Linear Quadratic Optimal Control University Of Minnesota

Stochastic Linear-Quadratic Optimal Control Theory: Open-Loop and Closed-Loop SolutionsModeling and Linear Quadratic Optimal Control of Wind TurbinesControl of Distributed Parameter SystemsDuality System in Applied Mechanics and Optimal ControlOptimal Control Theory for Infinite Dimensional SystemsControl and Estimation of Distributed Parameter SystemsMeasurement Subsystem Design in Linear Quadratic Gaussian (LQG) Optimal ControlAdvances in Electronic Engineering, Communication and Management Vol.1Advanced Design and Manufacture to Gain a Competitive EdgeAdvances in the Theory and Applications of Non-integer Order SystemsOptimal ControlAn Introduction to Infinite-Dimensional Linear Systems TheoryPredictive Control for Linear and Hybrid SystemsCalculus of Variations and Optimal Control TheoryPolynomial Methods in Optimal Control and FilteringAdaptive Optimal ControlProceedings of the 24th IEEE Conference on Decision & ControlOptimal Control and EstimationFrequency-domain Linear Quadratic Optimal Control ProblemStochastic Linear-Quadratic Optimal Control Theory: Open-Loop and Closed-Loop SolutionsSingular Optimal ControlModel Reduction and ApproximationOptimal Control in Selective Catalytic Reduction Using Linear Quadratic RegulatorDifferential EquationsOptimal ControlUniversity of Michigan Official PublicationOptimal ControlOptimal Real-time

Control of Sewer NetworksIssues in Mathematical Theory and Modeling: 2013 EditionApplied Linear Optimal Control Hardback with CD-ROMStochastic Linear-Quadratic Optimal Control Theory: Differential Games and Mean-Field ProblemsModeling and Control of Economic Systems 2001Vestnik, St. Petersburg UniversityRecent Trends in Computational Engineering - CE2014Dynamic Modelling and Control of National Economies 1983Stochastic ControlsIssues in Mechanical Engineering: 2011 EditionOptimal FilteringLinear Optimal ControlOptimal Control

Stochastic Linear-Quadratic Optimal Control Theory: Open-Loop and Closed-Loop Solutions

Issues in Mechanical Engineering / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Mechanical Engineering. The editors have built Issues in Mechanical Engineering: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Mechanical Engineering in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Mechanical Engineering: 2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at

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Modeling and Linear Quadratic Optimal Control of Wind Turbines

Numerous examples highlight this treatment of the use of linear quadratic Gaussian methods for control system design. It explores linear optimal control theory from an engineering viewpoint, with illustrations of practical applications. Key topics include loop-recovery techniques, frequency shaping, and controller reduction. Numerous examples and complete solutions. 1990 edition.

Control of Distributed Parameter Systems

A unified approach is proposed for applied mechanics and optimal control theory. The Hamilton system methodology in analytical mechanics is used for eigenvalue problems, vibration theory, gyroscopic systems, structural mechanics, wave-guide, LQ control, Kalman filter, robust control etc. All aspects are described in the same unified methodology. Numerical methods for all these problems are provided and given in meta-language, which can be implemented easily on the computer.

Precise integration methods both for initial value problems and for two-point boundary value problems are proposed, which result in the numerical solutions of computer precision. Key Features of the text include: -Unified approach based on Hamilton duality system theory and symplectic mathematics. -Gyroscopic system vibration, eigenvalue problems. -Canonical transformation applied to non-linear systems. -Pseudo-excitation method for structural random vibrations. -Precise integration of two-point boundary value problems. -Wave propagation along wave-guides, scattering. -Precise solution of Riccati differential equations. -Kalman filtering. -HINFINITY theory of control and filter.

Duality System in Applied Mechanics and Optimal Control

Optimal Control Theory for Infinite Dimensional Systems

Graduate-level text extends studies of signal processing, particularly regarding communication systems and digital filtering theory. Topics include filtering, linear systems, and estimation; discrete-time Kalman filter; time-invariant filters; more. 1979 edition.

