

พิมพ์ต้นฉบับบทความวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

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THANA TERMKLINCHAN : AN ADAPTIVE CONTROLLER FOR SYSTEMS WITH UNKNOWN TIME-VARYING DEADZONES. . THESIS ADVISOR : MANOP WONGSAISUWAN, D.Eng. 109 pp. ISBN 947-636-535-5.

This thesis considers the control problem of plants with unknown time-varying deadzones. The adaptive control laws available in the literature for controlling the systems with unknown fixed deadzones use adaptive deadzone inverse (ADI). The main idea of ADI is to identify parameters of the deadzones, then an inverse function is constructed by these parameters. However, it is very difficult to identify it directly especially for time-varying parameters and parameters achieved may not be the correct values.

In our thesis, this problem is considered as a special case of the control problem of time-varying plants with bounded input disturbances where unknown time-varying parameters vary arbitrarily in compact sets. A simple model reference adaptive control (simple MRAC) is used to find the nominal operating point and a switching scheme is used to treat uncertainty effects such as time-varying parameters, input disturbances and deadzones. The tracking errors are guaranteed to converge to the small values in some certain cases. Finally, several illustrative examples are designed by using our method. Simulation results reveal the efficiency of the proposed methods.

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