

Modeling time table based tram traffic

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In mid-sized cities, tram networks are a major component of the public service infrastructure. In those networks with their typically dense schedules multiple lines share tracks and stations, resulting in a dynamic system behavior and mounting delays following even small disruptions. Robustness is an important factor to keep delays from spreading through the network and to minimize average delays.

As part of a project on simulation and optimization of robust schedules, this paper describes the development, implementation and application of a simulation model representing a tram network and its assigned time table. We begin by describing the components of a tram network, which consist of physical and logical entities. These concepts are then integrated into a model of time table based tram traffic. We apply the resulting simulation software to our hometown Cologne's tram network and present some experimental results.