Neural Networks for Pattern Recognition (Advanced Texts in Econometrics (Paperback))

Christopher M. Bishop
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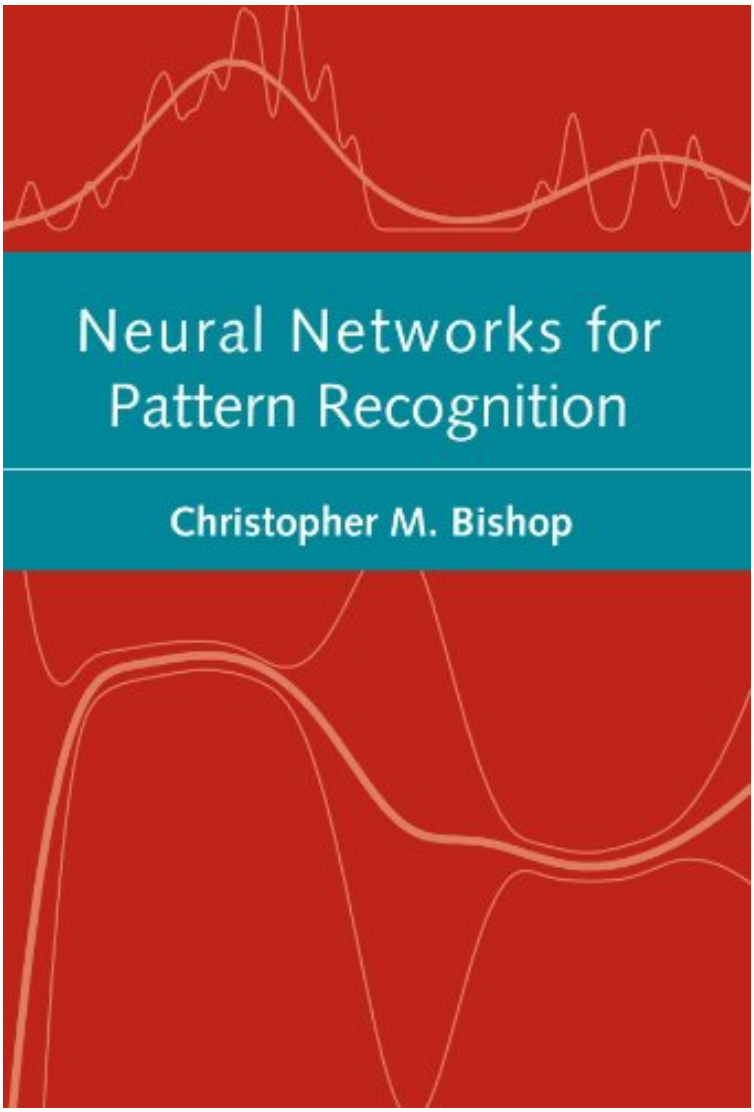

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Christopher M. Bishop : Neural Networks for Pattern Recognition (Advanced Texts in Econometrics (Paperback)) before purchasing it in order to gage whether or not it would be worth my time, and all praised Neural Networks for Pattern Recognition (Advanced Texts in Econometrics (Paperback)):

11 of 11 people found the following review helpful. a little dated, but a good introductionBy sheep or goatGreat introduction to simple neural networks. It only covers feed-forward networks and not recurrent networks, so you don't get a full feel for the breadth of the neural networks field. Being from the early 1990's, it also doesn't cover any of the

