短文

基于模糊神经网络的模型参考自适应控制

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摘要
用模糊神经网络作为控制器, 依靠参考模型产生理想的控制系统闭环响应, 从而随时得到控制系统的输出误差. 用梯度法实时修正模糊控制器的输入和输出隶属度参数, 得到一种在线模糊自适应控制的新方法. 通过倒立摆的仿真实验表明, 该方法是可行的并能适应对象特性的大范围变化.

关键词　　模糊神经网络　模糊自适应控制　模型参考自适应控制

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Model Reference Adaptive Control Based on Fuzzy Neural Networks

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Abstract
In this paper, a new scheme of on-line fuzzy adaptive control is presented. The scheme adopts a fuzzy neural network as controller, and a reference model to give desired closed response, so that the output error of control system can be, realtime obtained and used for the modification of membership function parameters of fuzzy controller's input and output variables by gradient descent learning method. The simulation results of inverted pendulum show that the scheme is effective and can adapt the great change of process characteristics.

Key words　 Fuzzy neural networks　 fuzzy adaptive control　 model reference adaptive control

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