Dynamic Games And Applications In Economics

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TRUJILLO MALAKI

New Trends in Dynamic Games and Applications Springer Nature The theory of dynamic games is very rich in nature and very much alive! If the reader does not already agree with this statement, I hope he/she will surely do so after having consulted the contents of the current volume. The activities which fall under the heading of 'dynamic games' cannot easily be put into one scientific discipline. On the theoretical side one deals with differential games, difference games (the underlying models are described by differential, respec tively difference equations) and games based on Markov chains, with determin istic and stochastic games, zero-sum and nonzero-sum games, two-player and many-player games - all under various forms of equilibria. On the practical side, one sees applications to economics (stimulated by the recent Nobel prize for economics which went to three prominent scientists in game theory), biology, management science, and engineering. The contents of this volume are primarily based on selected presentations made at the Sixth International Symposium on Dynamic Games and Applica tions, held in St Jovite, Quebec, Canada, 13-15 July 1994. Every paper that appears in this volume has passed through a stringent reviewing process, as is the case with publications for archival technical journals. This conference, as well as its predecessor which was held in Grimentz, 1992, took place under the auspices of the International Society of Dynamic Games (ISDG), established in 1990. One of the activities of the ISDG is the publication of these Annals. The contributions in this volume have been grouped around five themes.

Frontiers of Dynamic Games Springer Science & Business Media This volume contains fifteen articles on the topic of differential and dynamic games, focusing on both theory and applications. It covers a variety of areas and presents recent developments on topics of current interest. It should be useful to researchers in differential and dynamic games, systems and control, operations research and mathematical economics.

Advances in Dynamic Games Springer This contributed volume collects talks originally given at the 18th International Symposium on Dynamic Games and Applications, held in Grenoble, France from July 9-12, 2018. Chapters present state-of-the-art research in the field of dynamic games and are written by leading experts in this active area. Featuring a broad overview of recent advances as well as a wide range of applications, this book is organized into four sections: games of conflict, evolutionary games, economic games, and games involving common interest. Within these sections, specific topics covered include: Pursuit-evasion games Partnership formation games Replicator dynamics Load balancing congestion games Equilibrium coalition structures Advances in Dynamic Games will be of particular interest to researchers and doctoral students studying game theory.

A Survey Of Dynamic Games In Economics Springer Nature Game theory is a rich and active area of research of which this new volume of the Annals of the International Society of Dynamic Games is yet fresh evidence. Since the second half of the 20th century, the area of dynamic games has man aged to attract outstanding mathematicians, who found exciting open questions requiring tools from a wide variety of mathematical disciplines; economists, so cial and political scientists, who used game theory to model and study competition and cooperative behavior; and engineers, who used games in computer sciences, telecommunications, and other areas. The contents of this volume are primarily based on selected presentation made at the 8th International Symposium of Dynamic Games and Applications, held in Chateau Vaalsbroek, Maastricht, the Netherlands, July 5-8, 1998; this conference took place under the auspices of the International Society of Dynamic Games (ISDG), established in 1990. The conference has been cosponsored by the Control Systems Society of the IEEE, IFAC (International Federation of Automatic Con trol), INRIA (Institute National de Recherche en Informatique et Automatique), and the University of Maastricht. One ofthe activities of the ISDG is the publica tion of the Annals. Every paper that appears in this volume has passed through a stringent reviewing process, as is the case with publications for archival journals.

Advances in Dynamic Games and Applications John Wiley & Sons This contributed volume considers recent advances in dynamic games and their applications, based on presentations given at the 16th Symposium of the International Society of Dynamic Games, held July 9-12, 2014, in Amsterdam. Written by experts in their respective disciplines, these papers cover various aspects of dynamic game theory including differential games, evolutionary games, and stochastic games. They discuss theoretical developments, algorithmic methods, issues relating to lack of information, and applications in areas such as biological or

economical competition, stability in communication networks, and maintenance decisions in an electricity market, just to name a few. Advances in Dynamic and Evolutionary Games presents state-of-the-art research in a wide spectrum of areas. As such, it serves as a testament to the vitality and growth of the field of dynamic games and their applications. It will be of interest to an interdisciplinary audience of researchers, practitioners, and advanced graduate students.

