Robust Stabilization and Tracking of Position Servo-Mechanism using Integral Sliding Modes

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Abstract

Precise positioning and tracking find applications in several areas including robotics. This paper presents robust stabilization and tracking using integral sliding mode control(ISMC). A second order position servo mechanism is considered. A sliding mode control is known to be robust during sliding, however the reaching phase is not robust. Integrals sliding mode ensures sliding right from the beginning thus ensures robust performance in the entire state space. Effectiveness of the method is validated in simulation as well as by experiment.

Keywords: ISMC, Stabilization, Tracking

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