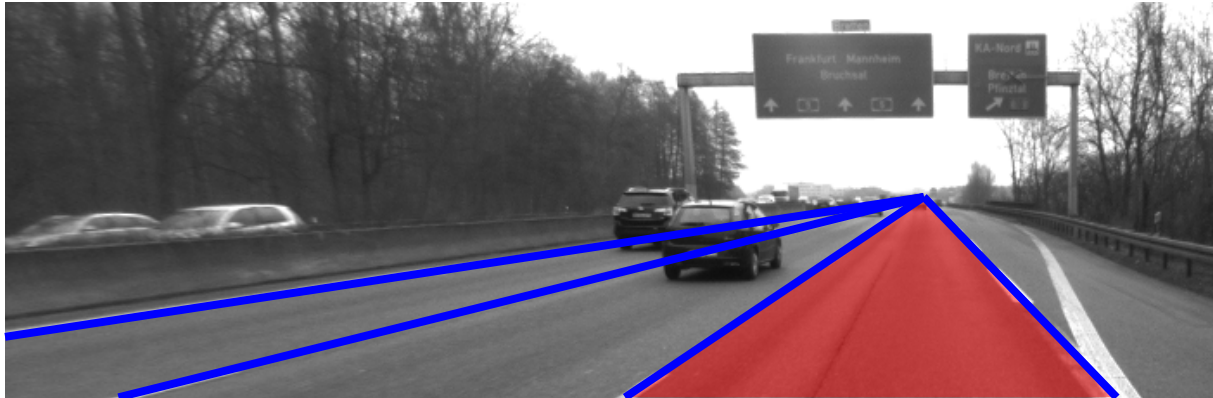# Multi-Lane Detection and Ego-Lane Estimation

Master Thesis / Bachelor Thesis / Research Assistant

The next step towards fully autonomous driving is to make the perception and localization robust in multi-lane scenarios independent of the external conditions like weather or day-time. The focus of this work is the robust detection of all available lanes, e.g. on highways, and the accurate estimation of the ego-lane of the vehicle.

While the detection of the ego-lane and adjacent lanes is already mature, the detection of lanes farther away is still an open research topic. To achieve a robust detection, multiple sources of information may be fused like lane markings, lane boundaries (e.g. guard rails) or the position and movement of other vehicles. The ego-lane estimation filters the extracted and fused information over time to deduce – with high probability – the lane which the vehicle is currently driving on.

Prerequisites:	Computer Vision, C++
Covered Topics:	Lane Detection, Vanishing Point, Visual Odometry,
	Object Detection, Classification, Filter Theory
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