Optimal Control and Dynamic Games Springer Science & Business Media

This book focuses on various aspects of dynamic game theory, presenting state-of-the-art research and serving as a guide to the vitality and growth of the field. A valuable reference for researchers and practitioners in dynamic game theory, it covers a broad range of topics and applications, including repeated and stochastic games, differential dynamic games, optimal stopping games, and numerical methods and algorithms for solving dynamic games. The diverse topics included will also benefit researchers and graduate students in applied mathematics, economics, engineering, systems and control, and environmental science.

Dynamic Games in Economics Springer Science & Business Media

This book focuses on various aspects of dynamic game theory, presenting state-of-the-art research and serving as a testament to the vitality and growth of the field of dynamic games and their applications. Its contributions, written by experts in their respective disciplines, are outgrowths of presentations originally given at the 14th International Symposium of Dynamic Games and Applications held in Banff. Advances in Dynamic Games covers a variety of topics, ranging from evolutionary games, theoretical developments in game theory and algorithmic methods to applications, examples, and analysis in fields as varied as mathematical biology, environmental management, finance and economics, engineering, guidance and control, and social interaction. Featured throughout are valuable tools and resources for researchers, practitioners, and graduate students interested in dynamic games and their applications to mathematics, engineering, economics, and management science.

Advances in Dynamic Games Springer Nature

This book is devoted to game theory and its applications to environmental problems, economics, and management. It collects contributions originating from the 12th International Conference on “Game Theory and Management” 2018 (GTM2018) held at Saint Petersburg State University, Russia, from 27 to 29 June 2018.

Handbook of Dynamic Game Theory Springer Science & Business Media

Dynamic games continue to attract strong interest from researchers interested in modelling competitive as well as conflict situations exhibiting an intertemporel aspect. Applications of dynamic games have proven to be a suitable methodology to study the behaviour of players (decision-makers) and to predict the outcome of such situations in many areas including engineering, economics, management science, military, biology and political science. Dynamic Games: Theory and Applications collects thirteen articles written by established researchers. It is an excellent reference for researchers and graduate students covering a wide range of emerging and revisited problems in both cooperative and non-cooperative games in different areas of applications, especially in economics and management science.

Games And Dynamic Games Springer Science & Business Media

This book has been written to address the increasing number of Operations Research and Management Science problems (that is, applications) that involve the explicit consideration of time and of gaming among multiple agents. It is a book that will be used both as a textbook and as a reference and guide by those whose work involves the theoretical aspects of dynamic optimization and differential games.

Dynamic Games Applications in Economics Springer

Modem game theory has evolved enonnously since its inception in the 1920s in the works ofBorel and von Neumann and since publication in the 1940s of the seminal treatise "Theory of Games and Economic Behavior" by von Neumann and Morgenstern. The branch of game theory known as dynamic games is-to a significant extent-descended from the pioneering work on differential games done by Isaacs in the 1950s and 1960s. Since those early decades game theory has branched out in many directions, spanning such diverse disciplines as math ematics, economics, electrical and electronics engineering, operations research, computer science, theoretical ecology, environmental science, and even political science. The papers in this volume reflect both the maturity and the vitalityofmodem day game theoryin general, andofdynamic games, inparticular. The maturitycan be seen from the sophistication ofthe theorems, proofs, methods, and numerical algorithms contained in these articles. The vitality is manifested by the range of new ideas, new applications, the numberofyoung researchers among the authors, and the expanding worldwide coverage of research centers and institutes where the contributions originated.

