

## **Spectral Ensemble Clustering via Weighted K-means: Theoretical and Practical Evidence**

### **ABSTRACT**

Consensus clustering, also known as ensemble clustering, emerges as a promising way for multi-source, heterogeneous data clustering, and recently attracts increasing academic attention. It aims to find a single partition that mostly agrees with multiple existing basic ones. It is of recognized benefits in generating robust partitions, discovering novel structures, handling noisy features, and integrating solutions from multiple sources.

### **EXISTING SYSTEM**

As a promising way for heterogeneous data analytics, consensus clustering has attracted increasing attention in recent decades. Among various excellent solutions, the co-association matrix based methods form a landmark, which redefines consensus clustering as a graph partition problem. Nevertheless, the relatively high time and space complexities preclude it from wide real-life applications.

### **DRAWBACKS**

- This suffers from some non-ignorable drawbacks, particularly when facing data sets of different characteristics.
- Some basic partitions are unable to do.

### **PROPOSED SYSTEM**

We projected the Spectral Ensemble Clustering (SEC) algorithm. By identifying the equivalent relationship between SEC and weighted K-means, we decreased the time and space complexities of SEC dramatically. The intrinsic consensus objective function of SEC was also revealed, which bridges the co-association matrix based methods with the methods with explicit global objective functions. We then investigated the robustness, generalizability and convergence properties of SEC to showcase its superiority in theory, and extended it to handle incomplete basic partitions.

## ADVANTAGES

- We finally extend SEC to meet the challenge arising from incomplete basic partitions, based on which a row-segmentation scheme for big data clustering is proposed.
- This solves some non-ignorable drawbacks, particularly when facing data sets of different characteristics.

## SYSTEM REQUIREMENTS

### H/W System Configuration:-

Processor	-	Pentium –III
RAM	-	256 MB (min)
Hard Disk	-	20 GB
Key Board	-	Standard Windows Keyboard
Mouse	-	Two or Three Button Mouse
Monitor	-	SVGA

### S/W System Configuration:-

Operating System	:	Windows95/98/2000/XP
Application Server	:	Tomcat5.0/6.X
Front End	:	HTML, Jsp
Scripts	:	JavaScript.
Server side Script	:	Java Server Pages.
Database	:	MySQL 5.0
Database Connectivity	:	JDBC