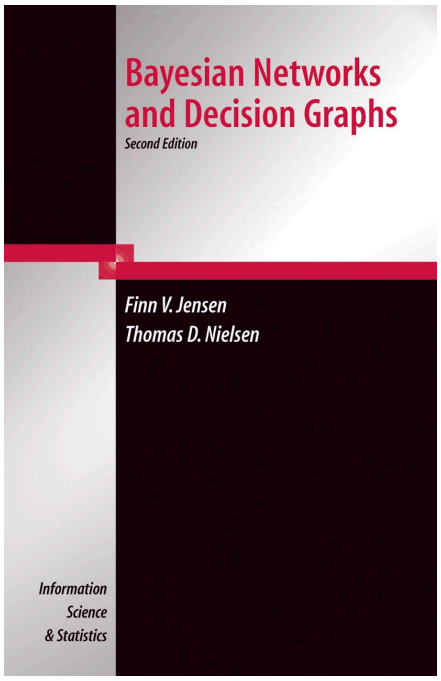

Springer

2nd edition

2nd ed. 2007, XVI, 448 p.

Printed book
Hardcover

Printed book
Hardcover
ISBN 978-0-387-68281-5
£ 89,99 | CHF 118,00 | 99,99 € | 109,99 € (A) | 106,99 € (D)
Available

Discount group
Standard (0)

Product category
Graduate/advanced undergraduate textbook

Series
Information Science and Statistics

Other renditions
Softcover
ISBN 978-1-4419-2394-3

Life Sciences : Plant Sciences

Nielsen, Thomas Dyhre, VERNER JENSEN, FINN, Aalborg University Ctr. Sensory-Motor Interaction, Aalborg, Denmark

Bayesian Networks and Decision Graphs

- Gives a well-founded practical introduction to Bayesian networks
- Includes presentation of the most efficient algorithm for solving influence diagrams

Probabilistic graphical models and decision graphs are powerful modeling tools for reasoning and decision making under uncertainty. As modeling languages they allow a natural specification of problem domains with inherent uncertainty, and from a computational perspective they support efficient algorithms for automatic construction and query answering. This includes belief updating, finding the most probable explanation for the observed evidence, detecting conflicts in the evidence entered into the network, determining optimal strategies, analyzing for relevance, and performing sensitivity analysis. The book introduces probabilistic graphical models and decision graphs, including Bayesian networks and influence diagrams. The reader is introduced to the two types of frameworks through examples and exercises, which also instruct the reader on how to build these models. The book is a new edition of Bayesian Networks and Decision Graphs by Finn V. Jensen. The new edition is structured into two parts. The first part focuses on probabilistic graphical models. Compared with the previous book, the new edition also includes a thorough description of recent extensions to the Bayesian network modeling language, advances in exact and approximate belief updating algorithms, and methods for learning both the structure and the parameters of a Bayesian network. The second part deals with decision graphs, and in addition to the frameworks described in the previous edition, it also introduces Markov decision processes and partially ordered decision problems. The authors also provide a well-founded practical introduction to Bayesian networks, object-oriented Bayesian networks, decision trees, influence diagrams (and variants hereof), and Markov decision processes. give practical advice on the construction of Bayesian networks, decision trees, and influence diagrams from domain knowledge. < give several examples and exercises exploiting computer systems for dealing with Bayesian networks and decision graphs. present a thorough introduction to state-of-the-art solution and analysis algorithms.

Order online at springer.com/booksellers
Springer Nature Customer Service Center GmbH
Customer Service
Tiergartenstrasse 15-17
69121 Heidelberg
Germany
T: +49 (0)6221 345-4301
row-booksellers@springernature.com

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add $5.00 for shipping one book and $ 1.00 for each additional book. Outside the US and Canada add $ 10.00 for first book, $5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.

ISBN 978-0-387-68281-5 / BIC: PST / SPRINGER NATURE: SCL24000