

UTC Project Information	
Project Title	Variational Inference for Agent-Based Models with Applications to Achieve Fuel Economy
University	University at Buffalo
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Funding Source(s) and Amounts Provided (by each agency or organization)	TransInfo UTC: \$48,677 Matched funding from PI: \$24,339
Total Project Cost	\$73,016
Agency ID or Contract Number	
Start and End Dates	January 1, 2016 – December 31, 2016
Brief Description of Research Project	<p>In this project, we propose a variational inference algorithm that tracks and predicts real - time traffic dynamics in a transportation network from an agent - based transportation model and multiple streaming data sources. To demonstrate the value of combining simulation modeling and big data in delivering travel information to drivers and promoting efficient driving, we will aggregate the noisy sensor network data from personal mobile phones on UB's North Campus into transportation informatics such as available parking spaces in parking lots, and time and fuel consumption to find a parking space, suggest optimum trips to faculty, staff, and students through a real - time and interactive driving planner and promote fuel – efficient driving at UB's North Campus. We will validate the variational inference algorithm and the driving planner with both synthesized and real data.</p> <p>This proposed project aims to combine a variational inference algorithm developed in recent years in the field of machine learning with agent-based transportation modeling and sensor network data in order to help drivers better plan their trips. While this project is being deployed and validated on a university campus, it could also work in a much larger setting. The project will result in publications and help us in future proposals to</p>

	<p>obtain funding from other external sources. We plan to work with UB campus parking on this project. We will also explore opportunities to work with NFTA and NITTEC, and UB's Medical Campus at downtown in an effort to transfer the technology.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	