A Study And Design Applying Neural Network Theory on Adaptive Control

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ABSTRACT

This thesis propose a method by combining neuronetwork with adaptive control applying on an unknown plant.And then output of the plant will follow the reference model. By combining neuro network with adaptive control,adjust paramenters of adaptive control to decide the speed of response and produce plant''s input by neuro network.Finally, plant''s output will satisfy desire.In neuro network,estimating Kalman Filter model for every neuron to train the weight.By this method,converg speed will be up and the network will be more stable. To prove this proposal can work well,using a two freedom axis robot arms as plant.From simulating result,the movement of robot arm satisfy desire accurately.There are two advantages when using this device method,one is neuro network has fault tolerance and the other is when weight is not optimal user can adjust the parameters of adaptive control to avoid steady state error.And adjusting transient response of plant can make the following perfect.

Keywords : Neural Network Theory ; Adaptive Control

Table of Contents