ADAPTIVE TACTICAL DECISIONS IN PEDESTRIAN SIMULATION: A HYBRID AGENT APPROACH

AI * IA 2015, Ferrara

24/09/2015

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MOTIVATIONS OF PEDESTRIAN DYNAMICS SIMULATION

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Application of pedestrian simulation models:

off-line

- ***Planning of infrastructures and events:***
  - security
  - walkability
- ***Transportation Planning***

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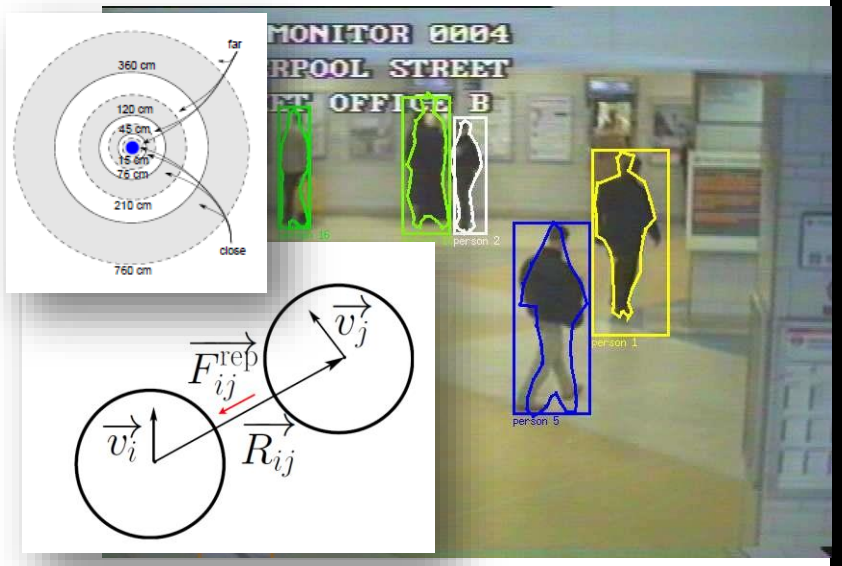
on-line

- ***Real-time Evacuation Systems***
- ***Surveillance***:
  - Improving tracking results
  - Characterizing the analyzed scene



PEDESTRIAN DYNAMICS – THE 3 LEVELS OF BEHAVIOR

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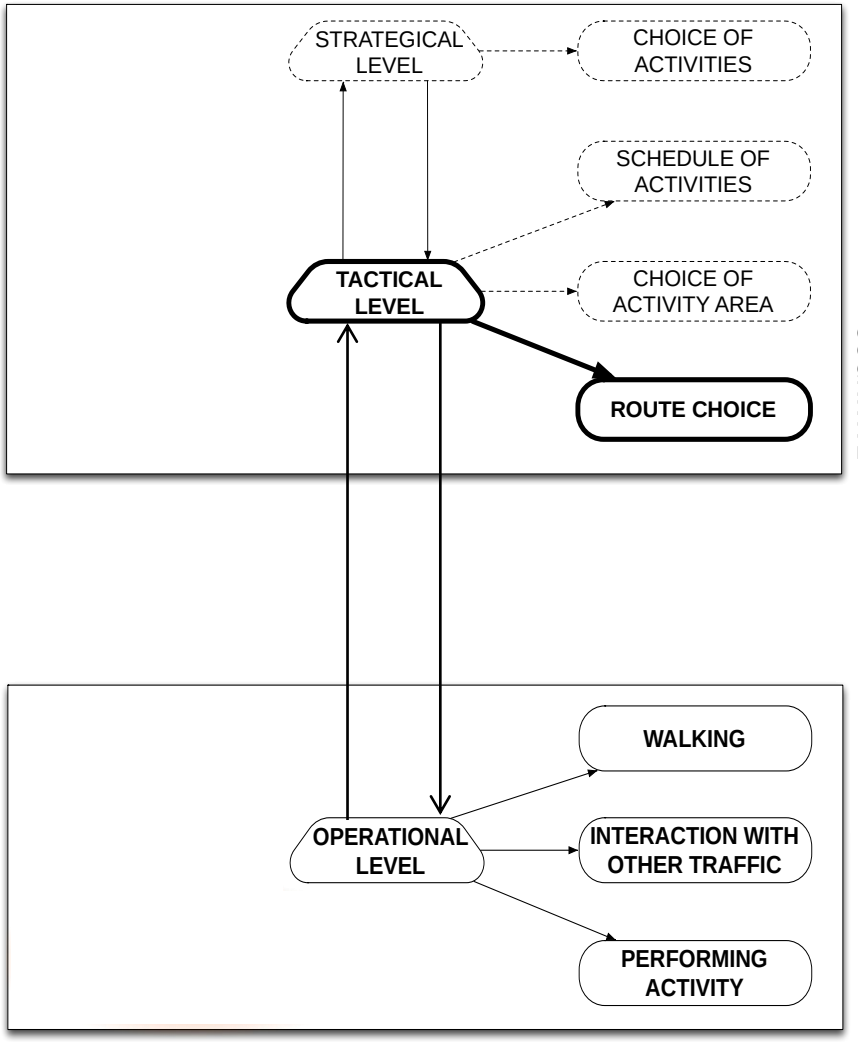

