

Vibration suppression of hard disk drive mechanism using intelligent active force control

Abstract

One of the key performances of a Hard Disk Drive (HDD) system is its ability to control or suppress the vibration occurred. This paper focuses on the implementation of an intelligent active force control (IAFC) technique applied to the HDD dynamics in order to suppress the vibration induced in the system via a simulation study using MATLAB and Simulink. The performance of the IAFC system incorporating a fuzzy logic (FL) component is compared to the traditional proportional-integralderivative (PID) control system in terms of tracking performance and system robustness in countering the disturbances. The results from the study affirm the superiority of the proposed technique over its counterpart.