

论文

基于逐点优化模糊推理的模糊控制器及其插值机理

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摘要 本文从直观优化思想出发,提出一种逐点优化模糊推理方法,

称之为POFI方法. 首先分别给出了基于POFI方法

的Mamdani蕴涵算子、代数积蕴涵算子和Zadeh蕴涵算子的FMP算法与FMT算法中

寻求推理后件(或前件)的计算

表达式. 然后分别获得了基于POFI方法的Mamdani蕴涵算子模糊

控制器、代数积蕴涵算子模糊控制器、Zadeh蕴

涵算子模糊控制器及加乘算子模糊控制器的插值表示,由此发现这

些模糊控制器具有函数逼近的泛性.其次指

出在基于POFI方法的单输入单输出情况下,Mamdani蕴涵算子

模糊控制器、代数积蕴涵算子模糊控制器及加乘算

子模糊控制器三者相互等效,并且在基于POFI方法的

双输入单输出情况下,Mamdani蕴涵算子模糊控制器与代数

积蕴涵算子模糊控制器是等效的.

关键词 [逐点优化模糊推理](#) [模糊控制](#) [插值机理](#)

分类号

FUZZY CONTROLLERS BASED ON POINTWISE OPTIMIZATION FUZZY INFERENCE AND ITS INTERPOLATION MECHANISM

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Abstract A kind of pointwise optimization fuzzy inference is proposed by using intuitive optimization idea in this paper, called the POFI method for short. How to implement FMP algorithm and FMT algorithm with Mamdani implication operator, algebra product implication operator and Zadeh implication operator are given on the basis of POFI respectively. Then the interpolation representations of fuzzy controllers with Mamdani implication operator, algebra product implication operator, Zadeh implication operator and $(+,\cdot)$ implication operator are introduced separately. So the pan-approximability of these fuzzy controllers is found by means of the interpolation representations. Furthermore, it is pointed that some controllers are equivalent to other fuzzy controllers under POFI method.

Key words [Fuzzy inference](#) [fuzzy control](#) [interpolation mechanism of fuzzy control](#)

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