Mitigating Serial Hot Spots on Crime Data using Interpolation Method and Graph Measures

Abstract

Crime detection is the vital and emerging research field in the real world environment which aims to prevent the number of crimes happening in the world. The nature of crime differs in different places based on location, age, religion, habitual characteristics and so on. Mitigating the serial crimes which are identical to each other is the most important scenario to be concerned in the real world. There may be a problem arise while mitigating the hot spots in the different crime locations due to missing values of some important features. Prediction of similar types of crimes also becomes the complex process where the temporal features are scattered. To solve the problem in this work the triangulation based interpolation methodology (TIM) and the graph measures were introduced. The TIM tends to find the missing value among the set of values based on the average level of the most nearer points where the data points are scattered unevenly. And the similarity measures assure the selection of the most nearest neighbour solutions. The similarity measures that are used in this work for predicting the most nearest location with same type of crime behaviour are Distance Measure (DM), Centrality Measure (CM) and Graph Assortativity (GA) measure. The performance evaluations were conducted with
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the help of spatio temporal data sets where the list of crimes and the location, behaviour are depicted properly. The experimental tests conducted proves that the proposed methodology in this work can mitigate the serial crime hot spots more accurately.

References


25. M. Vijaya Kumar and Dr. C. Charasekar; Spatial Clustering Simulation on Analysis of Spatial-Temporal Crime Hotspot for Predicting Crime activities, IJCA, 2011.

Index Terms

Computer Science Security

Keywords

Spatio temporal data, Interpolation, Graph distance measures, hot spots.