

EFFECT OF DIFFERENT AGENT-BEHAVIOUR ON A TRAFFIC SIMULATION FRAMEWORK

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Abstract: Simulation is a helpful tool for analysing and optimising certain problems in various different scenarios. In urban area, traffic simulation could help optimising the placement of the traffic lights or traffic signs. Typically, the simulation based mostly on the linear approximation of the distances and speed. However, drivers' behaviour could also influence the traffic situation resulting in traffic jam which lead to delay on the arrival time on other drivers. In this work, a simulation framework that focusses on the drivers' behaviour is presented. Each driver is modelled as an agent which has some driving attitude varying from careless driver to careful one. The simulation model a daily activity of each agent, where it has a place to live and an office to work. The agents will then do their daily activities which can be an ordinary day or some free day by visiting friends, cinema or shopping center. Based on the daily activity situation the driving style will be influenced from a patient driver which drives carefully to an angered driver that tends to become more careless. In this context, the population and size of the city in addition to the drivers' behaviour is discussed and the effects are compared to the same population with normal driving behaviour as control group. Furthermore, the simulation framework could be applied to different domain such as emergency situation like fire on a building or a sinking ship. In these domain, agents' behaviour could influence the whole rescue situation based on the number of causalities. The simulation could help design optimal rescue path and layout of the building as well as number of rescue boat and their placement on the ships.