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**Modeling the Risks Associated with Searching for Parking**

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A widely accepted statistic states that 30% of all vehicles at any given time are cruising. We seek to validate this claim and further understand the characteristics of cruising behavior by answering the following research questions:

- (1) How big of a problem is cruising and how does it vary across space and time?
- (2) Why do people cruise?
- (3) How do people cruise and what are patterns exhibited by drivers who are cruising?

This project is in collaboration with Nelson/Nygaard Consulting Associates and funded by the US Department of Transportation. The overarching goals are to investigate behaviors associated with cruising and to seek ways to limit cruising, which has become an increasing problem in urban areas. “Cruising” at its basic definition is searching for parking. Quantifying cruising helps to measure the risk associated with the time spent cruising, mainly pertaining to pollution, traffic congestion, and pedestrian safety.

We gathered our data from the Safety Pilot Model Deployment (SPMD) Program, an initiative created to evaluate vehicle-to-vehicle communication technologies, implemented in Southeast Michigan, which entails 185,815 different GPS traces with corresponding video recordings of the driver and the vehicle’s surroundings spread between 109 individual drivers. With this data, we plan to better explain the physical and psychological dimensions of cruising through three different types of tracking: vehicle, people, and GPS. In these specific types, we hope to identify trends in miscellaneous factors like speed changes, driver’s eye movement, and distance from the final parking destination. With identifying different trends, we will use classification and regression trees (CART) to draw conclusions about cruising behavior. We will be working alongside Professor Robert Hampshire and Daniel Jordon for the duration of this project.