Control and Estimation of Distributed Parameter Systems

This textbook offers a concise yet rigorous introduction to calculus of variations and optimal control theory, and is a self-contained resource for graduate students in engineering, applied mathematics, and related subjects. Designed specifically for a one-semester course, the book begins with calculus of variations, preparing the ground for optimal control. It then gives a complete proof of the maximum principle and covers key topics such as the Hamilton-Jacobi-Bellman theory of dynamic programming and linear-quadratic optimal control. Calculus of Variations and Optimal Control Theory also traces the historical development of the subject and features numerous exercises, notes and references at the end of each chapter, and suggestions for further study. Offers a concise yet rigorous introduction Requires limited background in control theory or advanced mathematics Provides a complete proof of the maximum principle Uses consistent notation in the exposition of classical and modern topics Traces the historical development of the subject Solutions manual (available only to teachers) Leading universities that have adopted this book include: University of Illinois at Urbana-Champaign ECE 553: Optimum Control Systems Georgia Institute of Technology ECE 6553: Optimal Control and Optimization University of Pennsylvania ESE 680: Optimal Control Theory University of Notre Dame EE 60565: Optimal Control

Measurement Subsystem Design in Linear Quadratic Gaussian (LQG) Optimal Control

Advances in Electronic Engineering, Communication and Management Vol.1

This book presents selected papers from the 3rd International Workshop on Computational Engineering held in Stuttgart from October 6 to 10, 2014, bringing together innovative contributions from related fields with computer science and mathematics as an important technical basis among others. The workshop discussed the state of the art and the further evolution of numerical techniques for simulation in engineering and science. We focus on current trends in numerical simulation in science and engineering, new requirements arising from rapidly increasing parallelism in computer architectures, and novel mathematical approaches. Accordingly, the chapters of the book particularly focus on parallel algorithms and performance optimization, coupled systems, and complex applications and optimization.

Advanced Design and Manufacture to Gain a Competitive Edge

Consisting of 23 refereed contributions, this volume offers a broad and diverse view of current research in control and estimation of partial differential equations. Topics addressed include, but are not limited to - control and stability of hyperbolic systems related to elasticity, linear and nonlinear; - control and identification of nonlinear parabolic systems; - exact and approximate controllability, and observability; - Pontryagin's maximum principle and dynamic programming in PDE; and - numerics pertinent to optimal and suboptimal control problems. This volume is primarily geared toward control theorists seeking information on the latest developments in their area of expertise. It may also serve as a stimulating reader to any researcher who wants to gain an impression of activities at the forefront of a vigorously expanding area in applied mathematics.

Advances in the Theory and Applications of Non-integer Order Systems

Graduate-level text provides introduction to optimal control theory for stochastic systems, emphasizing application of basic concepts to real problems.

Optimal Control

A sine qua non of control system development for modern sewer networks is the preservation of the water system around a network’s outflow(s). Several approaches have been proposed for the optimisation of sewage control and Optimal Real-time Control of Sewer Networks provides a comparative synthesis of a central sewer network flow control based on two of these: nonlinear-optimal and multivariable-feedback control. Testing and comparison of these protocols are made on the basis of their control results for the large-scale sewer network located around the river Obere Iller in Bavaria. The control strategies implemented within this network are based on this study. From the selection of possible methods of control and moving to the implementation of those methods in a real sewer system, this monograph will be invaluable to control and civil engineers working in sewage flow and wastewater treatment and of interest to academics wishing to see how their ideas on optimal control work out when practically applied.

An Introduction to Infinite-Dimensional Linear Systems Theory

CD-ROM contains: MATLAB codes of the OPTEST toolbox -- Code for examples, figures, and selected problems in text.

Predictive Control for Linear and Hybrid Systems

Manufacturing industry has been one of the key drivers for recent rapid global economic development. Globalisation of manufacturing industries due to distributed design and labour advantage leads to a drive and thirst for technological advancements and expertise in the fields of advanced design and manufacturing. This development results in many economical benefits to and improvement of quality of life for many people all over the world. This rapid development also creates many opportunities and challenges for both industrialists and academics, as the design requirements and constraints have completely changed in this global design and manufacture environment. Consequently the way to design, manufacture and realise products have changed as well. More and more design and manufacture tasks can now be undertaken within computer environment using simulation and virtual reality technologies. These technological advancements hence support more advanced product development and manufacturing operations in such a global design and manufacturing environment. In this global context and scenario, both industry and the academia have an urgent need to equip themselves with the latest knowledge, technology and methods developed for engineering design and manufacture.

