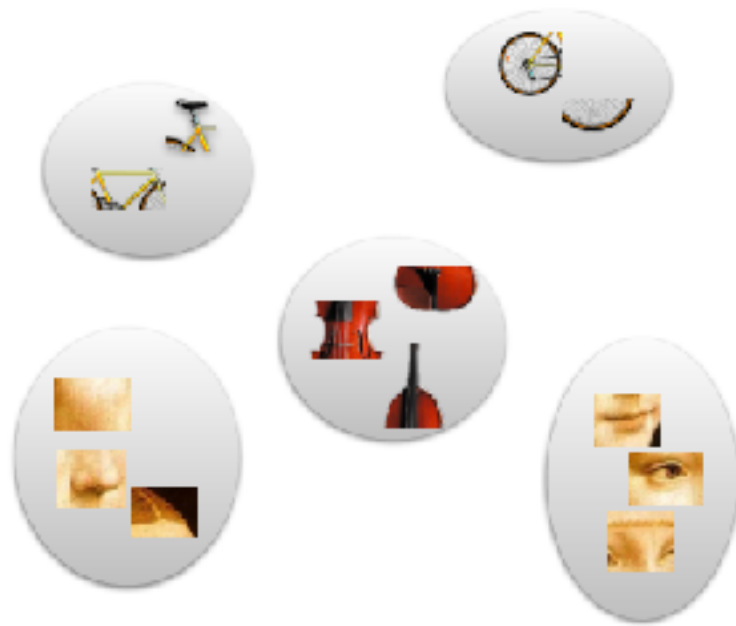
Bag of Visual Words - Local Features

- Extract SIFT (Scale-invariant feature transform) local features.
 - Detect key points
 - Describe each point with a numerical vector.



BoVW - Clustering and Histogram

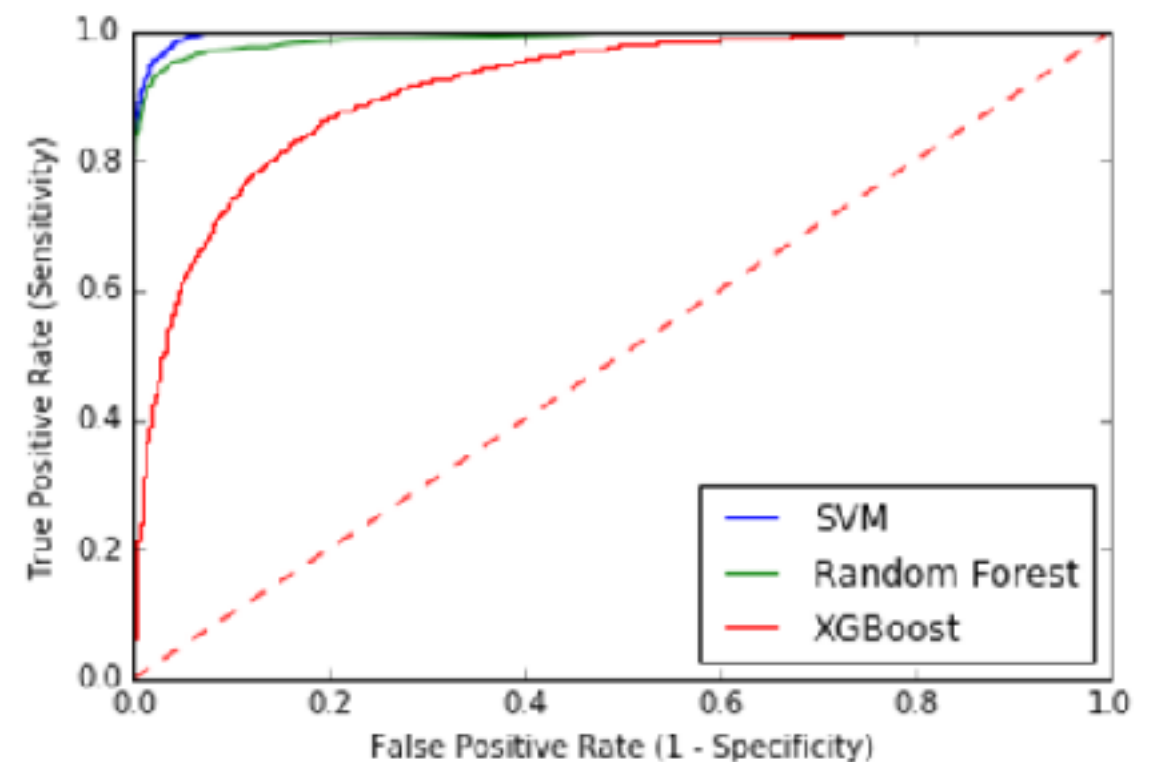
- Cluster similar local features into groups. These groups are the visual words.
- Assign each local feature of an image to the most similar visual word and create a histogram for the image, that is the bag of visual words.



