Driver Drowsiness Recognition

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Project Motivation

- Driver drowsiness is one of the major reasons of traffic accidents all over the world.
- In Bangladesh, about 5% of the traffic accidents occur due to driver fatigue.

  (Source : https://www.researchgate.net/publication/323113882_ANALYSIS_OF_ACCIDENTS_TREND_DUE_TO_DRIVING_PROBLEMS_IN_BANGLADESH)

Problem Formulation

Our goal is to develop a machine learning model that can predict whether a driver is drowsy or not and sound an alarm if the driver is drowsy.

| Model Type | Image Based Classification (CNN) |

Kaggle

https://www.kaggle.com/dheerajp erumandla/drowsiness-dataset

Dataset

Dataset Details

1. Images of closed eyes (right and left) : 726 jpg files

2. Images of open eyes (right and left) : 726 jpg files

3. Images of yawning : 723 jpg files

4. Images of not yawning : 725 jpg files

Modification (as per suggestions given)

1. We would classify the dataset into 4 classes (closed, open, yawning and no yawning). In addition, we would ring an alarm when drowsiness (closed, yawning) is recognised.
2. We would try out 'few-shot learning' and if desired outcome can't be found, we would try 'transfer learning' as suggested.

F1 Score

Evaluation Metric

Thank You