

Active Control Improvement of Smart Cantilever Beam by Piezoelectric Materials and On-Line Differential Artificial Neural Networks

Authors : P. Karimi, A. H. Khedmati Bazkiaei

Abstract : The main goal of this study is to test differential neural network as a controller of smart structure and is to enumerate its advantages and disadvantages in comparison with other controllers. In this study, the smart structure has been considered as a Euler Bernoulli cantilever beam and it has been tried that it be under control with the use of vibration neural network resulting from movement. Also, a linear observer has been considered as a reference controller and has been compared its results. The considered vibration charts and the controlled state have been recounted in the final part of this text. The obtained result show that neural observer has better performance in comparison to the implemented linear observer.

Keywords : smart material, on-line differential artificial neural network, active control, finite element method

Conference Title : ICDVCA 2018 : International Conference on Dynamics, Vibration and Control Applications

Conference Location : Paris, France

Conference Dates : December 27-28, 2018