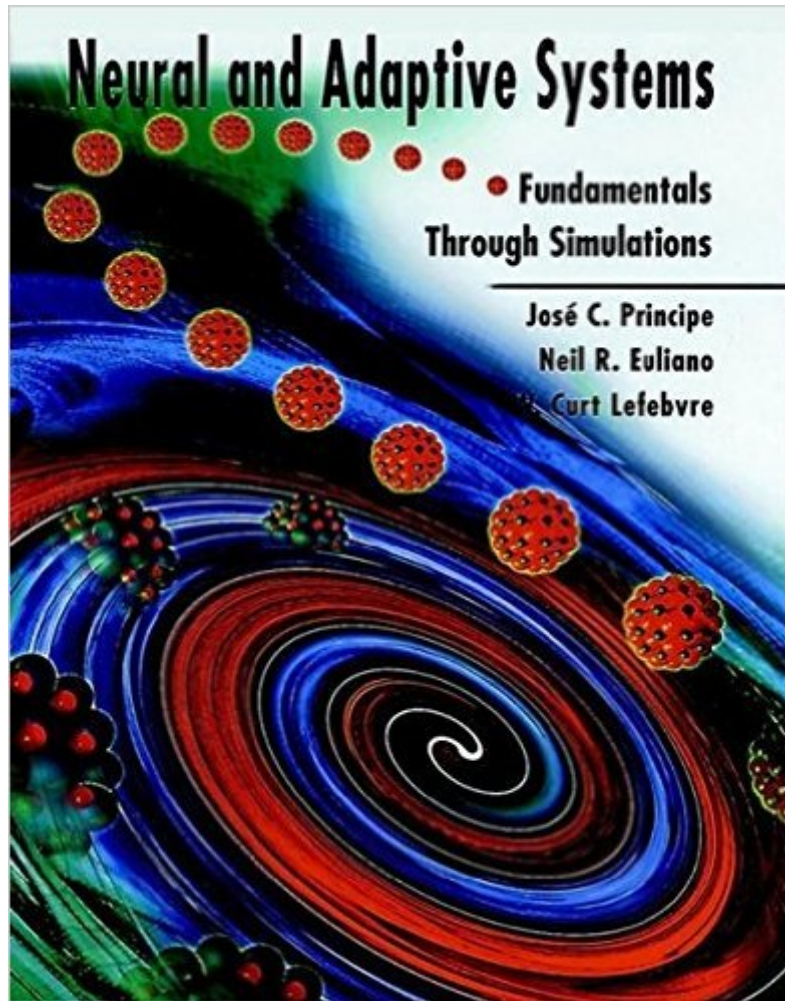# Neural And Adaptive Systems: Fundamentals Through Simulations

Synopsis

Develop New Insight into the Behavior of Adaptive Systems This one-of-a-kind interactive book and CD-ROM will help you develop a better understanding of the behavior of adaptive systems. Developed as part of a project aimed at innovating the teaching of adaptive systems in science and engineering, it unifies the concepts of neural networks and adaptive filters into a common framework. It begins by explaining the fundamentals of adaptive linear regression and builds on these concepts to explore pattern classification, function approximation, feature extraction, and time-series modeling/prediction. The text is integrated with the industry standard neural network/adaptive system simulator NeuroSolutions. This allows the authors to demonstrate and reinforce key concepts using over 200 interactive examples. Each of these examples is 'live,' allowing the user to change parameters and experiment first-hand with real-world adaptive systems. This creates a powerful environment for learning through both visualization and experimentation. Key Features of the Text The text and CD combine to become an interactive learning tool. Emphasis is on understanding the behavior of adaptive systems rather than mathematical derivations. Each key concept is followed by an interactive example. Over 200 fully functional simulations of adaptive systems are included. The text and CD offer a unified view of neural networks, adaptive filters, pattern recognition, and support vector machines. Hyperlinks allow instant access to keyword definitions, bibliographic references, equations, and advanced discussions of concepts. The CD-ROM Contains: A complete, electronic version of the text in hypertext format NeuroSolutions, an industry standard, icon-based neural network/adaptive system simulator A tutorial on how to use NeuroSolutions Additional data files to use with the simulator "An innovative approach to describing neurocomputing and adaptive learning systems from a perspective which unifies classical linear adaptive systems approaches with the modern advances in neural networks. It is rich in examples and practical insight." â ”James Zeidler, University of California, San Diego

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Customer Reviews

This has got to be the best textbook I have come across! The amount of thought and care in producing this book is phenomenal. It goes into details very thoroughly, and provides plenty of examples which would easily satisfy the very bright and the very slow. The math in back of all this is ACTUALLY EXPLAINED PROPERLY! Buy the book - it's worth every cent.

Topics explored in this book include signal processing, feature extraction, linear and non-linear modelling, temporal models and an array of connectionist learning paradigms. These topics are demanding, particularly mathematically, however I have taken a lot from this book where I have had limited success with others. The authors know a great deal about their subject, which has enabled them to take a holistic approach, which explains fundamentals before building them into powerful solutions. Equations, while frequently cited are explained descriptively and often boxed separately from the main text. Learning is greatly enhanced by the 200 interactive tutorials. The NeuroSolutions software (limited version free) is the best I've seen in terms of the number of architectures and data processing algorithms provided and comes with an excel add in! I searched long and hard for this book and was not disappointed - it sets a new standard for technical education.

I am quite conflicted in my thoughts on this book. The pluses are that it is comprehensive, thorough and comes with a useful pedagogical simulator. The minuses are that it is covers a vast range of subjects with a skimpy coat of mathematical and theoretical glue. When I found myself looking for more maths and theory, the text usually directed me towards the simulation. The simulations are good but the coding is invisible to the user due the range of NN widgets included (analogous to programming using the Lego Mindstorms visual programing tool). This is a downside for those hoping to learning coding techniques - there are not explored here - but will suit users that want a workbench to visualise concepts in the text. I confess that I became bored with the simulator about midway through the book.The authors set themselves a formidable task in producing this book, and

depending on the reader's needs thaey have either excelled themselves, or else have concocted a animaed dodo - interesting but near extinction.

Hi,I read this book and in the beginning it looks like many ideas, but when I started to go intoThe martial I knew it's a good book.Actually it'll be one of the best books you can read in neural networks.It explains the martial in common language , but yet very practical.It has many examples and you can use the demo program to see and look how theyActually wrote the code (dll's) for some components.I used it all the way to build and compare my own tools.I highly recommends it- it's superior over all other I read in this area.Avi.

This is the best book to learn adaptive signal processing. The authors teach you the spirit of adaptation thorugh simulation played by yourself. Moreover, readers can build their own system using the NeuralSolution. No matter you are a student or an engineer, this book is very useful.

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