



FACULTY MENTOR

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PROJECT TITLE

Driver's State of Mind and Intent Detection using Multiple Sensors and Machine Learning

PROJECT DESCRIPTION

In this project, based on computer vision and deep learning (DL) techniques, we plan to develop a system for the driver's state of mind (emotions, distraction, fatigue, etc.). Towards this goal, we need to collect data from human subjects in laboratory and vehicle experiments using sensors such as 3D and infrared cameras and wearable devices. And DL models will be trained on the collected data. Video sequences will be fed into the model, and the driver's facial expressions will be detected to understand the driver's state of mind. Early detection of negative states of mind would help improve traffic safety. The main focus of this project is accurate and robust detection of the driver's state of mind using multi-modal data.

This project can accommodate both remote and in-person students.

INTERNS NEEDED

1 Student

PREREQUISITES

- The position will involve:
 - Image data preprocessing and annotation
 - Investigating and implementing new modeling techniques for facial expression/action unit detection
 - Reviewing existing methodologies related to the study.
- The intern is expected to be skilled in ML/DL in Python. Beyond that, the candidate should have prior experience or a desire to learn the following topics:
 - Image processing and computer vision techniques
 - Facial attributes/expressions analysis
 - Deep neural networks