dies in Indian Place Names GC Care Journal) ISSN: 2394-3114 Vol-40-Issue-50-March-2020



Fuzzy Logic and its Application in Real Life

Alpana Sharma,

Assistant Prof. of Mathematics in Govt. College Julana, Jind (Haryana)

Abstract: This paper gives a review of some classical and new applications of fuzzy logic. Some of the fundamentals of fuzzy logic that support these applications will be explained in order to make the paper sound.

Keywords: fuzzy sets, fuzzy logic, linguistic variables, fuzzy decision making

1. Introduction

Fuzzy logic is based on the observation that people make decisions based on imprecise and non-numerical information. Fuzzy models or sets are mathematical means of representing vagueness and imprecise information (hence the term fuzzy). These models have the capability of recognising, representing, manipulating, interpreting, and utilizing data and information that are vague and lack certainty. Lotfi A. Zadeh published his first paper on fuzzy sets in 1965. In the meantime, thousands of papers in this area, covering both theory and applications, have been published allover the world.

Fuzzy Logic can deal with information arising from computational perception and cognition, that is uncertain, imprecise, vague, partially true or without sharp boundaries. Fuzzy logic allows for the inclusion of vague human assessments in computing problems. Also, it provides an effective means for conflict resolution of multiple criteria and better assessments of options. New computing methods on fuzzy logic can be used in development of intelligent system of decision making, identification, pattern recognition, optimization and control.

Fuzzy logic is extremely useful for many people involved in research and development including engineers, mathematicians, computer software developers and researchers, natural scientists, medical researchers, social scientists, public policy analysts, business analysts and jurists.

1.1 Linguistic variables

While variables in mathematics usually take numerical values, in fuzzy logic applications, non-numeric values are often used to facilitate the expression of rules and facts.

A linguistic variable such as *age* may accept values such as *young* and its antonym *old*. Because natural languages do not always contain enough value terms to express a fuzzy value scale, it is common practice to modify linguistic values with <u>adjectives</u> or <u>adverbs</u>. For example, we can use the <u>hedges</u> *rather* and *somewhar* to construct the additional values *rather old* or *somewhat young*.