

Zadeh, L. A.

Fuzzy sets. (English) Zbl 0139.24606
Inf. Control 8, 338-353 (1965).

A fuzzy set is a “set” of elements with a continuum of “grades of membership”. The rigorous definition is: let X be a set of objects (elements); a fuzzy set A in X is defined by a “membership (characteristic) function” f_A , which associates with each element $x \in X$ a real number $f_A(x) \in [0, 1]$. The value $f_A(x)$ of f_A at x represents the grade of membership of x in A . If A is an “ordinary” set, its membership function f_A can take on only the values 0 and 1: $x \in A \Leftrightarrow f_A(x) = 1$ and $x \notin A \Leftrightarrow f_A(x) = 0$. Various usual notions are extended to such sets (for instance, the notions of union, intersection and convexity).

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MSC:

03E72 Theory of fuzzy sets, etc.

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Keywords:

fuzzy sets; continuum of grades of membership; membership characteristic function; separation theorem for convex fuzzy sets

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