

A New Class Of Multivariate Skew Distributions with Application To Robust Analysis

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Abstract

In this paper, we introduce a new family of multivariate distributions as a skew extension of the multivariate generalized t-distribution introduced by Arslan (2004). The new family, which is obtained by using the scale-mixture approach of a skew elliptical distribution and the inverse generalized gamma distribution, contains many standard families of multivariate symmetric and multivariate skew distributions such as the multivariate normal, skew-normal, t- and skew t- distributions as special cases. We obtain the form of the density functions and study the distributional properties of the distributions included by this family. We give practical applications of these distributions in robust statistical analysis and illustrate the usefulness of the skew distributions using some numerical examples.

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