Advances in Dynamic Games Birkhäuser

Durable strategies that have prolonged effects are prevalent in real-world situations. Revenue-generating investments, toxic waste disposal, long-lived goods, regulatory measures, coalition agreements, diffusion of knowledge, advertisement and investments to accumulate physical capital are concrete and common examples of durable strategies. This book provides an augmentation of dynamic game theory and advances a new game paradigm with durable strategies in decision-making schemes. It covers theories, solution techniques, and the applications of a general class of dynamic games with multiple durable strategies. Non-cooperative equilibria and cooperative solutions are derived, along with advanced topics including random termination, asynchronous game horizons, and stochastic analysis. The techniques presented here will enable readers to solve numerous practical dynamic interactive problems with durable strategies. This book not only expands the scope of applied dynamic game theory, but also provides a solid foundation for further theoretical and technical advancements. As such, it will appeal to scholars and students of quantitative economics, game theory, operations research, and computational mathematics. "Not too many new concepts have been introduced in dynamic games since their inception. The introduction of the concept of durable strategies changes this trend and yields important contributions to environmental and business applications." Dušan M Stipanović, Professor, University of Illinois at Urbana-Champaign "Before this book, the field simply did not realize that most of our strategies are durable and entail profound effects in the future. Putting them into the mathematical framework of dynamic games is a great innovative effort." Vladimir Turetsky, Professor, Ort Braude College “Durable-strategies Dynamic Games is truly a world-leading addition to the field of dynamic games. It is a much needed publication to tackle increasingly crucial problems under the reality of durable strategies.” Vladimir Mazalov, Director of

Mathematical Research, Russian Academy of Sciences & President of the International Society of Dynamic Games

Dynamic Games and Applications in Economics Birkhäuser
This contributed volume presents the state-of-the-art of games and dynamic games, featuring several chapters based on plenary sessions at the ISDG-China Chapter Conference on Dynamic Games and Game Theoretic Analysis, which was held from August 3-5, 2017 at the Ningbo campus of the University of Nottingham, China. The chapters in this volume will provide readers with paths to further research, serving as a testimony to the vitality of the field. Experts cover a range of theory and applications related to games and dynamic games, with topics including: Dynamically stable cooperative provision of public goods under non-transferable utility Strongly time-consistent solutions in cooperative dynamic games Incentive Stackelberg games for stochastic systems Static and inverse Stackelberg games in political economy Cournot and Betrand competition on symmetric R&D networks Numerical Nash equilibria using curvilinear multistart algorithm Markov chain approximation numerical scheme for infinite-horizon mean field games Frontiers in Games and Dynamic Games will appeal to an interdisciplinary audience of researchers, practitioners, and graduate students interested in games and dynamic games.

New Trends in Dynamic Games and Applications Springer Science & Business Media
This book integrates the fundamentals, methodology, and major application fields of noncooperative and cooperative games including conflict resolution. The topics addressed in the book are discrete and continuous games including games represented by finite trees; matrix and bimatrix games as well as oligopolies; cooperative solution concepts; games under uncertainty; dynamic games and conflict resolution. The methodology is illustrated by carefully chosen examples, applications and case studies which are selected from economics, social sciences, engineering, the military and homeland security. This book is highly recommended to readers who are interested in the in-depth and up-to-date integration of the theory and ever-expanding application areas of game theory.

Dynamic Games: Theory and Applications Springer
This book, an outgrowth of the 10th International Symposium on Dynamic Games, presents current developments of the theory of dynamic games and its applications. The text uses dynamic game models to approach and solve problems pertaining to pursuit-evasion, marketing, finance, climate and environmental economics, resource exploitation, as well as auditing and tax evasions. It includes chapters on cooperative games, which are increasingly drawing dynamic approaches to their classical solutions.

Theory and Applications of Dynamic Games World Scientific
This will be a two-part handbook on Dynamic Game Theory and part of the Springer Reference program. Part I will be on the fundamentals and theory of dynamic games. It will serve as a quick reference and a source of detailed exposure to topics in dynamic games for a broad community of researchers, educators, practitioners, and students. Each topic will be covered in 2-3 chapters with one introducing basic theory and the other one or two covering recent advances and/or special topics. Part II will be on applications in fields such as economics, management science, engineering, biology, and the social sciences.

