Abstract

This project studies the uses of neural networks as on/off, optimal-time controllers for attitude-stabilizing of single-axis small satellites. This project is the first part of an intended future research which will investigate on the topic of intelligent control systems of three-axis satellites whose the variables of each axis are nonlinearly coupled. This present project focuses on the comparisons of different training approaches for training the neural network controllers. The objective is to determine or develop any exceptional training approach for training the on/off controllers. The performances of the neural network control systems will mainly be compared with the system employing the classical Bang-Bang control law. According to the results of this pre-studies, a modified MRNN training approach developed in this research gives the best performance compared with the others. The neural network control system gives the results as good as the results of the classical Bang-Bang control law.