

A moment-based projection pursuit index

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Abstract

In projection pursuit, the projection index measures the interestingness of a given data projection. In moment-based projection pursuit, the projection index depends on some moments of the projection, such as its skewness or its kurtosis. We propose the skewness-to-kurtosis ratio as a projection pursuit index. It is particularly apt at detecting clusters and may be used to detect other departures from normality. The index might be derived as the solution of a generalized tensor eigenvector problem and is theoretically motivated when sampling from a location mixture of two multivariate normal distributions or from an extended multivariate skew-normal distribution. Properties and limitations of the proposed index are investigated with special emphasis on its connections with other moment-based indices.

Keywords

Finite mixture, Generalized tensor eigenpairs, Kurtosis, Projection pursuit, Skewness.