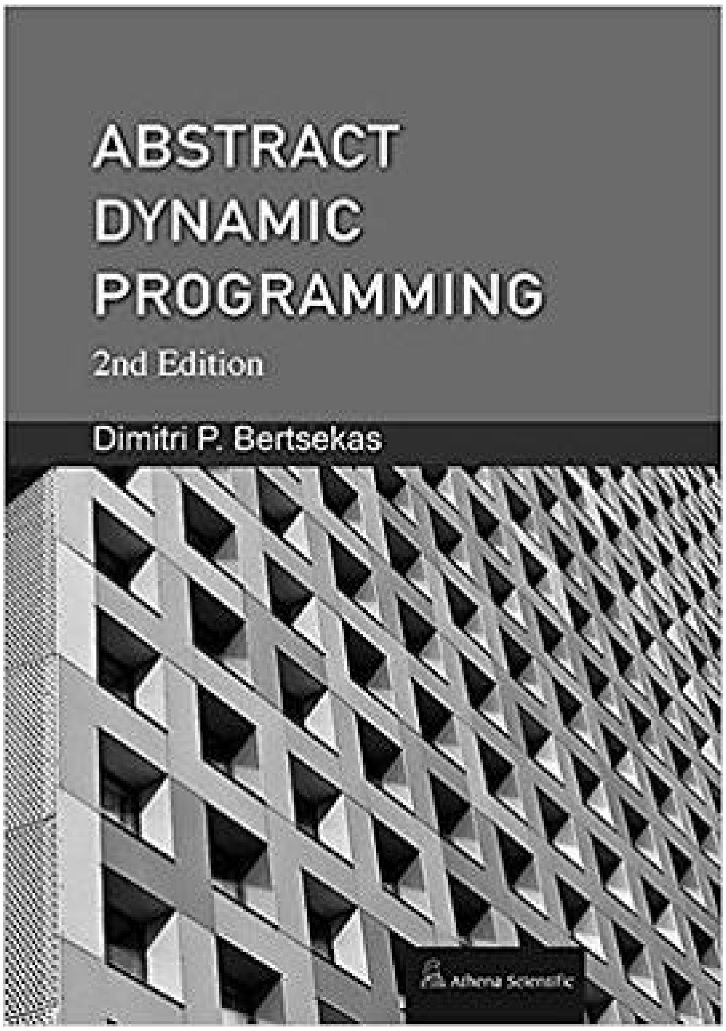
Abstract Dynamic Programming



Abstract Dynamic Programming_下载链接1_

著者:Dimitri P. Bertsekas

出版者:Athena Scientific

出版时间:

装帧:

isbn:9781886529465

A research monograph providing a synthesis of old research on the foundations of dynamic programming, with the modern theory of approximate dynamic programming and new research on semicontractive models.

It aims at a unified and economical development of the core theory and algorithms of total cost sequential decision problems, based on the strong connections of the subject with fixed point theory. The analysis focuses on the abstract mapping that underlies dynamic programming and defines the mathematical character of the associated problem. The discussion centers on two fundamental properties that this mapping may have: monotonicity and (weighted sup-norm) contraction. It turns out that the nature of the analytical and algorithmic DP theory is determined primarily by the presence or absence of these two properties, and the rest of the problem's structure is largely inconsequential. New research is focused on two areas: 1) The ramifications of these properties in the context of algorithms for approximate dynamic programming, and 2) The new class of semicontractive models, exemplified by stochastic shortest path problems, where some but not all policies are contractive.

The 2nd edition aims primarily to amplify the presentation of the semicontractive models of Chapter 3 and Chapter 4 of the first (2013) edition, and to supplement it with a broad spectrum of research results that I obtained and published in journals and reports since the first edition was written (see below). As a result, the size of this material more than doubled, and the size of the book increased by nearly 40%.

This book is an excellent supplement to several of other books: Dynamic Programming and Optimal Control (Athena Scientific, 2017), and Neuro-Dynamic Programming (Athena Scientific, 1996).

作者介绍:

Dimitri P. Bertsekas is McAfee Professor of Engineering at the Massachusetts Institute of Technology and a member of the prestigious United States National Academy of Engineering. He is the recipient of the 2001 A. R. Raggazini ACC education award and the 2009 INFORMS expository writing award. He has also received 2014 ACC Richard E. Bellman Control Heritage Award for "contributions to the foundations of deterministic and stochastic optimization-based methods in systems and control," the 2014 Khachiyan Prize for Life-Time Accomplishments in Optimization, and the SIAM/MOS 2015 George B. Dantzig Prize.

目录: - Contents and Preface

・・・・・・(收起)

Abstract Dynamic Programming_下载链接1_

标签

动态规划

P.

Dimitri

Bertsekas

评论

Abstract Dynamic Programming_下载链接1_

书评

Abstract Dynamic Programming_下载链接1_