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PREDICTIVE ITERATIVE LEARNING CONTROL

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ABSTRACT—In this paper, we develop a predictive iterative learning controller (PILC) for nonlinear discrete systems. First, a neural-network-based technique is used for developing nonlinear dynamic models from empirical data. Secondly, a local linear model is extracted from this neural network model on-line. Thirdly, as a major benefit of the linearization, linear ILC based on a generalized predictive model is presented. Finally, simulations results are used to illustrate that the proposed control can yield a good set-point tracking performance.

Key Words: Iterative learning control, linear discrete systems, predictive control