Calculus of Variations and Optimal Control Theory

Many physical, chemical, biomedical, and technical processes can be described by partial differential equations or dynamical systems. In spite of increasing computational capacities, many problems are of such high complexity that they are solvable only with severe simplifications, and the design of efficient numerical schemes remains a central research challenge. This book presents a tutorial introduction to recent developments in mathematical methods for model reduction and approximation of complex systems. Model Reduction and Approximation: Theory and Algorithms contains three parts that cover (I) sampling-based methods, such as the reduced basis method and proper orthogonal decomposition, (II) approximation of high-dimensional problems by low-rank tensor techniques, and (III) system-theoretic methods, such as balanced truncation, interpolatory methods, and the Loewner framework. It is tutorial in nature, giving an accessible introduction to state-of-the-art model reduction and approximation methods. It also covers a wide range of methods drawn from typically distinct communities (sampling based, tensor based, system-theoretic).?? This book is intended for researchers interested in model reduction and approximation, particularly graduate students and young researchers.

Polynomial Methods in Optimal Control and Filtering

Adaptive Optimal Control

Control of Distributed Parameter Systems covers the proceedings of the Second IFAC Symposium, Coventry, held in Great Britain from June 28 to July 1, 1977. The book focuses on the methodologies, processes, and techniques in the control of distributed parameter systems, including boundary value control, digital transfer matrix, and differential equations. The selection first discusses the asymptotic methods in the optimal control of distributed systems; applications of distributed parameter control theory of a survey; and dual variational inequalities for external eigenvalue problems. The book also ponders on stochastic differential equations in Hilbert space and their application to delay systems and linear quadratic optimal control problem over an infinite time horizon for a class of distributed parameter systems. The manuscript investigates the semigroup approach to boundary value control and stability of nonlinear distributed parameter systems. Topics include boundary control action implemented through a dynamical system; classical boundary value controls; stability of nonlinear systems; and feedback control on the boundary. The text also focuses on the functional analysis interpretation of Lyapunov stability; method of multipliers for a class distributed parameter systems; and digital transfer matrix approach to distributed system simulation. The selection is a dependable source of data for readers interested in the control of distributed parameter systems.

Proceedings of the 24th IEEE Conference on Decision & Control

Optimal Control and Estimation

Infinite dimensional systems can be used to describe many phenomena in the real world. As is well known, heat conduction, properties of elastic plastic material, fluid dynamics, diffusion-reaction processes, etc., all lie within this area. The object that we are studying (temperature, displace ment, concentration, velocity, etc.) is usually referred to as the state. We are interested in the case where the state satisfies proper differential equa tions that are derived from certain physical laws, such as Newton's law, Fourier's law etc. The space in which the state exists is called the state space, and the equation that the state satisfies is called the state equation. By an infinite dimensional system we mean one whose corresponding state space is infinite dimensional. In particular, we are interested in the case where the state equation is one of the following types: partial differential equation, functional differential equation, integro-differential equation, or abstract evolution equation. The case in which the state equation is being a stochastic differential equation is also an infinite dimensional problem, but we will not discuss such a case in this book.

Frequency-domain Linear Quadratic Optimal Control Problem

Infinite dimensional systems is now an established area of research. Given the recent trend in systems theory and in applications towards a synthesis of time- and frequency-domain methods, there is a need for an introductory text which treats both state-space and frequency-domain aspects in an integrated fashion. The authors' primary aim is to write an introductory textbook for a course on infinite dimensional linear systems. An important consideration by the authors is that their book should be accessible to graduate engineers and mathematicians with a minimal background in functional analysis. Consequently, all the mathematical background is summarized in an extensive appendix. For the majority of students, this would be their only acquaintance with infinite dimensional systems.

