Abstract

In this paper, a new distribution called New Generalized Extreme Value (NGEV) distribution is introduced. Also, the statistical properties of this model are studied, such as, quantiles, moment generating function and moments of order statistics. Moreover, maximum likelihood estimators of it’s parameters are discussed. An application of NGEV distribution to a survival times in months of 20 acute myeloid leukemia patients data set is provided. Also, bivariate New Generalized Extreme Value BNGEV distribution is introduced a Marshall-Olkin type. Marginal and conditional distribution functions are studied. Furthermore, maximum likelihood estimates (MLEs) of the parameters are presented. An application of BNGEV distribution to an UEFA Champions League data set is provided and the profiles of the log-likelihood function of parameters of NGEVD and BNGEVD are plotted.


**Index Terms**

Computer Science  Applied Mathematics

**Keywords**

Extreme value distribution, Exponentiated Weibull distribution, Moment generating function, Joint cumulative distribution function, Maximum likelihood estimation