#### **OUTLIER DETECTION IN DATA STREAMS**

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**Suggested Paper:** Outlier detection in Feature evolving data streams:

http://www.kdd.org/kdd2018/accepted-papers/view/xstream-outlier-detection-in-feature-evolving-data-streams

# Distance and clustering based approaches:

- Detecting distance-based outliers in streams of data: https://dl.acm.org/citation.cfm?id=1321552
- Distance based outlier detection in data streams (Comparative work): https://dl.acm.org/citation.cfm?id=2994526
- A framework for clustering evolving data streams (Check sections devoted to outlier detection using clustering): <a href="https://dl.acm.org/citation.cfm?id=1315460">https://dl.acm.org/citation.cfm?id=1315460</a>

#### **Ensemble methods:**

- 1. Learning model trees from evolving data streams (Need to browse through the outlier detection part only): https://link.springer.com/article/10.1007/s10618-010-0201-y
- 2. Outlier ensembles:
  - a. <a href="https://dl.acm.org/citation.cfm?id=2481252">https://dl.acm.org/citation.cfm?id=2481252</a>
  - b. https://dl.acm.org/citation.cfm?id=2830549
- 3. Feature bagging for outlier detection: <a href="https://dl.acm.org/citation.cfm?id=1081891">https://dl.acm.org/citation.cfm?id=1081891</a>
- 4. Subspace outlier detection in linear time using randomized hashing: http://charuaggarwal.net/linearout.pdf
- 5. Sequential ensemble learning for outlier detection: https://ieeexplore.ieee.org/abstract/document/7837967/

## Streaming methods:

- 1. Partitioning the representation space:
  - a. Fast anomaly detection for streaming data http://www.aaai.org/ocs/index.php/IJCAI/IJCAI11/paper/download/3229/3469
  - b. RS-Forest: https://ieeexplore.ieee.org/abstract/document/7023377/
- 2. Other Methods
  - a. SPOT: A system for detecting projected outliers from high dimensional data streams: https://ieeexplore.ieee.org/document/4497638/
  - Anyout: Any time outlier detection in streaming data:
    <a href="https://link.springer.com/chapter/10.1007/978-3-642-29038-1\_18">https://link.springer.com/chapter/10.1007/978-3-642-29038-1\_18</a>

### Surveys and old papers:

- 1. Anomaly detection: A survey: <a href="https://dl.acm.org/citation.cfm?id=1541882">https://dl.acm.org/citation.cfm?id=1541882</a>
- 2. Outlier detection in high dimensionality datasets: https://dl.acm.org/citation.cfm?id=375668
- Outlier detection for temporal data: A survey: https://ieeexplore.ieee.org/abstract/document/6684530/