

Scalable Anomaly Detection for Smart City Infrastructure Networks

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Internet-enabled, location aware smart phones with sensor inputs have led to novel urban monitoring applications exploiting unprecedented high levels of citizen participation in dense metropolitan areas [2]. For policy makers, it is a key task to keep track of trends and developments for understanding and effectively reacting to problems around a city, specially in their early stages. Anomaly and Event Detection Approaches (see [1]) help understand the urban dynamics contained in this kind of data and detect anomalies and new developments of urban dynamics, a key-task in today s Smart Cities.

Goal of this work is to evaluate the application and scalability of anomaly detection algorithms to (big) urban city data. This includes the prototypical implementation of state of the art algorithms (see [1]) and its evaluation in a smarter city context on a large number of data sources.

[1] Chen, F., & Neill, D. B. (2014, August). Non-parametric scan statistics for event detection and forecasting in heterogeneous social media graphs. In Proceedings of the 20th ACM SIGKDD international conference on Knowledge discovery and data mining (pp. 1166-1175). ACM.

[2] Budde, M., De Melo Borges, J., Tomov, S., Riedel, T., & Beigl, M. (2014, October). Leveraging spatio-temporal clustering for participatory urban infrastructure monitoring. In Proceedings of the First International Conference on IoT in Urban Space (pp. 32-37). ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering).