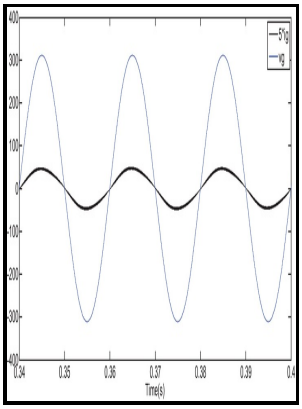
Singular perturbations and asymptotic analysis in control systems

Springer-Verlag - Singular Perturbation Methods in Control: Analysis and Design (Classics in Applied Mathematics)



Description: -
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Speeches, addresses, etc.
Christmas -- England.
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Minstrels -- Turkey -- Çıldır İlçesi -- Biography
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Clocks and watches -- Escapements.
Approximation theory.
Perturbation (Mathematics)
Control theory.Singular perturbations and asymptotic analysis in control systems
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Lecture notes in control and information sciences ;Singular perturbations and asymptotic analysis in control systems
Notes: Includes bibliographical references.
This edition was published in 1987

Filesize: 53.46 MB

Tags: #Singular #Perturbations #and #Order #Reduction #in #Control #Theory

Singular Perturbation Methods in Control: Analysis and Design

Over 350 references are organized into major problem areas.

Singular Perturbation Methodology in Control Systems

The direct scheme method is applied to construct an asymptotic approximation of any order to a solution of a singularly perturbed optimal problem with scalar state, controlled via a second-order linear ODE and two fixed end points. It is not possible to provide an exhaustive list, but we discuss some of the common features below and provide references for further reading.

Singular perturbations of weakly coupled systems of Hamilton

In this document, we deal with the local asymptotic stabilization problem of a class of slow—fastsystems or singularly perturbed Ordinary Differential Equations. It aims at publishing original mathematical results in the asymptotic theory of problems affected by the presence of small or large parameters on the one hand, and at giving specific indications of their possible applications to different fields of natural sciences on the other hand.

Singular perturbations and time

General stability results for singularly perturbed nonlinear systems are given, which apply to the energy control of Hamiltonian systems. Eckhaus, Asymptotic Analysis of Singular Perturbations, North-Holland, 1979. Algebraic equations Although we do not include many fully worked problems herein, it is illustrative to consider a basic example in singularly perturbed algebraic problems.

Singular Perturbation Methodology in Control Systems

As a matter of fact, the eigenvalue placement problem is solved for the reformer dynamics for both slow and fast modes. Abstract Abstract: In this paper the known conditions for the stability of singularly perturbed speed-gradient based control systems are extended to encompass the problems of speed-gradient based energy control of singularly perturbed Hamiltonian systems. In the context of control systems, slow—fast systems with global timescale separation are nowadays well understood and have been used in many applications, e.

Singular perturbations and time

Second-order variational problems on Lie groupoids and optimal control applications. If you need to make more complex queries, use the tips below to guide you. The error estimates for state and control variables and for the functional are obtained.

Singular perturbations of weakly coupled systems of Hamilton

Multiscale asymptotic expansion for second order parabolic equations with rapidly oscillating coefficients. Progress can be made by studying Stokes phenomena and exponential asymptotics for the solutions in the complex plane Chapman et al 1998. Asymptotic behavior of second-order nonlinear dynamic equations on time scales.

Singular perturbations and time

Classics in Applied Mathematics, 27. We propose a novel design based on geometric desingularization, which allows the stabilization of a non-hyperbolic point of singularly perturbed control systems. Kalachev, The Boundary Function Method for Singular Perturbation Problems, SIAM.

Related Books

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