

Head:	Dr. Anastasios Kouvelas
Topic:	Fair Queue Balancing For Infrastructural Control
Assistant:	Kevin Riehl
Registration:	www.ivt.ethz.ch/en/studies/downloads/assignments.html#registration
<p>Various road traffic control algorithms use traffic lights and give right of way to certain lanes at a time. Doing so, they cause queues. For example, signalized intersection management in cities, ramp metering and highways, and perimeter control in urban regions. How can the traffic system be managed efficiently while guaranteeing a fair balance between different driver's experience and queue forming?</p> <p>In this assignment, we would like to explore queue balancing algorithms for infrastructural control.</p> <p>The tasks may include:</p> <ul style="list-style-type: none"> • Review literature of queue balancing. • Develop a case study to apply queue balancing algorithms for traffic management. • Implement & evaluate different queue balancing algorithms. • Design of own queue balancing algorithm. 	
Links:	Chicago https://data.cityofchicago.org/Transportation/Taxi-Trips-2013-2023-/wrvz-psew/about_data Porto https://www.kaggle.com/datasets/crailtap/taxi-trajectory New York City https://www.nyc.gov/site/tlc/about/tlc-trip-record-data.page ...
Additional remarks:	Group work possible, can also be divided into multiple projects Please contact the head and assistant at least one month before the start date if interested.
Minimum credits:	9 / 11 or 24 ECTS (depending on project/thesis)
Recommended lectures:	Road Transport Systems (Verkehr 3), Transport Systems, Traffic Engineering, Microscopic Modelling and Simulation of Traffic Operations
Additional information:	Good skills in programming language are required for algorithm implementation and data analysis.