

Book Reviews

Bayesian Networks and Decision Graphs, Second Edition by Finn V. Jensen and Thomas D. Nielsen, Springer Verlag, 447 pp., \$79.95, ISBN 0-387-68281-3
doi:10.1017/S0269888908000076

Bayesian networks and decision graphs is the second edition of what, in my opinion, was the benchmark textbook on graphical probabilistic models. Unlike many second editions, it is not only an update of the first edition but also greatly expanded, and the magnitude of the change is reflected in the presence of a second author and the addition of nearly 200 pages. Indeed, the change is not just the addition of material, but a complete revision of the way the book is organized.

The first edition divided the material into two parts, first covering the representation of probabilistic influences (or, rather, the absence of independencies) by graphical models and then describing algorithms for carrying out inference in those models. The new edition starts with the basic probability theory, and then is split into two—one part deals with Bayesian networks and the other part deals with decision graphs. In both parts we are first introduced to the models, and then told how to do inference within the models. Given that much of the new material is on decision problems, this rearrangement makes sense. It keeps the discussion of algorithms closely tied to the material on representation, and also makes the book more accessible to anyone who is only interested in either Bayesian networks or decision graphs.

Part of the new material covers Markov decision processes (both fully and partially observable). While one might cavil that they are not really decision graphs, including such a widely used approach is, in my view, an excellent idea, and one that adds a great deal of value to the book. The only problem with this addition is that there is no real discussion of learning in such models. This is a shame since one of the great strengths of these models is their close connection to reinforcement learning, a connection that means that the entire model can be learnt from scratch. However, that is a minor flaw in a very good book, and given the extent of the revisions that they carried out, an understandable omission on the part of the authors. Once again Finn Jensen has delivered a book that should be the standard text on the subject. I look forward to seeing the next edition.

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Augmented Learning: Research and Design of Mobile Educational Games by Eric Klopfer, MIT Press, 251 pp., \$35.00, ISBN 978-262-11315-1
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As technology has become cheaper, and hence more widespread, there has been increasing interest in bringing it into the classroom. The aim of doing this has been not only to teach about technology but also to make use of technology in teaching. Despite all the money that has been spent, this use of technology does not appear to have been very successful in improving education. There seem to be two reasons for this. First of all, there is the issue of accessibility. Typically computers are not really in the classroom at all, they are in some other space (for perfectly good