

Internal model control for InnoSAT attitude control

Abstract

This paper presents the results of Internal Model Control (IMC) for InnoSAT attitude control based on Neural Network (NN). IMC is composed of an inverse model connected in series with the plant and a forward model connected in parallel with the plant. The controller is achieved by estimating the plant and then finding its inverse model of the InnoSAT plant using the NN. The control signal error is used by Back-Propagation (BP) algorithm to update the weight of the neural controller. This controller has been tested using Innovative Satellite (InnoSAT) plant. Simulation results show that the controller is adequate to control the InnoSAT system with unpredicted conditions and disturbances.

Keywords — Back-propagation algorithm, internal model control, neural network.