NEW APPROACH OF ORDER REDUCTION FOR DISCRETE INTERVAL SYSTEM USING GENETIC ALGORITHM

DEVENDER KUMAR SAINI AND RAJENDRA PRASAD

Electrical Engineering Department,
Indian Institute of Technology,
Roorkee-247667 India

Abstract

This paper presents an evolutionary procedure for order reduction of higher order discrete interval systems into stable lower order discrete interval system, using genetic algorithm. In this method, GA is used to improvise the performance criterion between reduced order model and original system by minimizing integral square error (ISE). So the new technique applied to the discrete interval system is a direct method, simple and computer oriented. It is shown that the algorithm has several advantages, e.g. the reduced order models retain the steady-state value and stability of the original system. A numerical example illustrates the proposed algorithm.