

SYSTEM ENGINEERING

基于Tent混沌优化的神经网络预测控制

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摘要 With the unique ergodicity, irregularity, and special ability to avoid being trapped in local optima, chaos optimization has been a novel global optimization technique and has attracted considerable attention for application in various fields, such as nonlinear programming problems. In this article, a novel neural network nonlinear predictive control (NNPC) strategy based on the new Tent-map chaos optimization algorithm (TCOA) is presented.

The feedforward neural network is used as the multi-step predictive model. In addition, the TCOA is applied to perform the nonlinear rolling optimization to enhance the convergence and accuracy in the NNPC. Simulation on a laboratory-scale liquid-level system is given to illustrate the effectiveness of the proposed method.

关键词 [model-based predictive control](#) [neural network](#) [Tent-map](#) [chaos optimization](#) [nonlinear system](#)

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Neural network nonlinear predictive control based on Tent-map chaos optimization

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Key words [model-based predictive control](#); [neural network](#); [Tent-map](#); [chaos optimization](#); [nonlinear system](#)

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