

Stability and convergence of neural/fuzzy adaptive control schemes

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Abstract

This talk will consider several types of adaptive control structure for nonlinear systems, based on the approximation of nonlinear functions by neural or fuzzy networks, which are also used to generate the control signals. The dynamic equations will be formulated as a generalisation of direct self-tuning or model-reference adaptation, in order to address the issues of parameter convergence and system stability. It will be shown that these properties can be ensured under certain idealised assumptions, whose validity will be discussed.