Stochastic Linear-Quadratic Optimal Control Theory: Open-Loop and Closed-Loop Solutions

Issues in Mathematical Theory and Modeling / 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Lie Theory. The editors have built Issues in Mathematical Theory and Modeling: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Lie Theory in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Mathematical Theory and Modeling: 2013 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Singular Optimal Control

Model Reduction and Approximation

In current scenario, it is significant to have harmful emissions under control and supervision by deploying control technology is indispensable. In the thermal power plants, diesel engine industries hazardous gases are being emitted and Nitric Oxide gases (represented by NOx) are one among them. Thus, (EPA) Environmental Protection Agency has set standards where the industry has to pertain to it in order to minimize the level of NOx to a certain level. Selective Catalytic Reduction (SCR) means converting nitrogen oxides [NOx] with the aid of a catalyst into nitrogen and water using a reducing agent ammonia (NH3) in this example. In the existing system, the two classical Proportional Integral Derivative controllers (cascade controller) is employed to reduce the NOx value by predicting the set point of ammonia. In this process, we get higher cost, increased peak overshoot and more settling time, which caused time delay affecting the process to a certain extent. In the proposed system, we are incorporating Linear Quadratic Regulator in place of two PID controllers, where we optimize the system to get a constant feedback which overcomes the existing disadvantages of the existing system. The LQR technique minimizes the energy of the system by giving minimum cost which is lesser than that of nominal cost of the system. This also gives low cost, faster setting time and less peak overshoot when compared to PID controller.

Optimal Control in Selective Catalytic Reduction Using Linear Quadratic Regulator

Dynamic Modelling and Control of National Economies 1983 contains the proceedings of the Fourth IFAC/IFORS/IIASA Conference and the 1983 SEDC Conference on Economic Dynamics and Control held at Washington D.C., USA on June17-19, 1983. Separating the 65 papers presented in the conference as chapters, this book covers a broad class of problems or notions arising both in economic theory, control applications to planning, and implementation issues. Some chapters discuss multi-level interactions of government and private sectors in economic development; inflation and economic policy in an open economy; foreign debt and exchange rate stability in a developing country; and expectations in numerical general equilibrium models. This book also explains a rational decision-making process for resource policymaking; inference of the structure of economic reasoning from natural language analysis; modeling and analysis of a national economy; and methodological issues in global modeling. Econometric analysis of the economic effects of population change, aspects of optimal estimation control strategies in econometrics, and optimal policies for interdependent economies are also discussed. This book will be useful to those engaged in economic and control theory research.

Differential Equations

Each number is the catalogue of a specific school or college of the University.

Optimal Control

Presents recent developments in the areas of differential equations, dynamical systems, and control of finke and infinite dimensional systems. Focuses on current trends in differential equations and dynamical system research-from Darameterdependence of solutions to robui control laws for inflnite dimensional systems.

University of Michigan Official Publication

With a simple approach that includes real-time applications and algorithms, this book covers the theory of model predictive control (MPC).

Optimal Control

Optimal Real-time Control of Sewer Networks

This book gathers the most essential results, including recent ones, on linear-quadratic optimal control problems, which represent an important aspect of stochastic control. It presents results for two-player differential games and mean-field optimal control problems in the context of finite and infinite horizon problems, and discusses a number of new and interesting issues. Further, the book identifies, for the first time, the interconnections between the existence of open-loop and closed-loop Nash equilibria, solvability of the optimality system, and solvability of the associated Riccati equation, and also explores the open-loop solvability of mean-filed linear-quadratic optimal control problems. Although the content is largely self-contained, readers should have a basic grasp of linear algebra, functional analysis and stochastic ordinary differential equations. The book is mainly intended for senior undergraduate and graduate students majoring in applied mathematics who are interested in stochastic control theory. However, it will also appeal to researchers in other related areas, such as engineering, management, finance/economics and the social sciences.

