

Closed loop system identification using fractional order model

Pritesh Shah, Ravi Sekhar

Abstract: The use of the mathematical model is vital for the design of the model based controller and prediction of the system response. This mathematical model can be derived using first principle method and empirical method. The empirical method is deriving the model based on input and output data. This method is also called as system identification. Many real-time systems are inherited closed loop systems. Moreover, it is not possible to get data in an open loop system from the process industry. In such cases, the closed loop system identification is useful. In system identification, the selection of model structure is critical. In this paper, a fractional order model is proposed for the closed-loop system identification. The model parameters of fractional order model are optimized using minimization or maximization of performance indices.

¹⁾ Pritesh Shah, Ph.D.: Symbiosis institute of technology, symbiosis international (Deemed University), PRITESH SHAH , A103, viva sarovar, jambhulwadi road. Ambegaon, pune, India (IN), pritesh.ic@gmail.com, the author presented this contribution at the conference in the special session "Advances in fractional order modelling and control" organized by C. Muresan, C. Pinto and E. Dulf.

²⁾ Ravi Sekhar, Professor: Symbiosis Institute of Technology, Symbiosis International (Deemed University), Pune, Symbiosis Institute of Technology, Lavale, near lupin research park, India (IN), totagopinath@gmail.com.