Implementation of an autonomous taxi service in a multi-modal traffic
scenario using MATSim
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Abstract

In the foreseeable future it will be possible to have self-driving cars in the city environment. A number of simulations have been performed to assess the impact and possibilities of autonomous vehicles, mainly seeing them as a means of public transportation. While previous studies have focused on the replacement of existing private car trips, the interplay between a newly introduced autonomous vehicle taxi service with the existing means of transport in a traffic scenario will be investigated here.

The study is based on the agent-based traffic simulation framework MATSim and covers the whole process from the implementation of the transport mode, several extensions of existing MATSim assets and the simulation results.

It has been found that the introduced AVs are mainly competing with established public transport services and that the net driven distance by cars in the network is increased. It is claimed that varying pricing schemes alone cannot lead to a more balanced and sustainable mode share, but that they need to be supported by pinpointed incentive and/or taxation policy.

Keywords

autonomous, taxi, agent-based model, multi-modal