

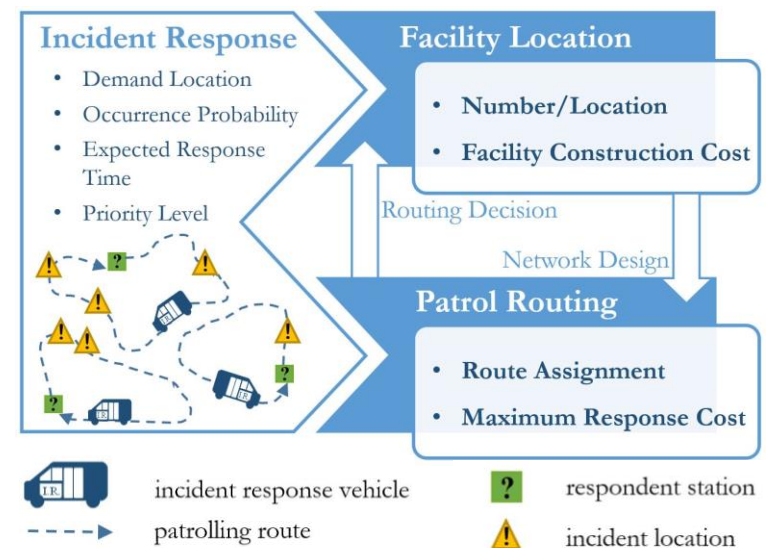
Meet our Featured Researcher, Dr. Leila Hajibabai

Dr. Hajibabai, our newest faculty member discusses her research with us. We would like to thank her for her time and we wish her good luck with her current and future projects!

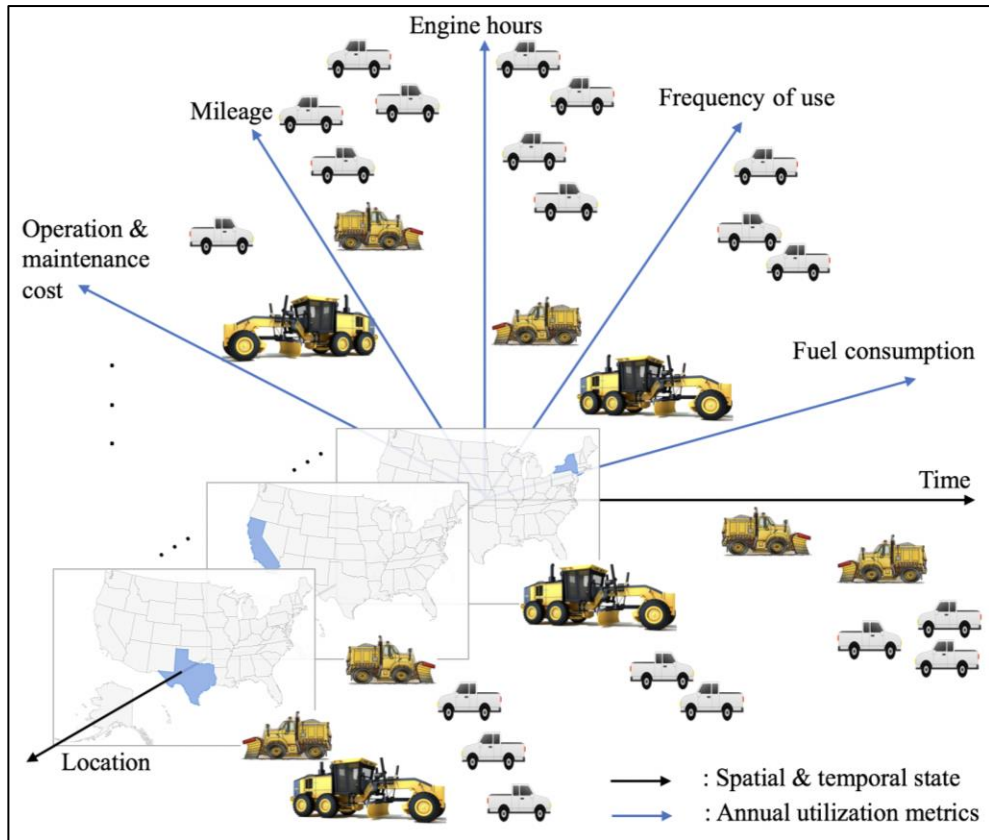
My research interests lie in Transportation Logistics and Planning area focusing on Resilient and Economic City Logistics, Sustainable Infrastructure Development, and Transportation Asset Management. Building upon our mathematical models and solution techniques, my research group optimizes transportation network design, route planning, vehicle scheduling, and resource management in urban and regional scales.

My group actively focuses on finding optimal strategies for infrastructure investments (in various transportation modes) to help facilitate the mobility of goods and people and efficiency of services. Route planning models we construct for service trucks (e.g., emergency response vehicles, snow-plows, and freight trucks) simultaneously reduce vehicle operating costs and balance task assignments among the operators. Our dynamic fleet scheduling models, on the other hand, take safety concerns and stochastic nature of demand into consideration to address the impact of operational uncertainty on service reliability.

Development of robust models and management guidelines is another line of my research efforts that provides stakeholders with reliable solutions to the operation and maintenance of their assets. For instance, considering the significant role of highway fleet equipment assets in the delivery of agency programs and projects and their contribution to majority of capital investments, it is critical to determine their optimal utilization levels and management procedures. To this end, my research team, under a national research project, leads the development of utilization management models for different classes of equipment assets. We aim to minimize the total cost including the capital investments and maintenance and operations expenses, while satisfying the equipment needs of the agencies. We expand our proposed methodologies to facilitate the management of a wide spectrum of critical infrastructural assets.



Sample Research Activities: (a) Incident response operations: dispatching station and patrol route design.



Utilization Measurement: Data Collection



Utilization Management: Resource planning & allocation

Sample Research Activities: (b) Utilization measurement and management of fleet equipment.