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# From Floating Car Data to Time-Dependent Route Scheduling: a Holistic Methodology

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## Abstract

Punctuality is a great challenge in transportation and logistic management to comply with given time restrictions like delivery time windows. But travel times can only be roughly approximated by assuming average speed depending on the road type. In doing so, the changes in traffic volume over the day are disregarded although they have a high influence in speed and travel time.

In the past, many logistic service providers have implemented GPS receivers to collect floating car data from the transportation process. This data contains also information about traffic volume - or rather reflects their influence on driving speed. At rush hour the collected speeds will be slower than at low-traffic times (e.g. during the night).

In this talk, a methodology to proceed from floating car data to time-dependent route scheduling will be presented. This includes the analysis of floating car data to derive time-dependent speeds, called speed profiles; the clustering of road sections according speed profiles to reduce storage effort; an algorithm to calculate time-dependent travel times; and finally a route scheduling approach using time-dependent travel times. Because of the planned real-world application, computational time and storage effort is of importance in all steps of the methodology.

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