

COLLOQUIUM

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On Multivariate Location, Scatter, Skewness, and Kurtosis, and the Invariant Coordinate System (ICS)

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A405 Wells Hall

10:20 a.m. - 11:10 a.m.

Refreshments: 10:00 a.m.

Abstract

In this talk we consider a semiparametric multivariate location-scatter model where the standardized random vector of the model is fixed using two location vectors and two scatter matrices. The location and scatter functionals based on the first four moments serve as our main example. The four functionals yield in a natural way the corresponding skewness, kurtosis and unmixing matrix functionals. Affine transformation based on the unmixing matrix transforms the variable to an invariant coordinate system (ICS). The limiting properties of the skewness, kurtosis, and unmixing matrix estimates are derived under general conditions. We discuss related statistical inference problems, the role of the sample statistics in testing for normality and ellipticity, and connections to invariant coordinate selection and independent component analysis (ICA).

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