

Norm and antinorm contoured distributions

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For a long period, exact statistical distribution laws of functions of random vectors were mainly derived in cases when sample vectors follow Gaussian or elliptically contoured distributions, see [1, 2].

A new geometric method for deriving exact distributions of statistics if the sample vector follows an $l_{n,p}$ -symmetric distribution law was discussed in [4] and applied later on to several statistical distributions such as that of extreme values, general order statistics, ratios and products as just to mention a few of them.

An extension of this disintegration method, which one can also consider as a generalization of the method of indivisibles, to norm and antinorm contoured sample distributions, is proved in [5]. For the notion of antinorm, see [3].

Corresponding stochastic vector representations generalize the well known one from [2].

In this talk, we overview recent developments of geometrically representing multivariate random vectors and their distributions, present several particular cases and applications, and outline further perspectives.

References

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