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Distracted Driving Classifier

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CONTEXT

According to the CDC, ~8 people are killed in the USA each day in crashes reported to involve a distracted driver. Distraction can take the form of visual (taking your eyes off the road), manual (taking your hands off the wheel), or cognitive (taking your mind off driving).[1] Modern technology such as cell phones and car-dash navigation systems have exacerbated this problem.

Auto insurance companies have a vested interest in being able to recognize these behaviors and adjust insurance rates accordingly by the risk associated with them. Not only would this be ideal for insurance companies, but the personal risk of an increased insurance rate would reduce distracted driving behaviors as well, thus reducing the number of accidents caused by them.

In 2015 State Farm launched a Kaggle Competition[2] with a goal to develop an image classifier capable of categorizing photos of drivers into one of 10 different categories. One category represents safe driving, while the other 9 represent different types of distracted driving (such as texting or reaching in the back seat).

GOAL

Develop an image classifier capable of correctly classifying > 90% of these behaviors.

CHALLENGES

The training data and test data have completely different sets of drivers in the photos. Because of this, the main challenge will be to make sure the classifier generalizes successfully between all people, and doesn't just overfit to the specific drivers in the training data.

REFERENCES

1 Centers for Disease Control and Prevention. 2020. “Distracted Driving.” Motor Vehicle Safety. https://www.cdc.gov/motorvehiclesafety/distracted_driving/.

2 Kaggle. 2016. *State Farm Distracted Driver Detection*. N.p.: Kaggle. https://www.kaggle.com/c/state-farm-distracted-driver-detection/overview.