

Non-Gaussian Multivariate Statistics

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Abstract. Since the early 1990's, researchers in machine learning and signal processing have actively developed variants of classic multivariate statistics which are based on the non-Gaussianity (non-normality) of the latent variables. This development has mainly taken place in the context of factor analysis, in which case the ensuing model is called independent component analysis. More recently, the same ideas have also been proposed in the context of structural equation models, and historically the earliest context was moving-average modelling of time series. The idea is that non-Gaussianity can solve some fundamental indeterminacies in these models. In applications related to signals measured by various devices, the underlying assumption of non-Gaussianity seems to be valid quite often. This talk will present the underlying framework, show how it applies in the different models, and illustrate it with some applications.