

Anomaly Detection

Definition



Identification of rare items, events or observations which is different from current Dataset

Categories



1 Point Anomaly Single instance of data is abnormal

Example

Detecting Credit card Fraud based on "Amount Spent"

2 Contextual Anomaly Abnormal in the Context

Example

A peak of Amazons's sale on Black Friday is not considered an anomaly, but a peak on a regular day may be anomalous.

3 Collective Anomaly Set of data is Abnormal

Example

It is normal to have times of day when sales are low in the early morning, but when several points remain collectively low, it is indicative of an anomaly.

Methods of Detecting Anomaly



1 Supervised Anomaly detection

k-Nearest Neighbors

Support Vector Machine

etc.

2 Unsupervised Anomaly detection

K-means Clustering

C-means clustering

Self Organizing Map (SOM)

etc.

3 Semi-Supervised

Applications



1 Fraud Detection

2 Event detection in sensor networks

3 Abnormal in Sales Drop