Development of Driving Algorithms for Automated Vehicles with Social LSTM

Automated vehicles are still in the development phase and developing the driving behaviors which comply with social conventions requires a need to better understand and predict the human drivers’ behavior. Human drivers have the innate ability to “read” one another. When people drive, they obey a large number of common sense rules and comply with social conventions. The ability to model these rules and use them to understand and predict human driving behavior in complex real-world environments is extremely valuable for developments of socially-aware automated vehicles. This task can be fulfilled by generating driver models with data mining and machine learning algorithms that transform massive amounts of vehicle trajectories into descriptive knowledge about the drivers’ behavior and their interactions with other road users.

The data used in this study are the extracted trajectories from traffic observation with video cameras. Your task would be to adapt and train the social LSTM model with the aforementioned trajectories and analyze the trajectories predicted by your model to demonstrate the performance of your model.

Requirements:

- Interest in development of driving algorithms for automated vehicles
- Experience in both the theory and practice of machine learning, data mining, algorithms, statistical and pattern recognition.
- Strong programming skills preferably in Python
- Dedicated, systematic and self dependant work attitude

If you have any further questions regarding this project, feel free to contact me via email: nassim.motamedidehkordi@tum.de or telephone:089 28923837