Model Results

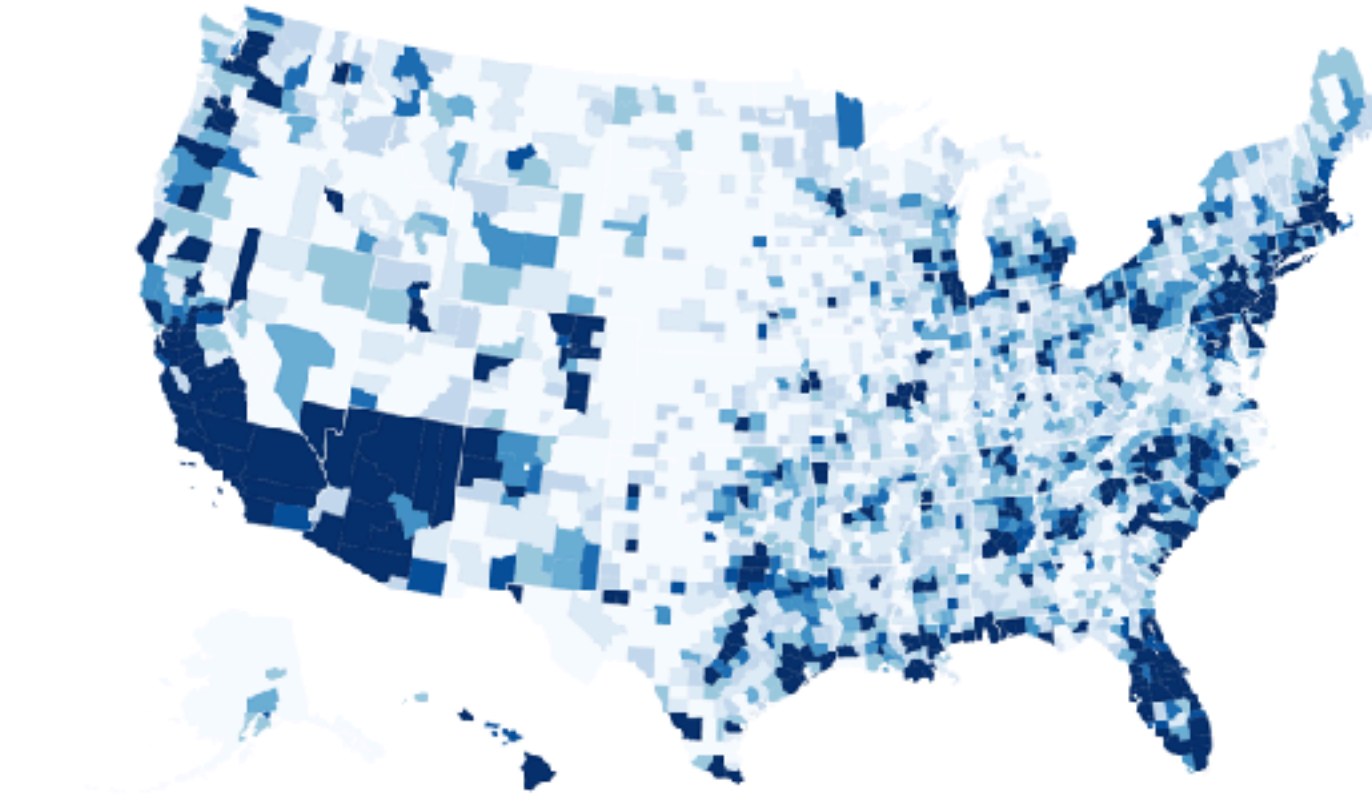
- Best classifiers: SVM, RF and XGBoost
- 170 images scraped from google, best model has an accuracy score of 0.72.
- Trained on 10K images from state farm insurance Kaggle challenge.

	Precision	Recall	Overall Accuracy
SVM			0.88
Driving	0.81	1.00	
Texting	1.00	0.76	
Random Forest			0.96
Driving	0.95	0.97	
Texting	0.97	0.95	
XGBoost			0.97
Driving	0.97	0.96	
Texting	0.96	0.97	



Flask App

Vehicle-related Casualties By County



Is the driver texting?

Display Image

Choose File dog.jpeg

Display

Classify Drivers

Choose File dog.jpeg

Analyze