

Identification Algorithms of Flexible Structure Using Neural Networks

Abstract:

This paper presents an investigation into the development of identification system approaches for dynamic modelling characterization of a two dimensional flexible plate structures. The least square and recursive least square are used to obtain linear parametric model of the system. Furthermore, non-parametric models of the system are developed using multi-layer perceptron neural networks (MLP-NN) and Elman neural networks (ENN). A simulation algorithm of the plate is developed through a discretisation of the governing partial differential equation formulation of the plate dynamics using finite difference methods. The finite duration step input is applied to simulation algorithm of the plate. Finally a comparative performance of the approaches used is presented and discussed.