Integrating Data Transformation in Principal Components Analysis

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Cudahy Hall, Room 401

Principal component analysis (PCA) is a popular dimension reduction method to reduce the complexity and obtain the informative aspects of high-dimensional datasets. When the data distribution is skewed, data transformation is commonly used prior to applying PCA. Such transformation is usually obtained from previous studies, prior knowledge, or trial-and-error. In this talk, we develop a model-based method that integrates data transformation in PCA and finds an appropriate data transformation using the maximum profile likelihood. Extensions of the method to handle functional data and missing values are also developed. Several numerical algorithms are provided for efficient computation. The proposed method is illustrated using simulated and real-world data examples.

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For further information: see http://www.marquette.edu/mscs/resources-colloquium.shtml
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