Towards Sustainable Cities through Simulation

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Chair of Artificial Intelligence

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Motivation

- city traffic has negative impact on environment, public health, and quality of life in urban societies
- proposed solutions to these problems often difficult to test in practice
- traffic simulations allow for testing new approaches in a realistic setting
- enable easy deployment of Machine Learning (ML) and detailed analysis of impact (i.e., on congestion, noise, air pollution, etc.)

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Project Goals

1. **extend and improve traffic simulation of Mannheim in SUMO**
2. **analyze outcomes (e.g., some selection of):**
    - car/truck prohibitive zones
    - different traffic light configurations to reduce total emissions
    - effect on traffic safety of construction zones and lanes closings through safety surrogate measures
    - optimize public transport for greater efficiency and better access to city center

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You will …

- solve problems as a team
- gain hands-on experience with coding, simulations, and applying ML in relevant real-world scenarios
- have liberties to explore and try new stuff with the simulation

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Project details

- title: "Towards Sustainable Cities through Simulation"
- language: English
- duration: 6 months (preferably located in Mannheim)
- team size: 3 to 5
- prerequisites:
  - programming experience
- available to: M.Sc Mannheim Master of Data Science (MMDS), Business Informatics
- contact: Jakob Kappenberger, Christian Schreckenberger

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