A Novel Developed Linear and Nonlinear System Identification for an Industrial Dryer

Abstract

Dryer system is a controlled plant which is normally used in chemical industry. The proper modeling of this system facilitates its maintenance and keeping. Normally this is not an easy task, unless having a complete model of the process, due to sudden and nonlinear events. In this paper the linear identification of dryer plant in Arak petroleum, is introduced according to the Autoregressive with Exogenous Input (ARX) model and Box-Jenkins model and also the nonlinear identification based on Multi-Layer Perceptron (MLP) algorithm is investigated. The simulation results were satisfactory. It was concluded that these models can be used to design adaptive or robust controllers.

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Index Terms

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Keywords
Dryer  Linear system identification  Nonlinear system identification  ARX structure
Box-Jenkins model