

基于后件直联型分层的广义混合模糊系统及其积分模逼近

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Generalized hybrid fuzzy system based on consequent direct link type hierarchy and its integral norm approximation

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摘要

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摘要

首先, 引入后件直联型分层方法及其推理规则, 以对广义混合模糊系统的输入变量实施分层, 获得分层广义混合模糊系统的输入输出表达式和推理规则数的计算公式; 然后, 基于 $??$ -积分模(度量)和分片线性函数证明分层后广义混合模糊系统对一类可积函数具有逼近性; 最后, 通过模拟实例给出后件直联型分层广义混合模糊系统对可积函数的逼近过程. 模拟结果表明, 所提出的方法不仅能使原系统模糊规则总数大大减少, 而且能使分层后系统仍具有逼近性.

关键词: 后件直联型分层, 广义混合模糊系统, 分片线性函数, $??$ -积分模, 逼近性

Abstract:

The methods of the consequent direct link type hierarchy and its inference rules are introduced, so that implement hierarchy for some input variables of the generalized hybrid fuzzy system. Consequently, the input and output expressions of the generalized hybrid fuzzy systems after hierarchy and the calculation formula of the total number of fuzzy rules are obtained. Then, based on the $??$ -integral norm(a metric) and a piecewise linear function, it is proved that the generalized hybrid fuzzy system after hierarchy has the approximation to a class of integrable functions. Finally, the approximation process of the consequent direct link type hierarchy generalized hybrid fuzzy systems to the integrable functions are given by an example. The results show that the hierarchical method can not only make the total number of fuzzy rules of the original system greatly reduced, but also make the system after hierarchy has keep the approximation.

Key words: consequent direct link type hierarchy generalized hybrid fuzzy system piecewise linear function $??$ -integral norm approximation

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