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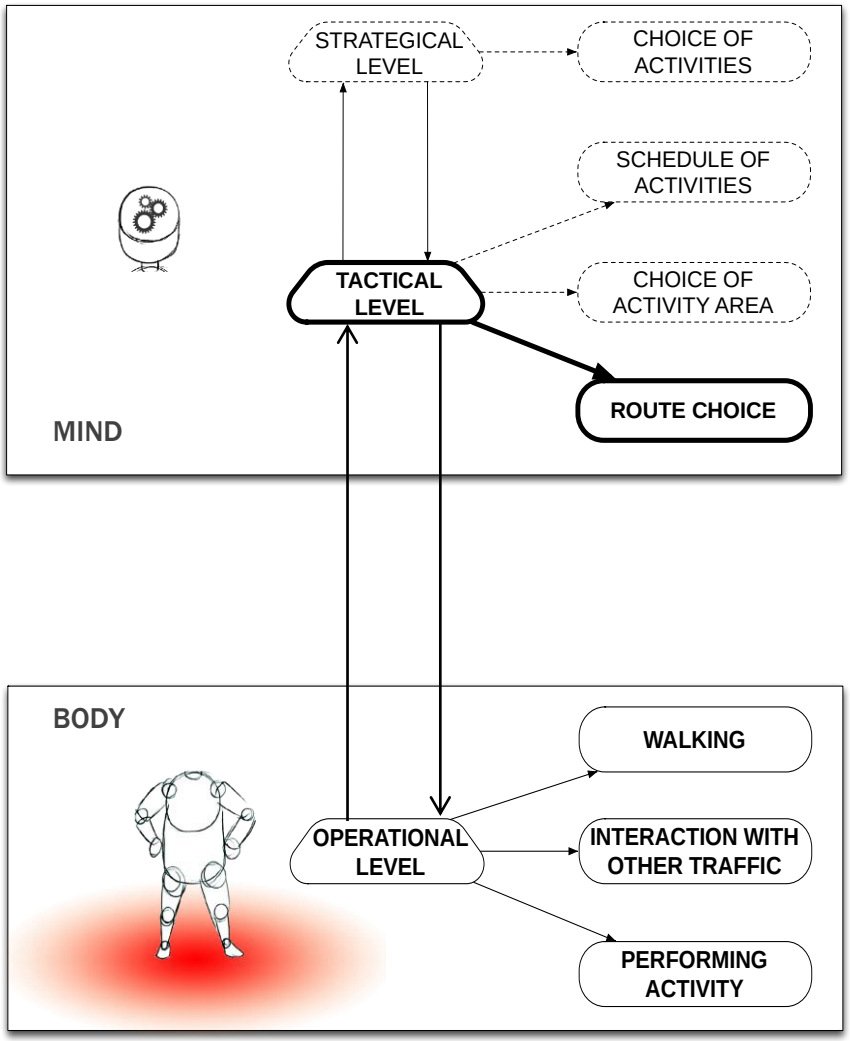
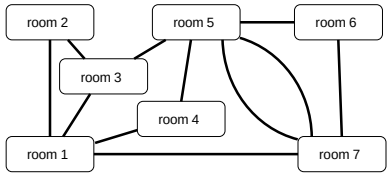
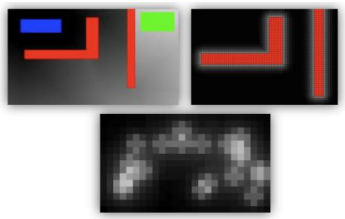
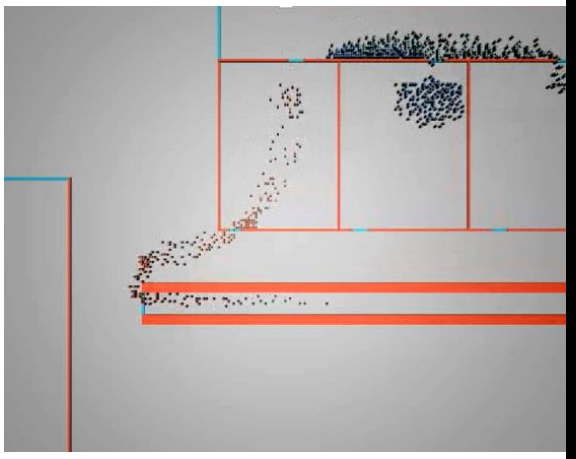


