

Urban Traffic - Traffic Optimisation via ASP

Motivations. 8 Billion people in the world equals more vehicles roaming our streets and more traffic. Two possible approaches: Increase the available infrastructure (i.e., **more concrete**) or make a better use of the already available infrastructure to optimize the flow of traffic (i.e. **AI for Traffic**)

Context: Optimizing the flow of traffic inside a network lies in finding the best combination of routes for all the vehicles. Vehicles are treated as *Coordinated Autonomous Vehicles* and their route can be controlled when entering the network

Approach: In our work, an **Answer Set Programming encoding is used to find the best route** (according to some metric) for every new vehicle that enters the network using a relaxed version of the problem. After computing the best route in the relaxed system, the real metrics and performances are **computed using the microscopic traffic simulation tool SUMO.**

Data: **Real Traffic Data from the City of Milton Keynes (UK)** located about 80 kilometres north-west of London, with a population of approximately 230,000.

[5] An ASP Framework for Efficient Urban Traffic Optimization. - M. Cardellini - Electronic Proceedings of the 18th Doctoral Consortium on Logic Programming (ICLP DC 2022)