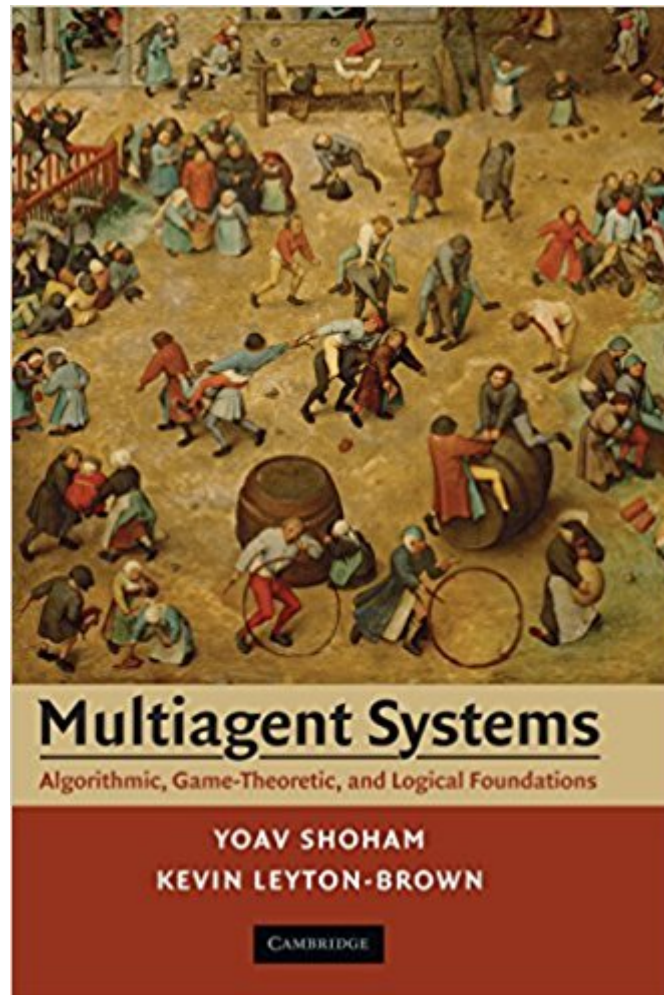# Multiagent Systems: Algorithmic, Game-Theoretic, And Logical Foundations

Synopsis

This exciting and pioneering new overview of multiagent systems, which are online systems composed of multiple interacting intelligent agents, i.e., online trading, offers a newly seen computer science perspective on multiagent systems, while integrating ideas from operations research, game theory, economics, logic, and even philosophy and linguistics. The authors emphasize foundations to create a broad and rigorous treatment of their subject, with thorough presentations of distributed problem solving, game theory, multiagent communication and learning, social choice, mechanism design, auctions, cooperative game theory, and modal logics of knowledge and belief. For each topic, basic concepts are introduced, examples are given, proofs of key results are offered, and algorithmic considerations are examined. An appendix covers background material in probability theory, classical logic, Markov decision processes and mathematical programming. Written by two of the leading researchers of this engaging field, this book will surely serve as THE reference for researchers in the fastest-growing area of computer science, and be used as a text for advanced undergraduate or graduate courses.

Book Information

Hardcover: 504 pages

Publisher: Cambridge University Press; 1 edition (December 15, 2008)

Language: English

ISBN-10: 0521899435

ISBN-13: 978-0521899437

Product Dimensions: 7 x 1.1 x 10 inches

Shipping Weight: 2.2 pounds (View shipping rates and policies)

Average Customer Review: 4.3 out of 5 starsÂ Â See all reviewsÂ (10 customer reviews)

Best Sellers Rank: #344,534 in Books (See Top 100 in Books)   #31 inÂ Books > Computers & Technology > Computer Science > AI & Machine Learning > Natural Language Processing   #84 inÂ Books > Science & Math > Evolution > Game Theory   #91 inÂ Books > Textbooks > Computer Science > Artificial Intelligence

Customer Reviews

This book is a fantastic introduction to game theory where the authors are cleverly worried about the algorithms used to solve the problems. Therefore, it provides a great link among computer science, economic theory and operational research.The structure of the book is based on very clear definitions, elucidating examples and theorems (not all proved, but several ones are proved). A

great point of the book is the updated list of references in the last section of each chapter that can help the interested the reader find additional information about each topic is being taught in the book.Chapter 1 introduces the problem of Distributed constraint satisfaction that will be used later in the book to compute the Nash equilibrium.Chapter 2 is a basic introduction to dynamic programming and auction theory.Chapters 3, 4 and 5 provide an introduction to decision theory and basic game theory. The bonus of these chapters is the list of algorithms that are presented in order to compute the equilibriums. It is worth mentioning that these chapters are as good as the best available introductions to game theory. All the basic topics are clearly covered.Chapter 6 presents more specific representations of games. Some of them are very common in other books (such as Repeated games and Bayesian games), but others (such as congestion games) are not very common.Chapter 7 deals with learning and teaching.

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