

短文

基于遗传算法的广义Takagi-Sugeno模糊逻辑系统最优参数辨识

李合生,毛剑琴,代冀阳

北京航空航天大学第七研究室,北京;中国工程物理研究院电子工程研究所,绵阳

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摘要

针对Takagi-Sugeno模糊逻辑系统的隶属函数不具有自适应性且模糊规则数的确定带有很大的为主观性,这里引入了一类广义Takagi-Sugeno模糊逻辑系统;在模型实现上,以广义Takagi-Sugeno模型为个体,采用简单、有效的矩阵编码方式,借助遗传算法得到一个次优的广义Takagi-Sugeno模糊系统模型,该模型不仅能很好地逼近所要辨识的非线性系统,而且还具有较低的复杂度.仿真结果表明了广义Takagi-Sugeno模型及其参数辨识方法的正确性和有效性.

关键词 [模糊逻辑系统](#) [遗传算法](#) [矩阵编码](#) [参数辨识](#)

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Generalized Takagi-Sugeno Fuzzy Logical System Optimal Parameter Identification Based on Genetic Algorithm

LI He-Sheng, Mao Jian-Qin, Dai Ji-Yang

The Seventh Research Division, Beijing University of Aeronautics and Astronautics, Beijing; The Institute of Electric Engineering, Chinese Academy of Engineering Physics, Mianyang

Abstract

In Takagi-Sugeno fuzzy logical system, its membership functions have no self-adaptability and the number of fuzzy rules is defined subjectively. In this paper, a generalized Takagi-Sugeno fuzzy logical system model is quoted. In search of optimal parameters of the generalized Takagi-Sugeno model the matrix coding is adopted. The structure of the generalized Takagi-Sugeno model is evolved by GA and the resulting suboptimal solution can be found quickly, which has lower complexity and approximates to a nonlinear system very well. The validity of this method has been demonstrated by a numerical simulation.

Key words [Fuzzy logical system](#) [genetic algorithm](#) [matrix coding](#) [parameter identification](#)

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通讯作者

作者个人主页 李合生;毛剑琴;代冀阳

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