Title: **A Mixed Integer Programming Approach for Autonomous and Connected Intersection Crossing Traffic Control**

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Abstract:

In this talk, an optimization-based approach for safe and efficient intersection crossing traffic management under autonomous and connected ground traffic environment is presented. The proposed algorithm, named MICA (Mixed integer programming based Intersection Coordination Algorithm), generates the fastest intersection crossing discrete-time trajectory for each vehicle approaching an intersection. Constraints are carefully designed and incorporated into the optimization process to avoid collisions while crossing an intersection. The performance of the proposed MICA is evaluated through extensive simulations using a microscopic traffic simulator, SUMO. The simulation results show that MICA performs substantially better in terms of the traffic throughput compared to both an optimized traffic light mechanism and DICA which is an intersection control algorithm proposed in our earlier work.