

Title : Parking search equilibrium and its implications for parking management
Authors : Stephen Boyles
Presenter: Stephen Boyles

Abstract : Parking is an underappreciated issue in urban traffic modeling and control, and drivers searching for a parking space can contribute substantially to congestion. New technologies and algorithms aim to smooth the parking search process, using sensors for dynamic pricing, transmitting availability information to drivers, or to allow advance reservation of spaces. However, the parking search process is complex and involves interactions among many agents: drivers wish to use information and search for parking in a way that minimizes travel cost (searching time, walking time, parking cost), but this cost depends on the actions of all the other drivers in the system. For instance, drivers may prefer to search in locations where the likelihood of finding parking is higher, but the likelihood of finding parking anywhere is determined by the collective search patterns of other drivers. This talk presents an equilibrium framework for modeling these interactions among individual drivers, along with initial analysis of simple parking management policies. The talk also discusses how this equilibrium framework can be incorporated into algorithms for dynamic pricing, information sharing, and other parking management strategies.