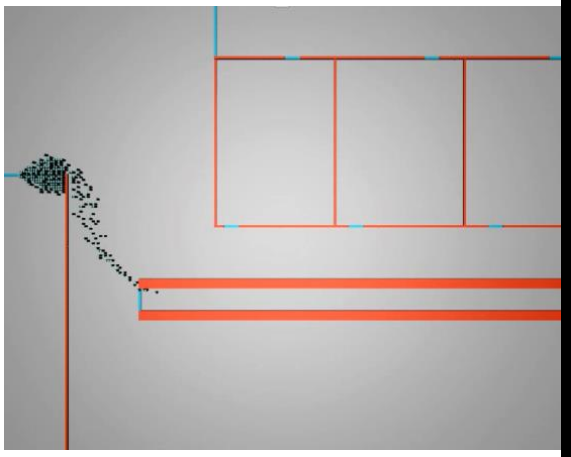
COGNITIVE



REACTIVE







INTRODUCTION TO THE PATHS TREE

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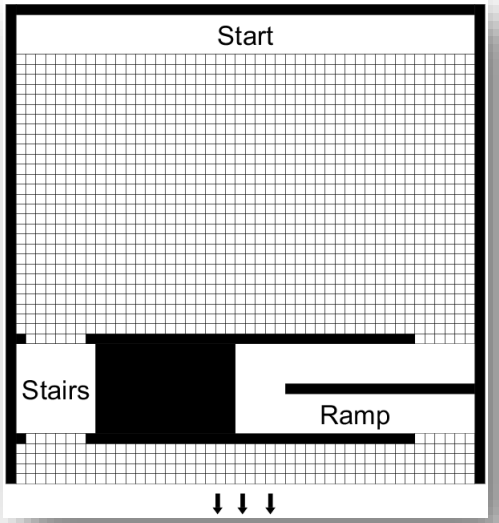
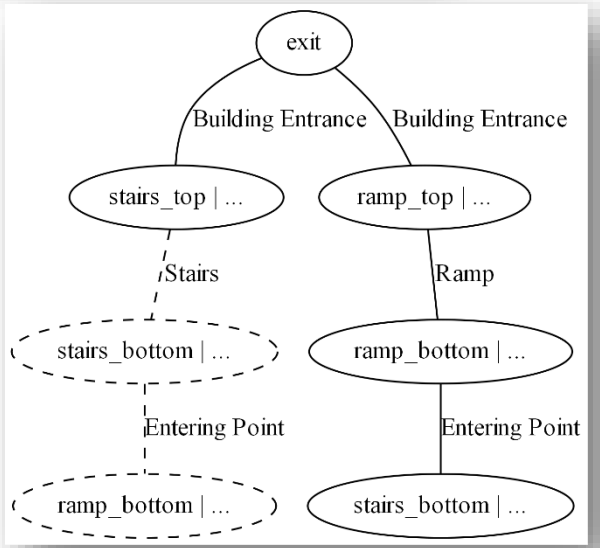
- Given an arbitrary environment, the agent should be able to plan a path toward its target, considering:
  - The types of environment that will be crossed → *static* elements
  - The emergence of congestion or other elements influencing the path conditions → *dynamic* elements



