

## Decision Making Approach through Generalized Fuzzy Entropy Measure

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**Abstract :** Uncertainty is found everywhere and its understanding is central to decision making. Uncertainty emerges as one has less information than the total information required describing a system and its environment. Uncertainty and information are so closely associated that the information provided by an experiment for example, is equal to the amount of uncertainty removed. It may be pertinent to point out that uncertainty manifests itself in several forms and various kinds of uncertainties may arise from random fluctuations, incomplete information, imprecise perception, vagueness etc. For instance, one encounters uncertainty due to vagueness in communication through natural language. Uncertainty in this sense is represented by fuzziness resulting from imprecision of meaning of a concept expressed by linguistic terms. Fuzzy set concept provides an appropriate mathematical framework for dealing with the vagueness. Both information theory, proposed by Shannon (1948) and fuzzy set theory given by Zadeh (1965) plays an important role in human intelligence and various practical problems such as image segmentation, medical diagnosis etc. Numerous approaches and theories dealing with inaccuracy and uncertainty have been proposed by different researcher. In the present communication, we generalize fuzzy entropy proposed by De Luca and Termini (1972) corresponding to Shannon entropy(1948). Further, some of the basic properties of the proposed measure were examined. We also applied the proposed measure to the real life decision making problem.

**Keywords :** entropy, fuzzy sets, fuzzy entropy, generalized fuzzy entropy, decision making

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020