Impacts of Intersection Controls on Distributed Traffic Monitoring and Traffic State Prediction

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Abstract:

The objective of this project is to advance the theoretical foundations of a virtual transportation operation system for urban road networks, self-sustained by vehicle-to-vehicle (V2V) communications alone, to facilitate mobility under extreme or unusual traffic conditions, such as the immediate aftermath of major disasters or special events. Our previous work has developed an innovative distributed traffic monitoring framework using V2V communications. The proposed project will 1) investigate the relationship between traffic controls at intersections and the performance of the distributed traffic monitoring framework, and 2) incorporate signal timing plans (event-based data) as an additional data source into a distributed traffic state prediction algorithm.