Elizarraras Llanos Angel Gustavo Neurofuzzy Systems 25/01/20

FL ESSAY

What if we could give to a computer a similar way of how we, humans, think?

Well, this is technically possible thanks to Fuzzy Logic, the first ideas about this were developed by Lotfi Zadeh of University of California Berkley in 1965.

What is Fuzzy Logic?

Human language is very subjective, we use notions like: “very short”, “rather tall”, etc. and these can’t be either true or false, maybe, if we say that 45ºC is “very hot” and 10ºC is “very cold”; so now, if we program a computer and put the temperatures previously mentioned between 0 and 1 in a proportional scale, we can say that we have already given to a machine a way to understand our fuzzy notions about temperature . In general, Fuzzy Logic is a multivalued logic that has its own rules with their set membership, just like Plato’s or Aristotle’s logic.

Fuzzy Logic History

Aristotle introduces “The Laws of Thought” back in the ancient Greek, these laws consisted principally in a bi-valued logic where every preposition was either true or false. Those laws included: the principle of identity, the contradiction and excluded of the middle laws.

Then, Jan Lukasiewicz, a polish philosopher, was the first to propose a three-valued logic, he included another possibility between true and false, which later, when he was working on it, he arrived to an infinite valued Logic.

We have already said that Zadeh was the first that turned fuzzy human terminology to numerical values, he also accomplished to perform operations upon those values and then return them in human language in a very accurate way. At first, his ideas were not accepted by the scientific community because they were complaints about assigning values to linguistic terms, that they were only two possibilities, true or false.

Since Mamdani, who used the fuzzy logic to a steam control, many others applications were developed. The most important facts are:

1987: application of fuzzy control to a train in Sendai, Japan.

1989-1994: creation of LIFE (Laboratory for International Fuzzy Engineering)

1989: Fuzzy control applied to a hot water supply, Matsushita.

1989: Honda prize to Zaldeh.

1990-2000: Many IEEE International Conferences on Fuzzy Systems.

Bibliography

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