DOWNLOAD PDF OPTIMAL CONTROL OF DISTRIBUTED SYSTEMS

Chapter 1 : On the hierarchical optimal control of a chain of distributed systems

Optimal Control of Spatially Distributed Systems Nader Motee and Ali Jadbabaie Abstract In this paper, we study the structural properties of optimal control of spatially distributed systems.

Pasiliao 2 , 1. In particular, we consider two objectives that we would like to accomplish. The first one being of a controllability type that consists of guaranteeing the terminal state to reach a target set starting from an initial condition; while the second one is keeping the state trajectory of the overall system close to a given reference trajectory over a finite time interval. We introduce the following framework. First, we partition the control subdomain into two disjoint open subdomains that are compatible with the strategy subspaces of the leader and that of the follower, respectively. Finally, we remark on the implication of our result in assessing the influence of the target set on the strategy of the follower with respect to the direction of leader-follower and vice-versa information flow. On the hierarchical optimal control of a chain of distributed systems. Vespri, Some results on partial differential equations and Asian options,, Math. Antsaklis, On the asymptotic estimates for exit probabilities and minimum exit rates of diffusion processes pertaining to a chain of distributed control systems,, SIAM J. Lefevere, Large deviations of lattice Hamiltonian dynamics coupled to stochastic thermostats,, J. Menozzi, Density estimates for a random noise propagating through a chain of differential equations,, J. Elliott, Diffusions on manifolds arising from controllable systems,, in Geometric Methods in System Theory, 3 , Kunita, A classification of the second order degenerate elliptic operators and its probabilistic characterization,, Z. Leitmann, On generalized Stackelberg strategies,, J. Rockafellar, Duality and stability in extremum problems involving convex functions,, Pacific J. Scheurer, Unique continuation for evolution equations,, J. Von Stackelberg, Marktform und Gleichgewicht,, Springer, Varadhan, On degenerate elliptic-parabolic operators of second order and their associated diffusions,, Comm. Varadhan, Multidimensional Diffusion Processes,, Reprint of the edition. Jurdjevic, Controllability of nonlinear systems,, J. Semilinear degenerate parabolic systems and distributed capacitance models. Higher integrability for gradients of solutions to degenerate parabolic systems. Partial regularity of solutions to a class of strongly coupled degenerate parabolic systems. Conference Publications, , Special: Blow-up in finite or infinite time for quasilinear degenerate Keller-Segel systems of parabolic-parabolic type. Polar codes for distributed hierarchical source coding. Advances in Mathematics of Communications, , 9 1: Conference Publications, , special: Feedback stabilization with one simultaneous control for systems of parabolic equations. Nonlinear degenerate parabolic equations for a thermohydraulic model. Strong traces for degenerate parabolic-hyperbolic equations. A class of doubly degenerate parabolic equations with periodic sources. Outer synchronization of delayed coupled systems on networks without strong connectedness: Moore , Lance W. Evaluation of a discrete dynamic systems approach for modeling the hierarchical relationship between genes, biochemistry, and disease susceptibility. Farkas , Peter Hinow. Steady states in hierarchical structured populations with distributed states at birth. Wylie , Robert M. Miura , Huaxiong Huang. Systems of coupled diffusion equations with degenerate nonlinear source terms: Linear stability and traveling waves. Robust Stackelberg controllability for linear and semilinear heat equations. Bifurcation from degenerate homoclinics in periodically forced systems. Carleman Estimates and null controllability of coupled degenerate systems.