

ABSTRACT

Intention of this dissertation is to deal with linguistic data modelling for decision-making under fuzzy framework. In decision analysis, linguistic data become important when we are unable to express the information precisely due to incomplete and imprecise knowledge, complexity of the systems and involvement of certain human factors etc. In view of developing fuzzy decision-making schemes, the main models discussed in the thesis are

- Multi-criteria decision-making schemes with single or multiple experts
- Building a compact and consistent fuzzy rule-base on the basis of raw fuzzy rules surveyed heuristically
- Fuzzy statistical models developed in a linguistic framework, i.e., fuzzy correlation analysis, fuzzy linear and polynomial regression modelling, fuzzy discrimination and classification.
- Applications to e-business and healthcare management issues using the developed fuzzy reasoning and fuzzy statistical tools.

KEYWORDS:

Linguistic variable * Vagueness * *LR* and triangular fuzzy number * Ordered Weighted Average (OWA) * Multi-criteria decision-making * Clustering of fuzzy numbers * Fuzzy distance * Fuzzy rule-base (FRB) * Similarity index * Interactive rule classification approach * Simple fuzzy correlation * Partial fuzzy correlation * Multiple fuzzy correlation * Fuzzy linear and polynomial regression for FRB * Fuzzy discrimination and classification * E-business and medical problems