

Title: Outlier Detection: Principles, Techniques and Applications.

Abstract: As data continues to be accumulated at an exponential rate the importance of outlier or anomaly detection as a tool for knowledge discovery grows too. For example, outlier detection techniques are a key component in network intrusion and fraud detection systems. In this tutorial we will present some of the key ideas of outlier detection and how they have been adapted to deal with large and different types of data sets. Starting from the folklore definition of "three standard deviations away from the mean", the tutorial will sweep across more sophisticated techniques like distance and density based outliers, outlier detection in high dimensional spaces and in spatial, sequential and stream databases.

Bio: Sanjay Chawla is an Associate Professor in the School of Information Technologies, University of Sydney. His research focus is in the area of data mining with a special emphasis on outlier detection. He won the best paper award in 2008 SensorKDD workshop on "Spatio-Temporal Outlier Detection in Precipitation Data." In 2006 SIAM Data Mining Conference he won the best paper award on "Outlier Detection in Sequential Databases." He is currently editing a special issue on outlier detection for the prestigious Data Mining and Knowledge Discovery journal. He serves on the program committee of all the major data mining conferences including SIGKDD09 and IEEE ICDM 08, SDM 09 and PAKDD 09. He served as the Vice Chair of IEEE ICDM 2007.