

Fuzzy inference systems (FISS) are also known as fuzzy rule-based systems. This is sometimes known as a singleton output membership function, and it can be thought of as a prefuzzified fuzzy set. It enhances the efficiency of the defuzzification process because it greatly simplifies the computation required by the more general Mamdani method, which finds the centroid of a two-dimensional function rather than integrating across the two-dimensional function to find the centroid.

D. Fuzzy Interface Methods

There are two types of fuzzy inference method present, Mamdani's fuzzy inference method and Sugeno or Takagi-Sugeno-Kang method of fuzzy inference process [8–10]. The basic FIS can take either fuzzy inputs or crisp inputs, but the outputs it produces are almost always fuzzy sets. Therefore in this case defuzzification method is adopted to best extract a crisp value that best represents a fuzzy set.

Mamdani's Fuzzy Inference Method

Mamdani's fuzzy inference method is the most commonly seen fuzzy methodology. Mamdani's effort was based on Zadeh's (1973) paper on fuzzy algorithms for complex systems and decision processes.