Collaborative Mobility Digital Platform

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1   Extended Abstract

Understanding human mobility and forecasting the impacts of policy interventions or infrastructure investments are essential to transport planning and reaching societal climate goals. In Switzerland, aggregated and proprietary transport models are predominantly used for this task. This situation poses several challenges. First, these models are costly to set up and maintain. This limits their use to large organizations that can afford them, effectively excluding many interested players, such as transport operators, cities, and universities, from participating in transport planning in a more proactive way. Second, these models are inadequate to model our increasingly connected (shared) mobility systems and modern transport policies such as congestion pricing. Third, these models rarely fully utilize novel data collection techniques, such as real-time automatic passenger counts in buses and trams. As a result, societies currently underutilize their potential to solve one of the greatest challenges of our times.

We propose to create an open-source collaborative platform for mobility analysis and forecasting. This platform will introduce several innovations: it will use state-of-the-art mobility data, automate data import, enable mobility data analysis, automate calibration, allow the study of complex integration of public transport with other modes, and enable policy-oriented visualization; it will use the state-of-the-art agent-based tools, eqasim [2] and MATSim [3], and national ORD infrastructure, as well as the Open Digital Twin Platform [1], to enable robust mobility digital twin development; it will create social and economic value by bringing state-of-the-art transport modeling tools to a broader public in a cost-efficient way. The approach will be applied to Geneva, with tpg as the implementation partner. Generalizability and transferability will be demonstrated in the Lausanne agglomeration, with the Ville de Lausanne and tl as the implementation partners.

We will present our initial work on several important aspects of agent-based model development, standardization and validation. An example of the inital visualization of model validation can be seen in Figure 1.
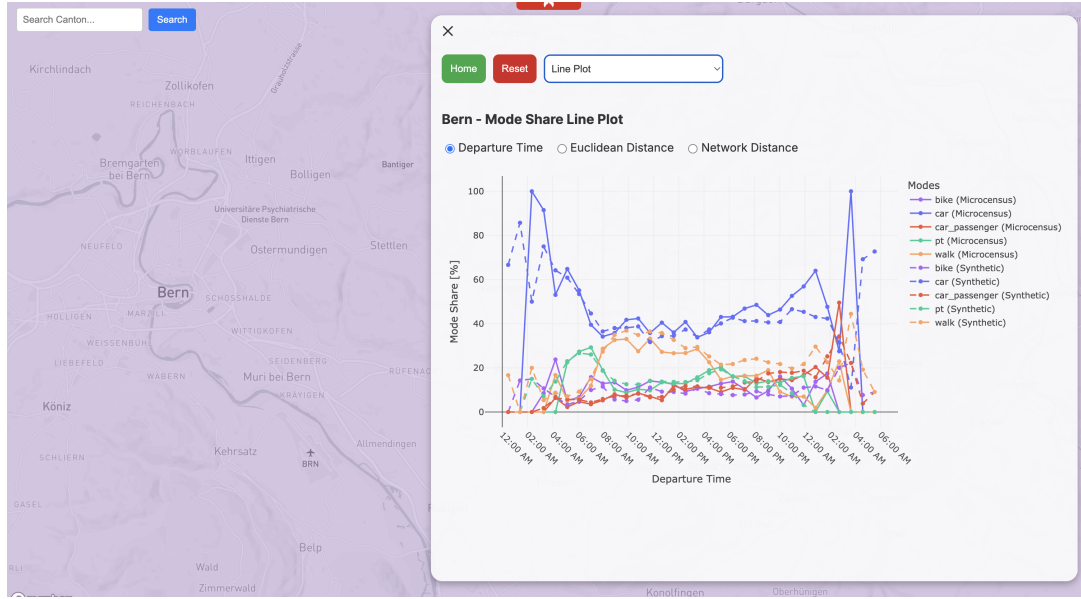
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Figure 1: An example of scenario validation metric.

References

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