DAAD GSSP 2020

Project 5

Data Aggregation in Vehicular Clouds

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Vehicles collect enormous amounts of sensor data. Using vehicular communications, implemented by cellular networks and/or dedicated short range communications, these data can be aggregated at different levels, e.g., sensor fusion within a vehicle to improve reliability, among vehicles in the vicinity to plan collision-free trajectories, or on a larger geographical scale to estimate the traffic flow. Data processing and storage capabilities are available in various places, i.e., in vehicles, where vehicles in the vicinity may cooperate to form a vehicular cloud, at the mobile edge (mobile edge computing), or in the internet. This hierarchy offers significant degrees of freedom with respect to data processing, aggregation, and offloading in general with different communication needs. The trade-offs of these design choices are investigated in this project.

Prerequisites for working in this topic are a very good knowledge of communication networks and protocols, especially wireless and cellular communication networks, as well as programming skills.