Abstract

In this paper, we developed the parametric estimation and the self-tuning control problem of the nonlinear systems which are described by discrete-time nonlinear mathematical models, with unknown, time-varying parameters, and operative in a stochastic environment. The parametric estimation is realized by using the prediction error method and the recursive least squares techniques. The self-tuning control problem is formulated by minimizing a certain quadratic criterion. An example of numerical simulation is treated in this paper, to test the proposed self-tuning control method.

References

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complex systems. Thesis of doctorate in Electrical Engineering (Automatic), National Engineering School of Sfax, University of Sfax, Tunisie.

Index Terms

Computer Science  Algorithms

Keywords

Parametric estimation; Discrete-time Hammerstein mathematical model; recursive instrumental variable algorithm; Self-tuning control