Issues in Mathematical Theory and Modeling: 2013 Edition

A NEW EDITION OF THE CLASSIC TEXT ON OPTIMAL CONTROL THEORY As a superb introductory text and an indispensable reference, this new edition of Optimal Control will serve the needs of both the professional engineer and the advanced student in mechanical, electrical, and aerospace engineering. Its coverage encompasses all the fundamental topics as well as the major changes that have occurred in recent years. An abundance of computer simulations using MATLAB and relevant Toolboxes is included to give the reader the actual experience of applying the theory to real-world situations. Major topics covered include: Static Optimization Optimal Control of Discrete-Time Systems Optimal Control of Continuous-Time Systems The Tracking Problem and Other LQR Extensions Final-Time-Free and Constrained Input Control Dynamic Programming Optimal Control for Polynomial Systems Output Feedback and Structured Control Robustness and Multivariable Frequency-Domain Techniques Differential Games Reinforcement Learning and Optimal Adaptive Control

Applied Linear Optimal Control Hardback with CD-ROM

A NEW EDITION OF THE CLASSIC TEXT ON OPTIMAL CONTROL THEORY As a superb introductory text and an indispensable reference, this new edition of Optimal Control will serve the needs of both the professional engineer and the advanced student in mechanical, electrical, and aerospace engineering. Its coverage encompasses all the fundamental topics as well as the major changes that have occurred in recent years. An abundance of computer simulations using MATLAB and relevant Toolboxes is included to give the reader the actual experience of applying the theory to real-world situations. Major topics covered include: Static Optimization Optimal Control of Discrete-Time Systems Optimal Control of Continuous-Time Systems The Tracking Problem and Other LQR Extensions Final-Time-Free and Constrained Input Control Dynamic Programming Optimal Control for Polynomial Systems Output Feedback and Structured Control Robustness and Multivariable Frequency-Domain Techniques Differential Games Reinforcement Learning and Optimal Adaptive Control

Stochastic Linear-Quadratic Optimal Control Theory: Differential Games and Mean-Field Problems

Exploring connections between adaptive control theory and practice, this book treats the techniques of linear quadratic optimal control and estimation (Kalman filtering), recursive identification, linear systems theory and robust arguments.

Modeling and Control of Economic Systems 2001

As is well known, Pontryagin's maximum principle and Bellman's dynamic programming are the two principal and most commonly used approaches in solving stochastic optimal control problems. * An interesting phenomenon one can observe from the literature is that these two approaches have been developed separately and independently. Since both methods are used to investigate the same problems, a natural question one will ask is the fol lowing: (Q) What is the relationship betwccn the maximum principlc and dy namic programming in stochastic optimal controls? There did exist some researches (prior to the 1980s) on the relationship between these two. Nevertheless, the results usually werestated in heuristic terms and proved under rather restrictive assumptions, which were not satisfied in most cases. In the statement of a Pontryagin-type maximum principle there is an adjoint equation, which is an ordinary differential equation (ODE) in the (finite-dimensional) deterministic case and a stochastic differential equation (SDE) in the stochastic case. The system consisting of the adjoint equa tion, the original state equation, and the maximum condition is referred to as an (extended) Hamiltonian system. On the other hand, in Bellman's dynamic programming, there is a partial differential equation (PDE), of first order in the (finite-dimensional) deterministic case and of second or der in the stochastic case. This is known as a Hamilton-Jacobi-Bellman (HJB) equation.

Vestnik, St. Petersburg University

Preface; List of symbols; Introduction; Analysis of control systems; Multivariable systems; Vector random processes; Performance; Robustness; The linear quadratic regulator; The Kalman filter; Linear quadratic Gaussian control; Control; Ful information control estimation; H [infinity symbol] output feedback; Controller order reduction; Appendix: Mathematical notes.

Recent Trends in Computational Engineering - CE2014

This volume presents the main results of 2011 International Conference on Electronic Engineering, Communication and Management (EECM2011) held December 24-25, 2011, Beijing China. The EECM2011 is an integrated conference providing a valuable opportunity for researchers, scholars and scientists to exchange their ideas face to face together. The main focus of the EECM 2011 and the present 2 volumes “Advances in Electronic Engineering, Communication and Management” is on Power Engineering, Electrical engineering applications, Electrical machines, as well as Communication and Information Systems Engineering.

