

01.01.2016

## MASTER THESIS

for

Johannes Dumler

Mat.-Nr. , field of study

### **Visual prediction of traffic participants using recurrent neural networks.**

#### Problem description:

Reacting on fast changes happening in electronics will be a key factor for the innovation of the future. One of the biggest challenges is connecting the global trends in a dynamic environment with the product lifecycle of the automobile industries.

This work will focus on prediction of the movement of other traffic participants based on video data. Convolutional Neural Networks (CNN) [1] will be used for features extraction. Recurrent Neural Networks (RNN) [2] will be used to process the extracted features to detect and predict other cars/pedestrians in the images by considering the sequential data of extracted features.

#### Tasks:

- Reviewing the relevant literature.
- Creation of a suitable network architecture based on RNNs
- Training and evaluation based on the available datasets.

#### Bibliography:

- [1] Levine, Sergey, et al. "Learning Hand-Eye Coordination for Robotic Grasping with Deep Learning and Large-Scale Data Collection." arXiv preprint arXiv:1603.02199 (2016).
- [2] Mandic, Danilo P., and Jonathon Chambers. Recurrent neural networks for prediction: learning algorithms, architectures and stability. John Wiley & Sons, Inc., 2001.

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