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Research Article

Motion Control and Implementation for an AC Servomotor System

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Abstract

This paper presents a study on trajectory tracking problem for an AC synchronous servomotor. A mathematical model for the system including AC synchronous servomotor, gearbox, and a load is developed to examine the systems dynamic behavior. The system is controlled by a traditional PID (proportional + integral + derivative) controller. The required values for the controller settings are found experimentally. Different motion profiles are designed, and trapezoidal ones are implemented. Thus, the experimental validation of the model is achieved using the experimental setup. The simulation and experimental results are presented. The tracking performance of an AC servomotor system is illustrated with proposed PID controller.