Advances in Dynamic Games and Applications Springer Science & Business Media
This collection of selected contributions gives an account of recent developments in dynamic game theory and its applications, covering both theoretical advances and new applications of dynamic games in such areas as pursuit-evasion games, ecology, and economics. Written by experts in their respective disciplines, the chapters include stochastic and differential games; dynamic games and their applications in various areas, such as ecology and economics; pursuit-evasion games; and evolutionary game theory and applications. The work will serve as a state-of-the art account of recent advances in dynamic game theory and its applications for researchers, practitioners, and advanced students in applied mathematics, mathematical finance, and engineering.

Advances in Dynamic Games Springer Science & Business Media
This volume contains eleven articles which deal with different aspects of dynaoic and differential game theory and its applications in economic modeling and decision making. All but one of these were presented as invited papers in special sessions I organized at the 7th Annual Conference on Economic Dynamics and Control in London, England, during the period June 26-28, 1985. The first article, which comprises Chapter 1, provides a general introduction to the topic of dynamic and differential game theory, discusses various noncooperative equilibrium solution concepts, includ ing Nash, Stackelberg, and Consistent Conjectural Variations equilibria, and a number of issues such as feedback and time-consistency. The second chapter deals with the role of information in Nash equilibria and the role of leadership in Stackelberg problems. A special type of a Stackelberg problem is the one in which one dominant player (leader) acquires dynamic information involving the actions of the others (followers), and constructs policies (so-called incentives) which enforce a certain type of behavior on the followers; Chapter 3 deals with such a class of problems and presents some new theoretical results on the existence of affine incentive policies. The topic of Chapter 4 is the computation of equilibria in discounted stochastic dynamic games. Here, for problems with finite state and decision spaces, existing algorithms are reviewed, with a comparative study of their speeds of convergence, and a new algorithm for the computation of nonzero-sum game equilibria is presented.

Game Dynamics Springer Science & Business Media
This book offers a compendium of best practices in game dynamics. It covers a wide range of dynamic game elements ranging from player behavior over artificial intelligence to procedural content generation. Such dynamics make virtual worlds more lively and realistic and they also create the potential for moments of amazement and surprise. In many cases, game dynamics are driven by a combination of random seeds, player records and procedural algorithms. Games can even incorporate the player’s real-world behavior to create dynamic responses. The best practices illustrate how dynamic elements improve the user experience and increase the replay value. The book draws upon interdisciplinary approaches; researchers and practitioners from Game Studies, Computer Science, Human-Computer Interaction, Psychology and other disciplines will find this book to be an exceptional resource of both creative inspiration and hands-on process knowledge.

Games and Dynamic Games Springer
Game theory is the theory of social situations, and the majority of research into the topic focuses on how groups of people interact by developing formulas and algorithms to identify optimal

strategies and to predict the outcome of interactions. Only fifty years old, it has already revolutionized economics and finance, and is spreading rapidly to a wide variety of fields. LQ Dynamic Optimization and Differential Games is an assessment of the state of the art in its field and the first modern book on linear-quadratic game theory, one of the most commonly used tools for modelling and analysing strategic decision making problems in economics and management. Linear quadratic dynamic models have a long tradition in economics, operations research and control engineering; and the author begins by describing the one-decision maker LQ dynamic optimization problem before introducing LQ differential games. Covers cooperative and non-cooperative scenarios, and treats the standard information structures (open-loop and feedback). Includes real-life economic examples to illustrate theoretical concepts and results. Presents problem formulations and sound mathematical problem analysis. Includes exercises and solutions, enabling use for self-study or as a course text. Supported by a website featuring solutions to exercises, further examples and computer code for numerical examples. LQ Dynamic Optimization and Differential Games offers a comprehensive introduction to the theory and practice of this extensively used class of economic models, and will appeal to applied mathematicians and econometricians as well as researchers and senior undergraduate/graduate students in economics, mathematics, engineering and management science.