

Forecasting Daily Travel Mode Choice of Kuantan Travellers by Means of Machine Learning Models



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Abstract In transportation studies, forecasting users' mode choice in daily commute is crucial in order to manage traffic problems due to high number of private vehicles on the road. Conventional statistical techniques have been widely used in order to study users' mode choice; however, the choice of the most appropriate forecasting method still remains a significant concern. In this paper, we investigate the application of a number of machine learning models, namely Random Forest (RF), Tree, Naïve Bayes (NB), Logistic Regression (LR), k-Nearest Neighbour (k-NN), Support Vector Machine (SVM), as well as Artificial Neural Networks (ANN) in predicting the daily travel mode choice in Kuantan. The data was collected from a survey of Revealed/Stated Preferences (RPSP) Survey among Kuantan travellers in which eight features were taken into consideration in the present study. The classifiers were trained on the collected dataset by using five-folds cross-validation method to predict the daily mode choice. It was shown from this preliminary study that the RF, as well as ANN classifiers, could provide satisfactory classification accuracies to up to 70% in comparison to the other models evaluated. Therefore, it could be concluded that the evaluated features are rather important in deciding the travel model choice of Kuantan travellers.

Keywords Mode choice · Public transport · Private vehicles · Machine learning

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