

# A massively multiplayer online mobility game for data collection on travellers' behaviour

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In this work, we investigate traveller's behaviour based on data collected through a computer-based travel simulator experiment (mobility decision game). The main aspects that we focus on are risk profiles, perception, learning from experience and habit, the impact of advanced information systems (ATIS), and travellers' behaviour under competitive games. The understanding of these behavioural aspects will allow us to test the adequacy of different choice models in predicting the travellers' decisions, which is essential for dynamic traffic microscopic simulation platforms.

In literature, we can find that experiments based in computer travel simulators have been extensively used to collect data on travellers' behaviour. In these experiments, particular attention has been paid to the study of route choice behaviour, assessing the impact that travel time variability [1], habit and learning [2], and ATIS [3] have in the traveller's decisions. However, as these experiments are designed to study specific behavioural traits, they follow different methodologies, that vary in the description of the network, the way ATIS is provided, the payoff, and the objective of the participants. Moreover, these experiments are carried out using different population samples. As a consequence, there is no common ground to analyse these behavioural traits altogether.

The mobility decision game, created by the LICIT laboratory, is capable of jointly collecting the data on travellers' behaviour aforementioned. A unique feature of this game is that it interacts with a microscopic simulator, which runs on a central server. Multiple players simultaneously interact with the simulation and modify the initial scenario by choosing the departure time, the route and the mode choices; they can also re-route. The players interact among themselves, as their decisions are all interpreted by a common traffic simulation. This allows for the study of choices under competition and the analysis of equilibria. A second feature is that the game can be used over a real complex network, e.g., Lyon (36km<sup>2</sup> and 3,222 nodes), which enables for the study of the impact that the network topology has in travellers' choices. With these features, our mobility decision game will not only allow us to collect the data altogether, but to add insights into travellers' behaviour under more realistic scenarios.

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## References

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