



**RESEARCH ARTICLE**

# **ADCA: Advanced Density Based Clustering Algorithm for Spatial Database System**

**Abhaya Kumar Sahoo**

Department of Information Technology, C.V. Raman College of Engineering, Bhubaneswar, India  
*kitsaks3@gmail.com*

---

*Abstract— Cluster detection in Spatial Databases is an important task for discovery of knowledge in spatial databases and in this domain density based clustering algorithms are very effective. Density Based Spatial Clustering of Applications with Noise (DBSCAN) algorithm effectively manages to detect clusters of arbitrary shape with noise, but it fails in detecting local clusters as well as clusters of different density present in close proximity. Density Differentiated Spatial Clustering (DDSC) and Local-Density Based Spatial Clustering Algorithm with Noise (LDBSCAN) manage to detect clusters of different density as well as local clusters very effectively, but the number of input parameters is very high. Here I have proposed a new density based clustering algorithm with the introduction of a concept called Cluster Constant which basically represents the uniformity of distribution of points in a cluster. In order to find the density of a point I have used new measure called Reachability-Density. The proposed algorithm has minimized the input to be provided by the user down to one parameter (Minpts) and has made the other parameter (Eps) adaptive. Here I have also used some heuristics in order to improve the running time of the algorithm. Experimental results show that the proposed algorithm detects local clusters of arbitrary shape of different density present in close proximity very effectively and improves the running time when applied the heuristic.*

**Key Terms: - Spatial Data Mining; Clustering**

---