Post-doctoral Research Scholar needed for Project: 
Automated Sensor Based Mapping of Highways for Connected Vehicles

Advances in sensors, signal processing, and computational methods enable the automated detection and identification of features (e.g., stop bars, lane markings, signs, lights, signals) important for roadway maps. New algorithmic methods (e.g., SLAM, iSAM, g20, GTSAM, MTK) enable automated pose estimation for such features. When combined, the results enable automated, sensor-based highway mapping with unprecedented precision, content, coverage, and updateability. These will, in turn, enable a new generation of applications, dealing with connected vehicles, smart signaling, automated driving, and automated highway inventory management and assessment.

The scope of this project will include working with US state and federal Departments of Transportation to analyze current and recommended future requirements, practices, and map representations/standards. Additional research will develop new approaches that will: enhance robustness and accuracy; achieve and improve map updateability; and, improve automated feature extraction. Sensors that are of interest include: GNSS, IMU, Camera, and LIDAR.

Requirements: Ph.D. in related area. Strong analytic and programming (Matlab and C++) skills. Knowledge of estimation, optimization, and sensor data processing.

Very useful: Experience working with image and point cloud data processing.