Sample 2

Design of Fuzzy Logic Controllers
By Fuzzy c-Means Clustering

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Abstract

In this paper, the use of Fuzzy c-means clustering algorithm in the design of membership functions and fuzzy reles of a fuzzy logic controller are described. In the design procedure, an auto-Tuning PID controller was used to operate an example plant which is a model of the air-conditioning System, and the plant operating data were collected. The fuzzy c-partition of the data was then Analyzed by Fuzzy c-means clustering to achieve optimum fuzzy sets and fuzzy rules of the FLC. The FLC was then implemented and simulated in controlling the plant. The results from simulation show That when compared to conventionally designed FLC, the proposed FLC gives better temperature Characteristics.

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Keywords: -Fuzzy logic controller, Fuzzy c-means clustering, Controller design.