

## ABSTRACT

MARQUES, Ionara Oliveira. *Linear Control Systems with Uncertainties, Disturbances and Delayed Output*. 164 f. Dissertation (Master Degree in Electronic Engineering) - Faculty of Engineering, University of the State of Rio de Janeiro (UERJ), Rio de Janeiro, 2016.

Control schemes for linear time-delayed systems, with an estimated state feedback for unmeasured variables with a small and arbitrary delayed output is proposed. The first proposed control scheme covers a class of delayed output systems. The second scheme is able to control systems with a delayed output signal along with parametric uncertainties. In the third case, a control scheme for a delayed output and exogenous disturbance is proposed. Finally, in the fourth scheme, a system with a delayed output, parametric uncertainties and exogenous disturbance is modeled. For an arbitrary delay, the unmeasured state is estimated by cascaded observers. In all the proposed control systems, the exponential global stability is guaranteed. Simulations will illustrate the effectiveness of each approach.

Keywords: Time-Delay systems; Linear systems; Estimated state feedback; State observers; Global stability; Uncertain Systems; Exogenous disturbances.