



Optimal Networked Control Systems with MATLAB (Hardback)

By Jagannathan Sarangapani, Hao Xu

Apple Academic Press Inc., Canada, 2015. Hardback. Condition: New. Language: English . Brand New Book. Optimal Networked Control Systems with MATLAB (R) discusses optimal controller design in discrete time for networked control systems (NCS). The authors apply several powerful modern control techniques in discrete time to the design of intelligent controllers for such NCS. Detailed derivations, rigorous stability proofs, computer simulation examples, and downloadable MATLAB (R) codes are included for each case. The book begins by providing background on NCS, networked imperfections, dynamical systems, stability theory, and stochastic optimal adaptive controllers in discrete time for linear and nonlinear systems. It lays the foundation for reinforcement learning-based optimal adaptive controller use for finite and infinite horizons. The text then: Introduces quantization effects for linear and nonlinear NCS, describing the design of stochastic adaptive controllers for a class of linear and nonlinear systemsPresents two-player zero-sum game-theoretic formulation for linear systems in input-output form enclosed by a communication networkAddresses the stochastic optimal control of nonlinear NCS by using neuro dynamic programmingExplores stochastic optimal design for nonlinear two-player zero-sum games under communication constraintsTreats an event-sampled distributed NCS to minimize transmission of state and control signals within the feedback loop via the communication networkCovers distributed...



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