Abstract

The preservation of the pairwise distances measured in a data set ensures that the low dimensional embedding inherits the main geometric properties of the data like the local neighborhood relationships. In this paper, distance preserving technique namely, Sammons nonlinear mapping (Sammon's NLM) and Curvilinear Component Analysis (CCA) have been discussed and compared for non-linear dimensionality reduction. Basic principle in both the technique is that local neighborhood relationship is maintained. The results have been compared for both the techniques on artificially generated data set using MATLAB software.

References

Spatial Distance Preservation based Methods for Non-Linear Dimensionality Reduction

- Lu Xu, Yang Xu, Tommy W. S. Chow, Pattern Recognition (43), 2010, Department of Electronic Engineering, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong,Elsevier Ltd.

Index Terms

Computer Science

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Keywords

MDS Dimensionality Reduction Nonlinear Mapping Vector Quantization Quasi
Newton Optimization

Gradient Descent