

Agent-based simulation of future mobility systems in the Paris area - MATSim User Meeting 2022

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1 Abstract

Agent-based mobility simulations are being increasingly used to study different aspects of mobility, for example in the context of electric vehicles and charging stations or mobility-on-demand services. Such studies have been performed on various use cases such as São Paulo [5], Berlin [6], or Singapore [2].

The Paris area has been studied in recent work [4] where a synthetic population and travel demand were generated using an open source pipeline [3] and openly available data, making the approach fully reproducible. Regarding the mobility offer, public GTFS data that reflect the current public transport infrastructure of lines, stations and schedules are used.

In the work we plan to present, we follow the approach mentioned above to generate a synthetic population of Île-de-France and integrate various future population and infrastructure developments. More specifically, we focus on the area of Paris-Saclay, which consists of 27 municipalities in the south-west part of Île-de-France and for which we have access to data on population evolution forecasts.

Notably, the further development of the area will be strongly affected by its connection to the Grand Paris Express¹, a large infrastructure project which comprises 4 new metro lines and the extension of one existing line. Serving 68 stations, these new lines will be progressively put into service from 2024 to 2030. To adapt to the future mobility offer, changes on existing feeder lines will also take place. In a MATSim scenario for Paris-Saclay 2030, we integrate a first version of a Mobility-on-Demand (MoD) service to test possible deployment schemes and control algorithms based on reinforcement learning [1]. Furthermore, a new module for integrated cost-benefit-analysis (CBA) is tested on the use case.

¹<https://www.societedugrandparis.fr>

References

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