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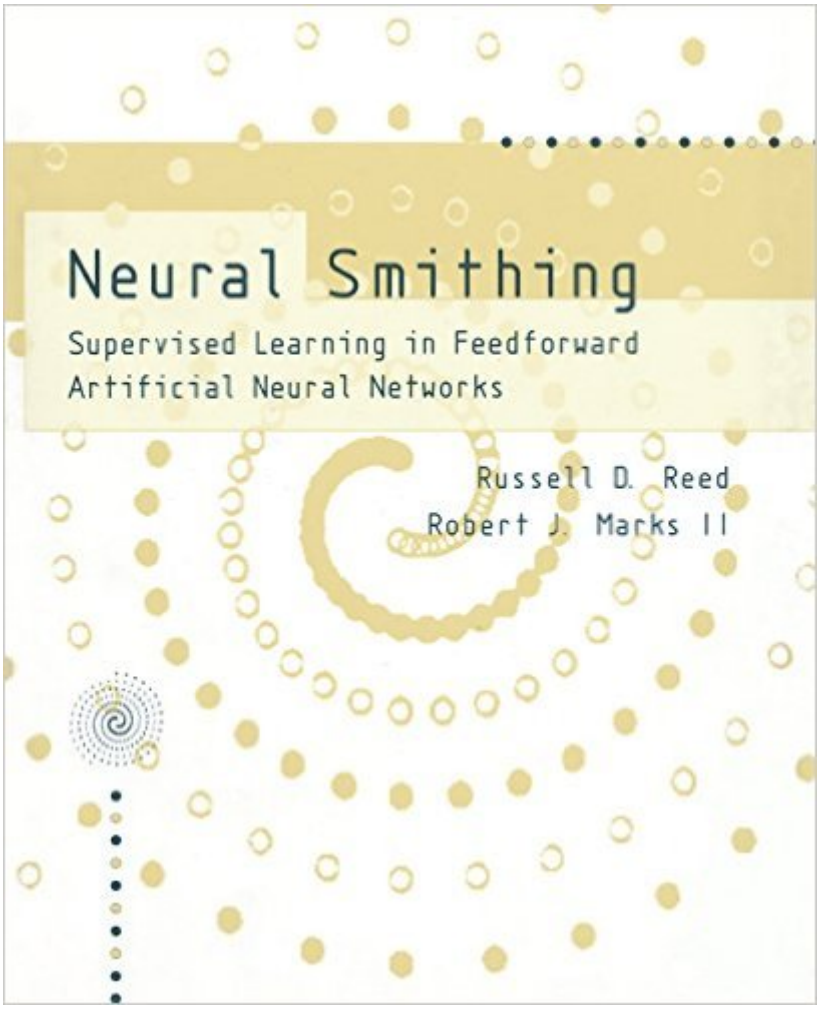
Neural Smithing: Supervised Learning In Feedforward Artificial Neural Networks (MIT Press)



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Synopsis

Artificial neural networks are nonlinear mapping systems whose structure is loosely based on principles observed in the nervous systems of humans and animals. The basic idea is that massive systems of simple units linked together in appropriate ways can generate many complex and interesting behaviors. This book focuses on the subset of feedforward artificial neural networks called multilayer perceptrons (MLP). These are the mostly widely used neural networks, with applications as diverse as finance (forecasting), manufacturing (process control), and science (speech and image recognition).This book presents an extensive and practical overview of almost every aspect of MLP methodology, progressing from an initial discussion of what MLPs are and how they might be used to an in-depth examination of technical factors affecting performance. The book can be used as a tool kit by readers interested in applying networks to specific problems, yet it also presents theory and references outlining the last ten years of MLP research.

Book Information

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Customer Reviews

It was a pleasure to have the opportunity to read the Russell Reed, Robert Marks book "Neural Smithing". I have been an engineer at Boeing for 20 years involved in computing, CAD 3D design, and related applications. My current assignment includes supporting a sophisticated Neural Network based design retrieval system. I am also completing my Ph.D. dissertation based on Neural Network research.To begin with, it seems reasonable to characterize "Neural Smithing" in broad terms. The

book is not just a stuffy, hypothetical, academic treatment of Neural Networks loaded with formulas and references. It does contain these elements but they are encapsulated in a larger presentation which leads the reader on an adventure of exploration and an ultimately satisfying journey of discovery. The book is certainly well grounded in theory and motivated by classical approach but the overall message is: you too can make neural networks from scratch by following the principles, guidelines, suggestions, and hints presented in this handbook. What's more, your network will probably perform correctly, or at least you'll understand the reason why not."Neural Smithing" guides the reader through various channels and pathways, around pitfalls, and ultimately to an understanding of neural networks on a personal level. The reader comes away from the first reading with a feeling of intimate knowledge and intuitive understanding of neural networks. After this, the book transforms from a required travel guide into a trusty reference book. With over 380 references, it is a veritable who's who in neural network technology and a "must have" for any serious experimenters workbench.

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