Online traffic sign and intersection estimation

High-definition maps \textit{(left image)} are essential for autonomous driving with today’s perception capabilities. However, maps degrade over time and are an auxiliary tool that introduces a whole new set of problems. Therefore, driving without HD maps is preferable. The exact road topologies and traffic rules must now be inferred from sensor information. Traffic signs and road markings are helpful indicators for this and must now be detected and evaluated.

The proposed thesis approaches this by using available detections and attempting to track, classify and filter them to create the necessary input to infer difficult traffic scenarios. It consists of the following parts:

\begin{itemize}
  \item Literature research on traffic sign recognition and mapping
  \item Integrating odometry for local pose estimation
  \item Tracking and filtering
  \item Mapping and verification
\end{itemize}

I’m happy to answer any questions you might have. Feel free to make an appointment or ask at my office!