

Jim C. Bezdek: Every picture tells a story: Visual Cluster Assessment in Square and Rectangular Relational Data

Abstract. The VAT/iVAT, algorithms are the parents of a large family of visual assessment models.

Outline of the 2-hour talk:

1. The three canonical problems of cluster analysis in Static data sets: tendency assessment, clustering, and cluster validity.
2. History of Visual Clustering. Cluster Heat Maps from the past. The basic VAT and iVAT algorithms.
3. siVAT: scalable iVAT; Approximate cluster heat maps for big data. This is the basis of clusiVAT and clusiVAT+ for clustering in big data.
4. coiVAT: co-clustering tendency in the four clustering problems associated with rectangular relational data.
5. inciVAT: visual representation of possible structure and changes in online streaming data.

Applications: IBRL lab environmental sensor data. GSB weather data, Heron Island weather data, anomaly detection in wireless sensor networks, image segmentation, neural spike detection, smart city sensor data, fibroblast treatments in gene expression data.