- The choice among paths is performed according to the expected traveling time, dynamically changing.
- The decision tree contains the average traveling time of each **minimal** path to a destination, estimated by considering static elements and the average speed of the agents.



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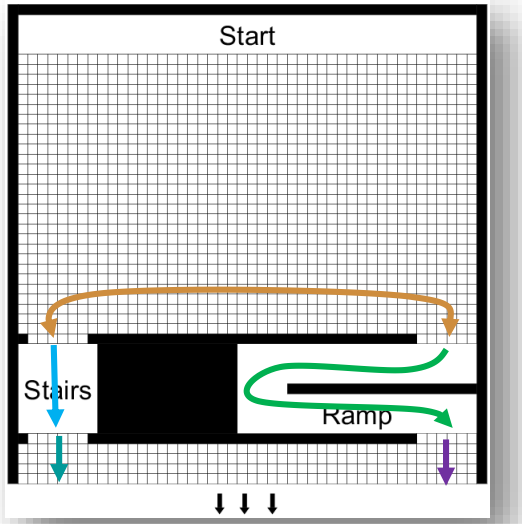

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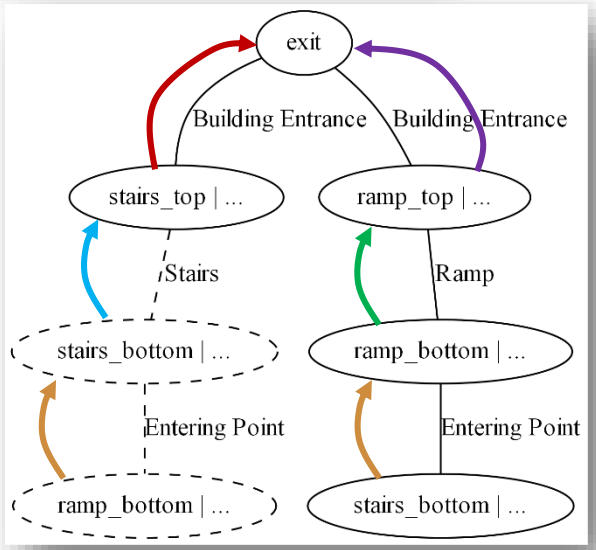

