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TUNING OF FUZZY LOGIC CONTROLLERS BY PARAMETER ESTIMATION METHOD

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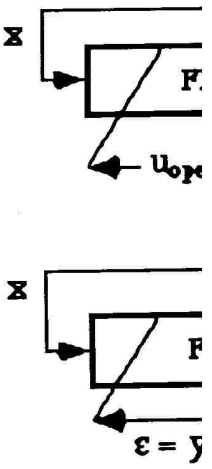
Fuzzy logic controllers (FLC) require fine tuning to match the rules to the membership functions or vice-versa. For the class of FLCs that mimic human process operators, the rule-membership function mismatch arises from the lack of information on the specifications of the membership functions. The rules that are incorporated into the FLC knowledge base are broad generalizations of the operators' control strategy. While the rules are readily available from the operator, the specifications of the membership functions are harder to define. For the class of FLCs that are used to control a process in which the control actions are not known a-priori, the rules and membership functions are derived using heuristics or based on the dynamics of the process that are obtained using simulation models. In this class of FLCs, and the one mentioned earlier, overlaps between variables fuzzy subsets, the slopes, and the functions used in defining the membership values all tend to dilute the generality of the rules and introduce specifics to the FLC.

This paper presents a
operators. The tuning
from the dynamics of
optimal values are to
tuning procedure. Th
estimation method. In
first presented. The t
illustrated by using a p

18.1 INTROD

FLCs are characteriz
identified by the fuzzi
and defuzzification sch
for example Lee [1,2]

The types of FLCs ar
[4], FLCs that mimic
FLCs, which we wil
normally performed b
difference between th
controller output is n
that is that of human p
the controller adjust it
In Type-1 FLCs, on
outputs follow human
tuning FLCs of Type-



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