An agent-based model of travel demand of all of Switzerland

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\textbf{STRC} \textbf{Swiss Transport Research Conference}  
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Synthetic agent population
Model of street network
Activity plan
Market share vs. distance
Simulation steps

- Preparation of input data
  - Network data
  - Facilities
  - Population
  - Initial demand
- Plan generation
- Plan execution by traffic flow simulation
- Scoring of plans, re-planning and re-execution
- Analysis of simulation results
Scoring function

Total score of a plan:

\[ U_{total} = \sum_{i=1}^{n} U_{perf,i} + \sum_{i=1}^{n} U_{late,i} + \sum_{i=1}^{n} U_{travel,i} \]

where

- \( n \) - number of activities
- \( U_{perf,i} \) - utility of performing activity \( i \)
- \( U_{late,i} \) - utility of arriving late at activity \( i \)
- \( U_{travel,i} \) - utility of travelling to activity \( i \)

for details see Charypar and Nagel (2005)
System relaxation

[Graph showing iterations vs. average score, average trip duration, and link flow capacity]

- Average score
- Average trip duration
- Link flow capacity

Initial demand
Iterating for results
Validation
Literatur
Run times

- dur replanning
- dur dump plans
- dur dump deqsim
- dur deqsim
- dur read events
Counting stations
Provisional results
Thank you!

http://www.matsim.org