Outlier Detection in Vehicle Trajectories

Abstract

Outlier detection in vehicle trajectory data is an important research problem of recent era. This problem has gained attention with the development of global position system (GPS), wireless technology and location aware services, which makes possible to gather a large quantity of trajectory data. This paper presents an algorithm for anomaly detection in vehicle trajectory data using hausdorff distance. The algorithm has the capability of handling non-uniform data, data of unequal length, and data on different directions. The Proposed technique identifies anomalous trajectories and those trajectories as well which partially behave anomalous activity.

In the proposed technique the clusters of nearest trajectories are formed based on hausdorff distance. The outlier trajectories are identified based on user defined outlier threshold. If any cluster is containing less number of trajectories than the outlier threshold, the trajectories of that clusters are identified as outlier trajectories. The algorithm has been tested on real data set of School Buses [13].
Index Terms

Computer Science  Artificial Intelligence

Keywords

Anomalous Trajectory Pattern, Outlier Trajectories, Trajectory Analysis, Trajectory Pattern Mining