Non-linear System Identification of The Norgaard Model using NARX Model

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ABSTRACT

System identification is defined as the task of inferring a mathematical model of dynamic systems based on a series of measurements collected from the system. The modelling technique is generally divided into two: linear and non-linear. The linear modelling approach has the advantage of simplicity, while the non-linear approach has better ability to model more complex systems. This paper presents a non-linear system identification method the Norgaard Model, a simulation of an open-loop stable, nonlinear, continuous system. The model structure chosen was the Non-linear Auto-Regressive model with Exegeneous inputs (NARX) model. The results have shown that the NARX model had successfully modelled the system with 99% accuracy.

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