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Sub-optimal Output Feedback Control of Decentralized Singularly-perturbed Systems

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Abstract

Sub-optimal output feedback control technique is developed to deal with large-scale singularly-perturbed systems. Computer control, decentralized output feedback control, and order-reduced control are three primary goals for this control scheme. The analog to digital transformation technique is used to convert continuous-time state models to discrete-time domain for digital control use. The reason to transfer the model into discrete-time system is to make the controllers can be implemented by computer and be able to deal with today's complicated large scale system. Singular perturbation methods are applied to reduce the order of the system. After order reduction, it will help us to analysis the system; reduce the manufacturing process and cost. The developed control techniques will be suitable for large-scale and high-dimension systems that the state variables are not available for measurement with strong potential for practical applications, such as power distribution and communication networks.

Key words: Sub-optimal output; Feedback control;
Singularly-perturbed system; Feedback ouput;
Communication network

摘要

本文提出用在殊異擾動系統之次佳化輸出回授技術。電腦控制，分散市輸出控制和減階控制為三項此控制法之目標。此控制法將適用於大型高階系統且不必須量得狀態變數之值，如電力系統和通訊系統。

關鍵字: 次佳化輸出;回授控制;殊異擾動系統;迴受輸出,通訊網路