

Special Issue on
New Advances in Statistical Distributions and Probability Models

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Aristotle once said that “the probable is what usually happens.” People use probability for better choices in lives.

Probability distributions are vital and fundamental to real life and are concerned with creating the basis and foundation for the study of uncertainty. A probability distribution is used to better understand a dataset. In fact, we do not have a full dataset (population) but have a sample dataset that is presented and understood by probability distributions only. Probability distribution is used almost in every discipline.

Distribution is a probabilistic model that is employed in studying big data. The big data regarding insurance premiums, weather forecast, games, and likelihood of raining and defining and describing some specific physical reality in physics, statistical mechanics, physical chemistry, and so on that is not properly handled by computer technology is best learned by probability distributions. Athletes and coaches use probability to determine the best sports strategies for games and competitions.

The generation of new families of continuous distributions has recently been of great interest to researchers. Several known continuous distributions are found to be special cases of the new distributions. The main aim of generating of these families is to make selection of models for a given set of data easy, which are preferable to other models. Due to the usefulness of statistical distributions, their theories need to be widely studied.

The interest in developing more flexible statistical distributions remains strong in statistics profession. It started with Pearson and then many others, namely, Burr, Johnson, Tukey, Azzalini, Cordeiro, Kumaraswamy, Marshall and Olkin, Alexander, Balakrishanan, Alizadeh, Afify, Alzaatreh, Hamedani, and many others who have done tremendous research and still there are challenging areas where new models are necessarily required.

There are some more well-known families that can be introduced by developing new generators and/or mixtures.

Potential topics include but are not limited to the following:

- ▶ Marshall-Olkin-G (MO-G)
- ▶ Beta-G (B-G)
- ▶ Kumaraswamy-G (Kw-G)
- ▶ McDonald-G (Mc-G)
- ▶ Gamma-G
- ▶ Kumaraswamy transmuted-G family
- ▶ Kumaraswamy odd log-logistic-G
- ▶ Generalized Beta odd log-logistic
- ▶ Generalized transmuted-G
- ▶ Transmuted exponentiated generalized-G
- ▶ Generalized lambda distributions and new standard statistical distributions

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