AN EVACUATION OF A LARGE POPULATION OF PEDESTRIANS

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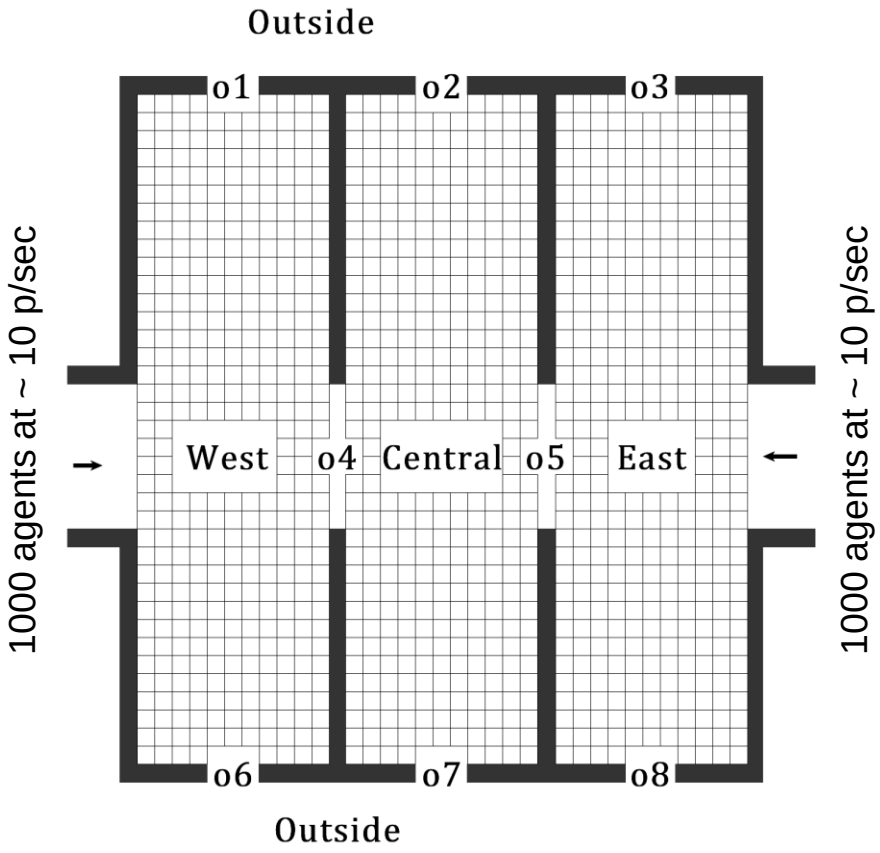

