# A method for generating discrete analogues of continuous distributions

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## Abstract

Discrete analogues of continuous distributions have been applied in many reliability applications. The early work of generating discrete analogues of continuous distributions was given in Katz (1945). Kemp (1968) made a further extension of the Katz family. The Larangian family of discrete distributions by using the Lagrangian expansion is another important technique for generating discrete distributions, which was studied by Cousul, Shenton and their collaborators. In the 1970's. Roy (2004) proposed a method from reliability perspective to discretize distributions and studied discrete analogues of Rayleigh and normal distributions. Krishna and Pundir (2009) studied Roy's method and applied it to discrete Burr and Pareto distributions. This talk will present a new method for generating discrete analogues of any univariate continuous distributions. This method is originated from a recently developed method 'Transformed-Transformer' method for generating continuous distributions, namely the T-X family, proposed by the presenter and his collaborators. This method allows for combining any two continuous distributions into a new distribution. The framework can also be applied to generate discrete distributions. This talk will focus on the T-Geometric family, which defines the discrete analogue of any continuous random variable T. Some general properties of the T-geometric family will be given. A member of the T-geometric family will be discussed in detail along with the applications to fit some real data sets.