Neural Networks in Business:

Techniques and Applications

Kate Smith
Jatinder Gupta

IDEA GROUP PUBLISHING

NEW from Idea Group Publishing

- **Data Mining: A Heuristic Approach**
  Hussein Aly Abbass, Ruhul Amin Sarker and Charles S. Newton/ 1-930708-25-4
- **Managing Information Technology in Small Business: Challenges and Solutions**
  Stephen Burgess/ 1-930708-35-1
- **Managing Web Usage in the Workplace: A Social, Ethical and Legal Perspective**
  Murugan Anandarajan and Claire A. Simmers/ 1-930708-18-1
- **Challenges of Information Technology Education in the 21st Century**
  Eli Cohen/ 1-930708-34-3
- **Social Responsibility in the Information Age: Issues and Controversies**
  Gurpreet Dhillon/ 1-930708-11-4
- **Database Integrity: Challenges and Solutions**
  Jorge H. Doorn and Laura Rivero/ 1-930708-38-6
- **Managing Virtual Web Organizations in the 21st Century: Issues and Challenges**
  Ulrich Franke/ 1-930708-24-6
- **Managing Business with Electronic Commerce: Issues and Trends**
  Aryya Gangopadhyay/ 1-930708-12-2
- **Electronic Government: Design, Applications and Management**
  Åke Grönlund/ 1-930708-19-X
- **Knowledge Media in Health Care: Opportunities and Challenges**
  Rolf Grutter/ 1-930708-13-0
- **Internet Management Issues: A Global Perspective**
  John D. Haynes/ 1-930708-21-1
- **Enterprise Resource Planning: Global Opportunities and Challenges**
  Liaquat Hossain, Jon David Patrick and M. A. Rashid/ 1-930708-36-X
- **The Design and Management of Effective Distance Learning Programs**
  Richard Discenza, Caroline Howard, and Karen Schenk/ 1-930708-20-3
- **Multirate Systems: Design and Applications**
  Gordana Jovanovic-Dolecek/ 1-930708-30-0
- **Managing IT/Community Partnerships in the 21st Century**
  Jonathan Lazar/ 1-930708-33-5
- **Multimedia Networking: Technology, Management and Applications**
  Syed Mahbubur Rahman/ 1-930708-14-9
- **Cases on Worldwide E-Commerce: Theory in Action**
  Mahesh Raisinghani/ 1-930708-27-0
- **Designing Instruction for Technology-Enhanced Learning**
  Patricia L. Rogers/ 1-930708-28-9
- **Heuristic and Optimization for Knowledge Discovery**
  Ruhul Amin Sarker, Hussein Aly Abbass and Charles Newton/ 1-930708-26-2
- **Distributed Multimedia Databases: Techniques and Applications**
  Timothy K. Shih/ 1-930708-29-7
- **Neural Networks in Business: Techniques and Applications**
  Kate Smith and Jatinder Gupta/ 1-930708-31-9
- **Information Technology and Collective Obligations: Topics and Debate**
  Robert Skovira/ 1-930708-37-8
- **Managing the Human Side of Information Technology: Challenges and Solutions**
  Edward Szewczak and Coral Snodgrass/ 1-930708-32-7
- **Cases on Global IT Applications and Management: Successes and Pitfalls**
  Felix B. Tan/ 1-930708-16-5
- **Enterprise Networking: Multilayer Switching and Applications**
  Vasilis Theoharakis and Dimitrios Serpanos/ 1-930708-17-3
- **Measuring the Value of Information Technology**
  Han T. M. van der Zee/ 1-930708-08-4
- **Business to Business Electronic Commerce: Challenges and Solutions**
  Merrill Warkentin/ 1-930708-09-2

Excellent additions to your library!

Receive the Idea Group Publishing catalog with descriptions of these books by calling, toll free 1/800-345-4332
or visit the IGP Online Bookstore at: http://www.idea-group.com!

Neural Networks in Business: Techniques and Applications

Table of Contents

Preface i
Kate A. Smith, Monash University, Australia
Jatinder N. D. Gupta, Ball State University, USA

Acknowledgements v

Section I: Introduction

Chapter 1: Neural Networks for Business: An Introduction 1
Kate A. Smith, Monash University, Australia

Section II: Applications to Retail Sales and Marketing

Chapter 2: Predicting Consumer Retail Sales Using Neural Networks 26
G. Peter Zhang, Georgia State University, USA
Min Qi, Kent State University, USA

Chapter 3: Using Neural Networks to Model Premium Price Sensitivity of Automobile Insurance Customer 41
Ai Cheo Yeo, Kate A. Smith, and Robert J. Willis
Monash University, Australia
Malcolm Brooks, Australian Associated Motor Insurers, Australia

Chapter 4: A Neural Network Application to Identify High-Value Customers for a Large Retail Store in Japan 55
Edward Ip, University of Southern California, USA
Joseph Johnson, University of Miami, USA
Katsutoshi Yada, Kansai University, Japan
Yukinobu Hamuro, Osaka Sangyo University, Japan
Naoki Katoh, Kyoto University, Japan
Stephane Cheung, University of Southern California, USA

Chapter 5: Segmentation of the Portuguese Clients of Pousadas de Portugal 70
Margarida G. M. S. Cardoso, Instituto Superior de Ciências do Trabalho e Emprego, Portugal
Fernando Moura-Pires, Universidade de Évora, Portugal

Chapter 6: Neural Networks for Target Selection in Direct Marketing 89
Rob Potharst and Uzay Kaymak
Erasmus University Rotterdam, The Netherlands
Wim Pijls, Erasmus University Rotterdam, The Netherlands

Section III: Applications to Risk Assessment

Chapter 7: Prediction of Survival and Attrition of Click-and-Mortar Corporations 112
Indranil Bose and Anurag Agarwal
University of Florida, USA

Chapter 8: Corporate Strategy and Wealth Creation: An Application of Neural Network Analysis 124
Caron H. St. John and Nagraj (Raju) Balakrishnan
Clemson University, USA
James O. Fiet, University of Louisville, USA

Chapter 9: Credit Rating Classification Using Self-Organizing Maps 140
Roger P. G. H. Tan, Robeco Group, The Netherlands
Jan van den Berg and Willem-Max van den Bergh
Erasmus University Rotterdam, The Netherlands

Chapter 10: Credit Scoring Using Supervised and Unsupervised Neural Networks 154
David West and Cornelius Muchineuta
East Carolina University, USA

Chapter 11: Predicting Automobile Insurance Losses Using Artificial Neural Networks 167
Fred L. Kitchens, Ball State University, USA
John D. Johnson, University of Mississippi, USA
Jatinder N. D. Gupta, Ball State University, USA

Section IV: Applications to Financial Markets

Chapter 12: Neural Networks for Technical Forecasting of Foreign Exchange Rates 189
JingTao Yao, Massey University, New Zealand
Chew Lim Tan, National University of Singapore, Singapore

Chapter 13: Using Neural Networks to Discover Patterns in International Equity Markets: A Case Study 205
Mary E. Malliaris and Linda Salchenberger
Loyola University Chicago, USA

Chapter 14: Comparing Conventional and Artificial Neural Network Models for the Pricing of Options 220
Paul Lajbcygier, Monash University, Australia

Chapter 15: Combining Supervised and Unsupervised Neural Networks for Improved Cash Flow Forecasting 236
Kate A. Smith and Larisa Lokmic
Monash University, Australia

About the Authors 245

Index 255