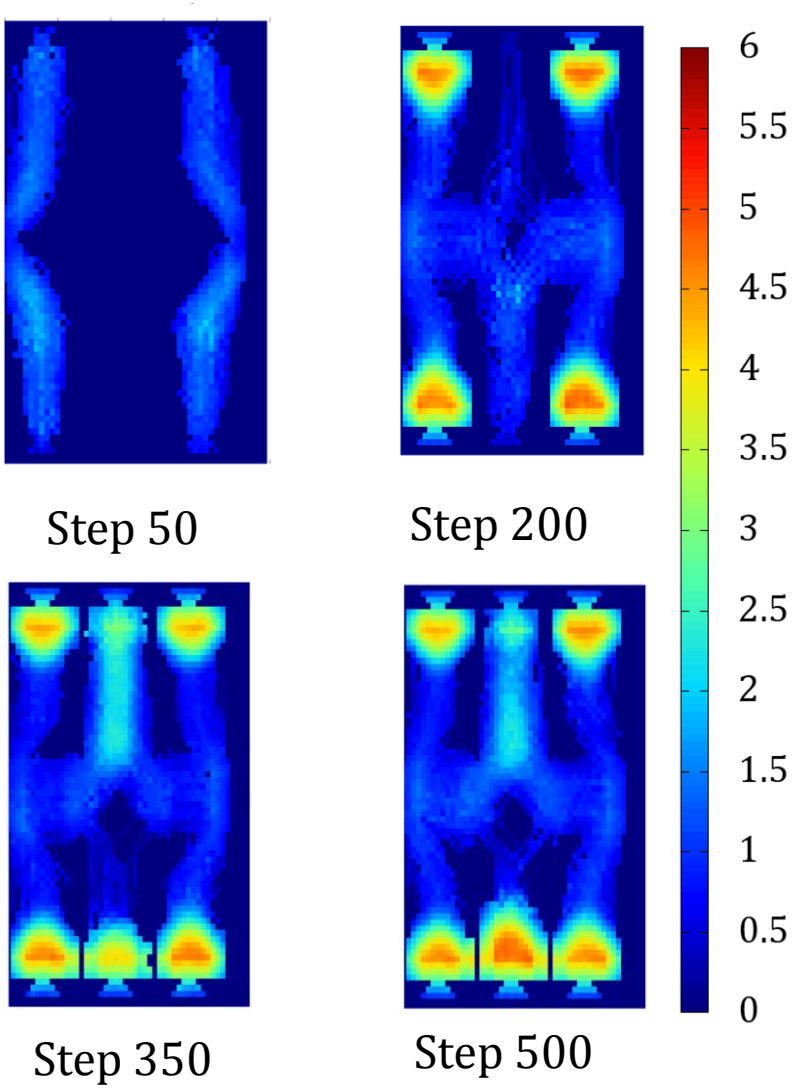

QUANTITATIVE RESULTS

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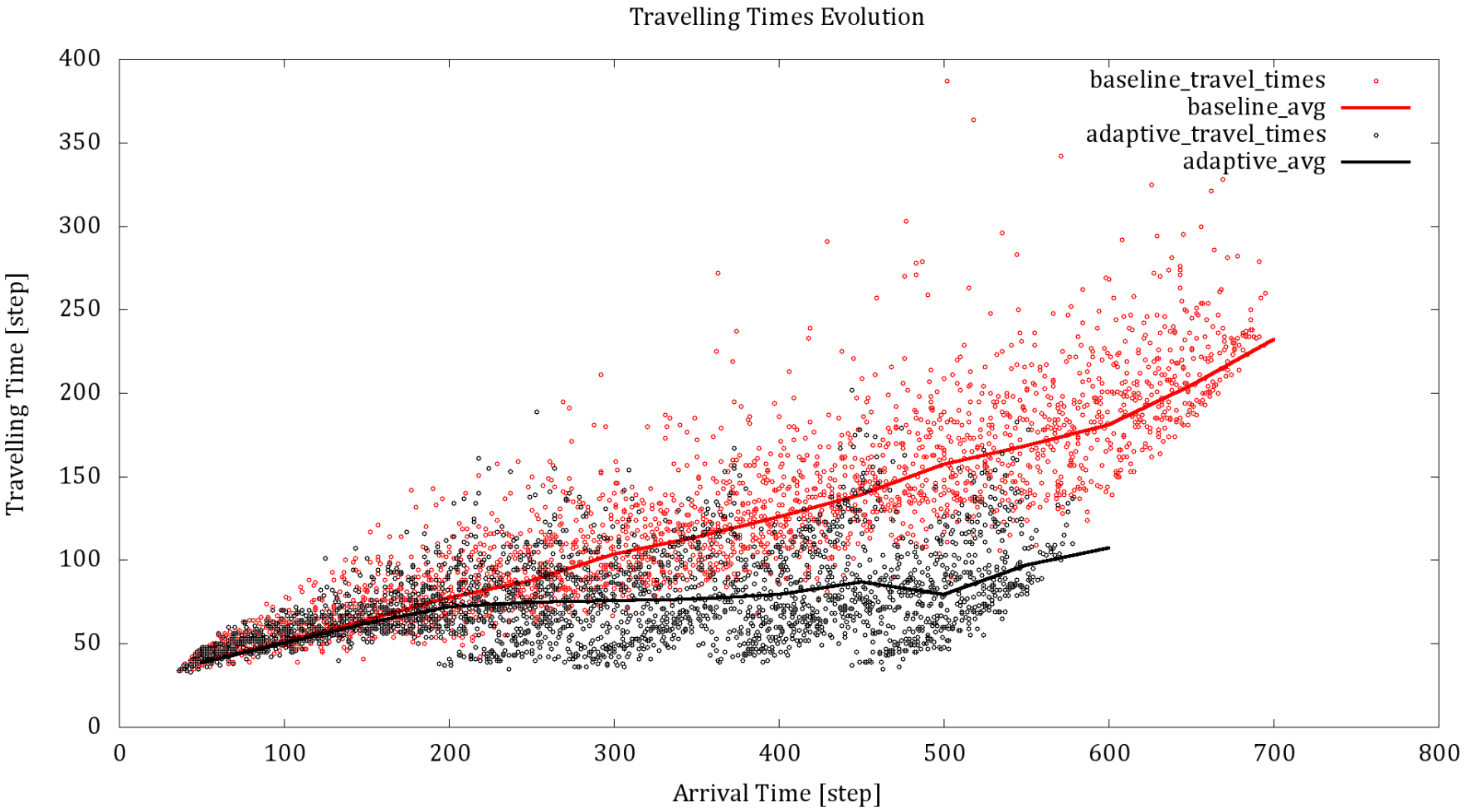

THANK YOU!

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For technical information, questions or simple curiosities about this work, please come at my table!

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