

中央研究院統計科學研究所

學術演講

講題：clusterMLD: An Efficient Clustering Method for Multivariate
Longitudinal Data

演講人：Prof. Ying Zhang

University of Nebraska Medical Center College of Public Health

時間：2024-06-12(Wed.) 16:40~17:20

地點：Auditorium, B1F, Institute of Statistical Science; The tea
reception will be held at 16:30.

備註：Online live streaming through Cisco Webex will be available.

Abstract

Longitudinal data clustering is a challenging task, especially with sparse and irregular observations. It lacks reliable methods in the literature that deal with clustering complicated longitudinal data, particularly with multiple longitudinal outcomes. In this manuscript, a new agglomerative hierarchical clustering method is developed in conjunction with B-spline curve fitting and the construction of a unique dissimilarity measure for differentiating longitudinal observations. In an extensive simulation study, the proposed method demonstrates its superior performance in clustering accuracy and numerical efficiency compared to the existing methods. Moreover, the method can be easily extended to multiple-outcome longitudinal data without too much cost in computation and shows its robust results against the complexity of the underlying mixture of longitudinal data. Finally, the method is applied to a data set from the SPRINT Study for validating the intervention efficacy in a Systolic Blood Pressure Intervention Trial and to a 12-year multi-site observational study (PREDICT-HD) for identifying the disease progression patterns of Huntington's disease (HD).



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