



Ahmedabad
University

CSE 541 Computer Vision

Progress Report:

Distracted Driver Detection

Group Details:

Abraca-data

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Tasks performed in the week:

This week, after researching various methods for data preprocessing and augmentation, we narrowed down a few approaches for the same. We plan to discuss these possible approaches with the TA before we proceed further.

Outcomes of the tasks performed:

Observing the dataset, we were able to build few intuitions:

- the size of the training dataset is quite small when compared to the testing dataset
 - we'll be performing augmentation by scaling or rotating the images
- certain parts of the images are more significant while assigning the labels(position of hand or head...)
 - labeling these parts and passing it to the models can help in improving the performance
- all the images are taken from the frames of a video
 - more information can be obtained by combining the features of the neighboring images

We came to know about techniques like different types of neural networks, transfer learning, multimodal approaches on referring resources related to such problems.

Tasks to be performed in the upcoming week:

We will be creating a baseline model and try to make some improvements using intuition. We will study the properties of various neural networks and evaluate them. We will also be reviewing other data augmentation techniques and performing them.

Links for important sources:

1. <https://ieeexplore.ieee.org/document/8575304>
2. <https://neptune.ai/blog/image-classification-tips-and-tricks-from-13-kaggle-competitions>
3. https://www.researchgate.net/publication/326416658_Distracted_Driver_Detection_and_Classification
4. https://www.academia.edu/36964710/Distracted_Driver_Detection_and_Classification
5. <https://ieeexplore.ieee.org/document/9214233>
6. <https://www.kaggle.com/c/state-farm-distracted-driver-detection/discussion/22615>
7. <https://www.kaggle.com/vinaykakkad/cv-abraca-data-week-1>