



<b>UTC Project Information</b>	
Project Title	<b>Real-time Distributed Optimization of Traffic Signal Timing</b>
University	University of Michigan
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Total Project Cost	\$791,666
Agency ID or Contract Number	69A3551747105
Start and End Dates	4/1/2019-3/31/2021
Brief Abstract of Research Project	Leveraging recent advancements in distributed optimization, and the growing connectivity and computational capability of vehicles and infrastructure, we propose to revolutionize real-time adaptive signal control via distributed optimization. The proposed research consists of three thrusts. Thrust 1 focuses on advancing distributed optimization and parallel computing techniques for solving network-level signal optimization models with discrete variables, nonconvex/nonlinear objective function and/or constraints. Thrust 2 further distributes the computation task to individual vehicles, by further decomposing distributed intersection-level subproblems to smaller problems that can be solved at the vehicle level, or treating them as fully independent economic agents that negotiate the right-of-way through intersections. In Thrust 3, we conduct simulation to validate our results and deploy the system developed in Thrust 1 in the city of Ann Arbor.
Most Relevant CCAT Research Thrusts	Enabling technology; control and operations; models and implementation

Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here	To be filled
Impacts/Benefits of Implementation (actual, not anticipated)	To be filled
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project website</li></ul>	<a href="http://ccat.umtri.umich.edu">ccat.umtri.umich.edu</a>