

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
ΤΜΗΜΑ ΜΑΘΗΜΑΤΙΚΩΝ ΚΑΙ ΕΦΑΡΜΟΣΜΕΝΩΝ ΜΑΘΗΜΑΤΙΚΩΝ

ΟΜΙΛΙΕΣ ΣΤΑΤΙΣΤΙΚΗΣ ΚΑΙ ΠΙΘΑΝΟΤΗΤΩΝ

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Aspects of the γ -order normal and related distributions

An exponential-power generalization of the usual multivariate Normal distribution is introduced. The theoretical context, from which this γ -order Generalized Normal (γ -GN) is derived, is roughly presented while the information-theoretic advantages of the γ -GN are also discussed. The generalized Fisher's entropy type information measure as well as the corresponding generalized entropy power for the γ -GN is then computed. Certain entropy measures for the γ -GN are given. The Kullback-Leibler information divergence and the Hellinger distance between two γ -GNs are also studied. Some computational aspects of the γ -GN estimation are discussed. A short risk analysis of the γ -GN is performed. Furthermore, the expected future lifetime of the γ -order half-Normal distribution is calculated. Finally, certain γ -GN based distributions are constructed and discussed, including the generalized γ -order Lognormal distribution, a two-way asymmetric form of the γ -GN as well as a generalization of the Inverse Normal distribution.