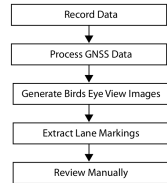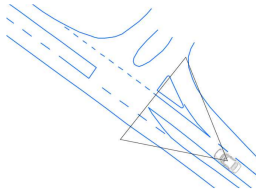# LaneLoc: Lane Marking based Localization using Highly Accurate Maps
M. Schreiber, C. Köppel, and U. Franke (IV 2013)

- Precise localization relative to the given map in real-world traffic scenarios
- Motivation:
    - INS[1] combining IMU[2], GNSS[3] cannot achieve precision required in typical traffic scenes (in the range of a few centimeters).
    - A localization system that is independent of satellite systems
- Using a stereo camera system, IMU data of the vehicle, and a highly accurate map with curbs and road markings
- Beforehand creation of maps using an extended sensor setup
- Initialization using GNSS posititiion
- Kalman Filter based localization achieving an accuracy in the range of 10 cm in real-time
- Evaluation on a test track and approximately 50 km of rural roads

[1]Inertial Navigation Systems

[2]Inertial Measurement Unit

[3]Global Navigation Satellite System