

Bayesian mixture model for prediction of bus arrival time

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Abstrak

Providing travelers with accurate bus arrival time is an essential need to plan their traveling and reduce long waiting time for buses. In this paper, we proposed a new approach based on a Bayesian mixture model for the prediction. The Gaussian mixture model (GMM) was used as the joint probability density function of the Bayesian network to formulate the conditional probability. Furthermore, the Expectation maximization (EM) Algorithm was also used to estimate the new parameters of the GMM through an iterative method to obtain the maximum likelihood estimation (MLE) as a convergence of the algorithm. The performance of the prediction model was tested in the bus lanes in the University of Indonesia. The results show that the model can be a potential model to predict effectively the bus arrival time.