

Multilinear Subspace Learning

Dimensionality Reduction of Multidimensional Data

Haiping Lu, Hong Kong Baptist University, Kowloon Tong, Hong Kong
Konstantinos N. Plataniotis, University of Toronto, Ontario, Canada
Anastasios Venetsanopoulos, Ryerson University, Toronto, Canada

Emphasizing essential concepts and system-level perspectives, this book provides a foundation for solving many of today's most interesting and challenging problems in big multidimensional data processing. It gives a comprehensive introduction to both theoretical and practical aspects of MSL for the dimensionality reduction of multidimensional data based on tensors. The book follows a unifying MSL framework formulation to systematically derive representative MSL algorithms. It describes various applications of the algorithms, along with their pseudocode. Supporting materials are available online.

Key Features

- Introduces both MSL theories and practical considerations, including multilinear algebra fundamentals, multilinear projections, framework formulation, optimality criterion construction, and implementation tips
- Provides a strong foundation for developing new MSL algorithms and exploring new MSL applications
- Presents pseudocode for algorithms in a unifying format, with MATLAB code available on a [supporting website](#)
- Offers examples of real-world applications in video surveillance, biometrics, and object recognition
- Includes numerous figures that clarify and link concepts, enabling readers to easily grasp and visualize the main ideas
- Covers mathematical background, data preprocessing, and software tools in the appendices

Selected Contents

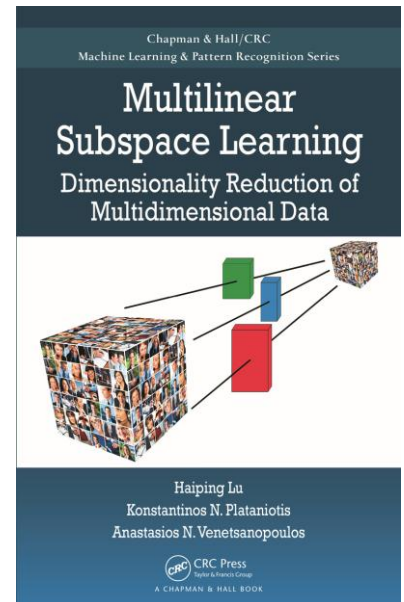
Introduction. **Fundamentals and Foundations:** Linear Subspace Learning for Dimensionality Reduction. Fundamentals of Multilinear Subspace Learning. Overview of Multilinear Subspace Learning. Algorithmic and Computational Aspects. **Algorithms and Applications:** Multilinear Principal Component Analysis. Multilinear Discriminant Analysis. Multilinear ICA, CCA, and PLS. Applications of Multilinear Subspace Learning. Appendices. Bibliography. Index.

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