



BUS ARRIVAL TIME PREDICTION USING SUPPORT VECTOR MACHINE WITH GENETIC ALGORITHM

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Abstract: Accurate prediction of bus arrival time is of great significance to improve passenger satisfaction and bus attraction. This paper presents the prediction model of bus arrival time based on Support Vector Machine with genetic algorithm (GA-SVM). The character of the time period, the length of road, the weather, the bus speed and the rate of road usage are adopted as input vectors in Support Vector Machine (SVM), and the genetic algorithm search algorithm is combined to find the best parameters. Finally, the data from Bus No. 249 in Shenyang, china are used to check the model. The experimental results show that the forecasting model is superior to the traditional SVM model and the Artificial Neural Network (ANN) model in terms of the same data, and is of higher accuracy, which verified the feasibility of the model to predict the bus arrival time.

Key words: *bus arrival time, prediction, Support Vector Machine (SVM), genetic algorithm (GA)*

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1. Introduction

Bus arrival time prediction is the important component to realize the information technology of urban public transport system, and can positively promote the development of urban public transport system. From the view of passengers, the timely information of bus arrival time can not only reduce the waiting time of passengers, but also make them reasonably arrange their travel plans, and select the most convenient way of travelling and interchange. From the perspective of public transport operators, it will greatly enrich service content, be conducive to timely adjusting the bus departure interval and the running time especially under

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