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[2009-0175] State Estimation of 2-D Stochastic Systems Represented by FM-II Model

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摘要

关键词

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[2009-0175] State Estimation of 2-D Stochastic Systems Represented by FM-II Model

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Abstract

This paper is concerned with state estimation of two-dimensional (2-D) discrete stochastic systems. First, 2-D discrete stochastic system model is established by extending system matrices of the well-known Fornasini-Marchesini's second model into stochastic matrices. Each element of these stochastic matrices is second-order, weakly stationary white noise sequences. Second, a linear and unbiased full-order state estimation problem for 2-D discrete linear stochastic model is formulated. Two estimation problems considered are the designs for mean-square bounded estimation error and for the mean-square stochastic version of the suboptimal H_{∞} estimator, respectively. Our results can be seen as extensions of the 2-D linear deterministic case. Finally, illustrative examples are provided.

Key words

two-dimensional stochastic linear systems state estimation H_{∞} estimation

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