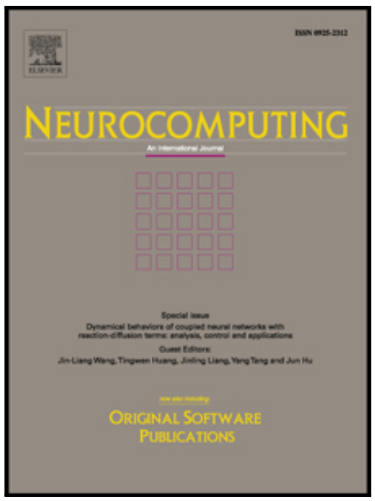

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An Incremental Inter-agent Learning Method for Adaptive Control of Multiple Identical Processes in Mass Production

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Abstract

To enhance the individual control performance over the standalone control of each process in mass production, this paper explores information sharing among processes by proposing an incremental inter-agent learning (IIAL) method for the online estimation of the process model in the adaptive control of a class of processes modeled by linear-in-unknown-constant-parameters (LIP) formulae. Each individual process control system makes use of information from its own and other processes incrementally with time and across process. The application of the proposed work to a single layer RBF neural networks adaptive control shows that the speed of tracking error convergence of each process is improved.

Key words：Incremental inter-agent learning; Neural networks; Convergence; Mass Production;

1 Introduction

With the growing demand of industrial products produced in a short period of time, mass production, which refers to the production of a large number of products with many processes working simultaneously, has become a trend in industry. In this scenario of mass production，multiple identical processes operate under the same environment. Process control, as an indispensable element in industrial applications, inherits and carries forward the role to

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