Modelling and parameter estimation of dynamic systems

Raol, Jitendra R., author

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Abstrak

Parameter estimation is the process of using observations from a system to develop mathematical models that adequately represent the system dynamics. The assumed model consists of a finite set of parameters, the values of which are calculated using estimation techniques. Most of the techniques that exist are based on least-square minimization of error between the model response and actual system response. However, with the proliferation of high speed digital computers, elegant and innovative techniques like filter error method, H-infinity and Artificial Neural Networks are finding more and more use in parameter estimation problems. Modelling and Systems Parameter Estimation for Dynamic Systems presents a detailed examination of the estimation techniques and modeling problems. The theory is furnished with several illustrations and computer programs to promote better understanding of system modeling and parameter estimation. The material is presented in a way that makes for easy reading and enables the user to implement and execute the programs himself to gain first hand experience of the estimation process.