Detect Distracted Driver

Drivers are supposed to be focusing on driving by law. However, it is very common to see drivers doing something else while driving: texting, drinking, operating the radio, talking on the phone and etc. These distracted behaviours easily cause crash incidents. According to the report from National Centre for Statistics and Analysis , each day there are over 8 people killed and 1,161 injured in crashes due to a distracted driver in US, which translates to 423,765 people injured and 2920 people killed each year. To alarm the distracted driver and better insure their clients, State Farm Insurance hopes to design an alarm system that can detect the distracted behaviour of car drivers by using a dashboard camera. Two algorithms have been tried here and compared for the performance: Support Vector Machine (SVM) and Convolution Neural Network (CNN). To supplement the training set, pseudo-label semi-supervised technique is used. We also implemented a recently-developed CNN structure called VGG-GAP for visualizing what the neural network is looking for in the task, so as to better analyze the learned pattern and search for improvements. This task is very meaningful for improving the drivers’ safety and can be easily applied to other aapplications such as triggering autonomous driving and etc.

https://github.com/luisarojas/distracted-driver-detection