Dynamic Modelling and Control of National Economies 1983

This volume presents various aspects of non-integer order systems, also known as fractional systems, which have recently attracted an increasing attention in the scientific community of systems science, applied mathematics, control theory. Non-integer systems have become relevant for many fields of science and technology exemplified by the modeling of signal transmission, electric noise, dielectric polarization, heat transfer, electrochemical reactions, thermal processes, acoustics, etc. The content is divided into six parts, every of which considers one of the currently relevant problems. In the first part the Realization problem is discussed, with a special focus on positive systems. The second part considers stability of certain classes of non-integer order systems with and without delays. The third part is focused on such important aspects as controllability, observability and optimization especially in discrete time. The fourth part is focused on distributed systems where non-integer calculus leads to new and interesting results. The next part considers problems of solutions and approximations of non-integer order equations and systems. The final and most extensive part is devoted to applications. Problems from mechatronics, biomedical engineering, robotics and others are all analyzed and solved with tools from fractional systems. This volume came to fruition thanks to high level of talks and interesting discussions at RRNR 2013 - 5th Conference on Non-integer Order Calculus and its Applications that took place at AGH University of Science and Technology in Kraków, Poland, which was organized by the Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering.

Stochastic Controls

This book aims to demonstrate the power and breadth of polynomial methods in control and filtering. Direct polynomial methods have previously received little attention compared with the alternative Wiener-Hopf transfer-function method and the statespace methods which rely on Riccati equations. The book provides a broad coverage of the polynomial equation approach in a range of linear control and filtering problems. The principal feature of the approach is the description of systems in fractional form using transfer functions. This representation leads quite naturally and directly to the parameterisation of all 'acceptable' feedback controllers for a given problem in the form of a Diophantine equation over polynomials. In the polynomial equation approach, this direct parameterisation is explicitly carried through to the synthesis of controllers and filters and, further, to the computer implementation of numerical algorithms. The book is likely to be of interest to students, researchers and engineers with some control and systems theory or signal processing background. It could be used as the basis of a graduate-level course in optimal control and filtering. The book proceeds from the necessary background material presented at a tutorial level, through recent theoretical and practical developments, to a detailed presentation of numerical algorithms. f interest to students, researchers and engineers with some control and systems theory or signal processing background. It could be used as the basis of a graduate-level course in optimal control and filtering. The book proceeds from the necessary background material presented at a tutorial level, through recent theoretical and practical developments, to a detailed presentation of numerical algorithms.

Issues in Mechanical Engineering: 2011 Edition

This volume contains papers presented at the IFAC symposium on Modeling and control of Economic Systems (SME 2001), which was held at the university of Klagenfurt, Austria. The symposium brought together scientists and users to explore current theoretical developments of modeling techniques for economic systems. It contains a section of plenary, invited and contributed papers presented at the SME 2001 symposium. The papers presented in this volume reflect advances both in methodology and in applications in the area of modeling and control of economic systems.

Optimal Filtering

This book gathers the most essential results, including recent ones, on linear-quadratic optimal control problems, which represent an important aspect of stochastic control. It presents the results in the context of finite and infinite horizon problems, and discusses a number of new and interesting issues. Further, it precisely identifies, for the first time, the interconnections between three well-known, relevant issues – the existence of optimal controls, solvability of the optimality system, and solvability of the associated Riccati equation. Although the content is largely self-contained, readers should have a basic grasp of linear algebra, functional analysis and stochastic ordinary differential equations. The book is mainly intended for senior undergraduate and graduate students majoring in applied mathematics who are interested in stochastic control theory. However, it will also appeal to researchers in other related areas, such as engineering, management, finance/economics and the social sciences.

Linear Optimal Control

This book gathers the most essential results, including recent ones, on linear-quadratic optimal control problems, which represent an important aspect of stochastic control. It presents the results in the context of finite and infinite horizon problems, and discusses a number of new and interesting issues. Further, it precisely identifies, for the first time, the interconnections between three well-known, relevant issues – the existence of optimal controls, solvability of the optimality system, and solvability of the associated Riccati equation. Although the content is largely self-contained, readers should have a basic grasp of linear algebra, functional analysis and stochastic ordinary differential equations. The book is mainly intended for senior undergraduate and graduate students majoring in applied mathematics who are interested in stochastic control theory. However, it will also appeal to researchers in other related areas, such as engineering, management, finance/economics and the social sciences.

Optimal Control