

Accelerating the estimation process in the context of the multivariate skew scale mixtures of normal distributions

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Ferreira et al. (2016) proposed a multivariate version of the skew scale mixtures of normal distributions (SSMN) that allows flexible modeling of asymmetric data, but is computationally difficult for estimation of the skewness parameter and especially the hyperparameters through the ECME algorithm. In this work, we propose an extension of some of the results developed by Lange and Sinsheimer (1993) and an approximation method presented in Powell (1981) to obtain explicit expressions for the hyperparameters of some distributions of the SSMN family. This accelerates the parameter estimation process, as illustrated in simulations.

References

- [1] FERREIRA, C. S.; LACHOS, V. H.;BOLFARINE, H. , *Likelihood-based Inference for Multivariate Skew Scale Mixtures of Normal Distributions* , AStA Advances in Statistical Analysis
- [2] LANGE, K. L.; SINSHEIMER, J. S. , *Normal/independent distributions and their applications in robust regression* , Journal of Computational and Graphical Statistics
- [3] POWELL, M. J. D. , *Approximation Theory and Methods* , Cambridge University Press