



Observation for the descriptor systems with disturbances

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Abstract: In this paper, the observation problem for the descriptor systems with disturbances is studied. It is assumed that the disturbances and their first order derivatives are bounded, where the upper and lower bounds are unknown. First, the formulated descriptor system is decomposed into a dynamical system and an algebraic equation. The dynamical system is the relation among a part of the descriptor state, the input-output and the disturbance. The algebraic equation is the relation between the descriptor state variable and the disturbance. Second, the disturbances and one part of the descriptor state are estimated based on the obtained dynamical system. Finally, the other part of the descriptor state is estimated based on the obtained algebraic equation. Examples are presented to illustrate the proposed method.

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