more recent advances in deep learning, which is a hot, and fascinating field. That being said, by focusing only on feedforward networks, the book has more time to develop the background (the first chapter is a basics statistics overview) and theory for why neural networks are powerful. It then builds up neural networks (from single layer networks to multilayer networks), and finally covers more practical aspects of using neural networks, such as training algorithms, choosing error functions, and how to use neural networks in a Bayesian setting. Its treatment of training algorithms (especially back propagation and the hessian equivalent of back propagation) is especially succinct and enlightening.Overall, it's a great introduction to neural networks, and will allow you to dive into more modern treatments of neural networks, such as deep learning.146 of 152 people found the following review helpful. Grows on YouBy Peter NorvigThis book came out at about the same time as Ripley's, which has almost the same title, but in reverse. At the time, I liked Ripley's better, because it covered more things that were totally new to me. Then a friend said he had chosen Bishop for a course he was teaching, and I went back and reconsidered the two books. I soon found that my friend was right: Bishop's book is better laid out for a course in that it starts at the beginning (well, not quite the beginning--you do need to be fairly sophisticated mathematically) and works up, while Ripley's is more a collection of insights all at the same level; confusing to learn from. Bishop is able to cover both theoretical and practical aspects well. There certainly are topics that aren't covered, but the ones that are there fit together nicely, are accurate and up to date, and are easy to understand. It has migrated from my bookcase to my desk, where it now stays, and I reach for it often.To the reviewer who said "I was looking forward to a detailed insight into neural networks in this book. Instead, almost every page is plastered up with sigma notation", that's like saying about a book on music theory "Instead, almost every page is plastered with black-and-white ovals (some with sticks on the edge)." Or to the reviewer who complains this book is limited to the mathematical side of neural nets, that's like complaining about a cookbook on beef being limited to the carnivore side. If you want a non-technical overview, you can get that elsewhere (e.g. Michael Arbib's Handbook of Brain Theory and Neural Networks or Andy Clark's Connectionism in Context or Fausett's Fundamentals of Neural Networks), but if you want understanding of the techniques, you have to understand the math. Otherwise, there's no beef.17 of 19 people found the following review helpful. Only for an expertBy T. WiedmanMr Bishop's book is very well written and contains a lot of useful information on neural networks. It is outlined well and progresses in a logical form. If, however, you are looking for a book that gives discussions with concrete examples of neural networks applications or set ups, you will be sorely disappointed. The mathematical treatment is universally generalized with very few specific concrete examples shown. Even the exercises will not serve you well. The term 'graded' is used; however, that simply referes to the description of difficulty. There are no answers to these exercises, so unless you have a teacher or are already firmly familiar with the material, you will not know if you have completed them correctly or not. Even worse, the exercises are in general not written to reinforce concepts in the chapter, but in most cases extend the chapter material into new regions.In summary, this book should only be purchased by someone already familiar with neural networks and their mathematical basis. Anyone else will be wasting their money.

This is the first comprehensive treatment of feed-forward neural networks from the perspective of statistical pattern recognition. After introducing the basic concepts, the book examines techniques for modeling probability density functions and the properties and merits of the multi-layer perceptron and radial basis function network models. Also covered are various forms of error functions, principal algorithms for error function minimalization, learning and generalization in neural networks, and Bayesian techniques and their applications. Designed as a text, with over 100 exercises, this fully up-to-date work will benefit anyone involved in the fields of neural computation and pattern recognition.

.com This book provides a solid statistical foundation for neural networks from a pattern recognition perspective. The focus is on the types of neural nets that are most widely used in practical applications, such as the multi-layer perceptron and radial basis function networks. Rather than trying to cover many different types of neural networks, Bishop thoroughly covers topics such as density estimation, error functions, parameter optimization algorithms, data pre-processing, and Bayesian methods. All topics are organized well and all mathematical foundations are explained before being applied to neural networks. The text is suitable for a graduate or advanced undergraduate level course on neural networks or for practitioners interested in applying neural networks to real-world problems. The reader is assumed to have the level of math knowledge necessary for an undergraduate science degree. "Should be in the library of any student, teacher, or researcher with a keen interest in modern statistical methods, a large volume of meaningful data to analyze (including simulations), and a fast workstation with good numerical and graphical capabilities."--Journal of the American Statistical Association"....should be warmly welcomed by the neural network and pattern recognition communities. Bishop can be recommended to students and engineers in computer science."--Computer Journal"An excellent and rigorous treatment of a number of neural network architectures."--Journal of Mathematical Psychology"Its sequential organization and end-of-chapter exercises make it an ideal mental gymnasium. The author has eschewed biological metaphor and sweeping statements in favour of welcome mathematical rigour."--Scientific

Computing World"A first-class book for the researcher in statistical pattern recognition."--Times Higher Education Supplement"Although there has been a plethora of books on neural networks published in the last five years, none has really addressed the subject with the necessary mathematical rigour. Professor Bishop's book is the first textbook to provide a clear and comprehensive treatment of the mathematical principles underlying the main types of artificial neural networks."--Dr. L. Tarassenko and Professor J.M. Brady, Department of Engineering Science, University of Oxford"There has been an acute need for authoritative textbooks in neural networks that explain the main ideas clearly and consistently using the basic tools of linear algebra, calculus, and simple probability theory. There have been many attempts to provide such a text, but until now, none has succeeded. This is a serious attempt at providing such an ideal textbook. By concentrating on pattern recognition aspects of neural works, the author is able to treat many important topics in much greater depth. The most important contribution of the book is the solid statistical pattern recognition approach, a sign of increasing maturity in the field."--Mathematical s"The following keywords concisely indicate the contents: artificial neural networks, statistical pattern recognition, probability density estimation, single-layer networks, multi-layer perception, radial basis functions, error functions, parameter optimization algorithms, Bayesian techniques, etc. The book is aimed at researchers and practitioners. It can also be used as the primary text in a course for graduate students (129 graded exercises!)."--Industrial MathematicsAbout the AuthorChris Bishop is at Aston University.