

Spectral methods for growth curve clustering

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We study a problem of functional data clustering where functions are growth curves. On a given set of growth curves we apply spectral clustering techniques which require a construction of a similarity graph and solving a relaxed version of the minimum cut problem or the Newman-Girvan modularity maximization problem. These methods are nonparametric and they consist of choosing a new point-based representation of curves that allows the usage of some standard clustering algorithms such as k -means. To demonstrate the performance of the spectral approach to growth curve clustering, we generate synthetic data sets and compare our results with other curve clustering methods such as polynomial regression mixtures or the usual k -means method. Results indicate that spectral methods show better performance than other methods, i.e. they are more accurate and faster. We test our method on one real-world example.