عنوان مقاله:

Using the Bootstrap Forest Method to Predict Bus-bunching Events

محل انتشار:

هفدهمین کنفرانس بین المللی مهندسی حمل و نقل و ترافیک (سال: 1396)

تعداد صفحات اصل مقاله: 15

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خلاصه مقاله:

The effect of temporal and spatial characteristics on the bus bunching events was studied for four bus lines operating on the 16th street in Washington, DC. The prediction model was built using the Bootstrap Forest method of JMP statistical software, an ensemble method that aggregates the results of different decision tree models. Since the bunching events were scarce compared to non-bunching events, a cost matrix was introduced to be used for prediction. This cost matrix helped recall higher number of bunching events, and the F-measure increased to 0.43 from the initial value of 0.14. The results revealed that bunching highly depends on the congestion level of the streets. The highest Probability of bunching was during the peak hours, and in the downtown area where most of the travel activities happen it is more likely that the buses pair. This study helps the transit authorities to implement appropriate control strategies to reduce the bunching events.

کلمات کلیدی:

Public Transportation, Bus-bunching, Bootstrap Forest Method