



图书基本信息

- 书名:<<人工智能>>
- 13位ISBN编号:9787111358220
- 10位ISBN编号:7111358228
- 出版时间:2011-9
- 出版时间:机械工业出版社
- 作者: (澳) Michael Negnevitsky
- 页数:479

版权说明:本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com



前言

The main objective of the book remains the same as in the first edition - to provide the reader with practical understanding of the field of computer intelligence. It is intended as an introductory text suitable for a one-semester course, and assumes the students have only limited knowledge of calculus and little or no In terms of the coverage, this edition introduces a new chapter on data mining programming experience. and demonstrates several new applications of intelligent tools for solving complex real-world problems. The major In the new chapter, 'Data mining and knowledge discovery', we introduce changes are as follows: data mining as an integral part of knowledge discovery in large databases. We consider the main techniques and tools for turning data into knowledge, including statistical methods, data visualisation tools, Structured Query Language, decision trees and market basket analysis. We also present several case studies on data mining applications. In Chapter 9, we add a new case study on clustering with a self-organising neural network. Finally, we have expanded the book's references and bibliographies, and updated the list of AI tools and vendors in the appendix. Michael Negnevitsky Hobart, Tasmania, Australia September 2010



内容概要

人工智能经常被人们认为是计算机科学中一门高度复杂甚至令人生畏的学科。 长期以来人工智能方面的书籍往往包含复杂矩阵代数和微分方程。 本书基于作者多年来给没有多少微积分知识的学生授课时所用的讲义。 假定读者没有编程经验,以简单易懂的方式介绍了智能系统的基础知识。

尼格尼维斯基编著的《人工智能》目前已经被国际上多所大学(例如,德国的马格德堡大学、日本的 广岛大学、美国的波士顿大学和罗切斯特理工学院等)采纳为教材。

如果您正在寻找关于人工智能或智能系统设计课程的浅显易懂的入门级教材,如果您不是计算机科学领域的专业人员而又正在寻找介绍基于知识系统最新技术发展的自学指南,本书将是您的最佳选择。

与上一版相比,本版进行了全面更新,以反映人工智能领域的最新进展。 其中新增了数据挖掘与知识发现一章和自组织神经网络聚类一节内容。 同时补充了4个新的案例研究。



作者简介

澳大利亚塔斯马尼亚大学电气工程和计算机科学系教授。 他的许多研究课题都涉及人工智能和软计算。 他一直致力于电气工程、过程控制和环境工程中智能系统的开发和应用,发表了300多篇论文,著有2 本专著,并获得了4项发明专利。 第一图书网, tushu007.com



书籍目录

Preface

- Preface to the third edition
- Overview of the book
- Acknowledgements
- 1 Introduction to knowledge-based intelligent systems
- 1.1 Intelligent machines, or what machines can do
- 1.2 The history of artificial intelligence, or from the Dark
- Ages to knowledge-based systems
- 1.3 Summary
- Questions for review

References

- 2 Rule-based expert systems
- 2.1 Introduction, or what is knowledge?
- 2.2 Rules as a knowledge representation technique
- 2.3 The main players in the expert system development team
- 2.4 Structure of a rule-based expert system
- 2.5 Fundamental characteristics of an expert system
- 2.6 Forward chaining and backward chaining inference techniques
- 2.7 MEDIA ADVISOR: a demonstration rule-based expert system
- 2.8 Conflict resolution
- 2.9 Advantages and disadvantages of rule-based expert systems
- 2.10 Summary
- Questions for review

References

- 3 Uncertainty management in rule-based expert systems
- 3.1 Introduction, or what is uncertainty?
- 3.2 Basic probability theory
- 3.3 Bayesian reasoning
- 3.4 FORECAST: Bayesian accumulation of evidence
- 3.5 Bias of the Bayesian method
- 3.6 Certainty factors theory and evidential reasoning
- 3.7 FORECAST: an application of certainty factors
- 3.8 Comparison of Bayesian reasoning and certainty factors
- 3.9 Summary
- Questions for review

References

- 4 Fuzzy expert systems
- 4.1 Introduction, or what is fuzzy thinking?
- 4.2 Fuzzy sets
- 4.3 Linguistic variables and hedges
- 4.4 Operations of fuzzy sets
- 4.5 Fuzzy rules
- 4.6 Fuzzy inference
- 4.7 Building a fuzzy expert system
- 4.8 Summary





Questions for review

References

Bibliography

- 5 Frame-based expert systems
- 5.1 Introduction, or what is a frame?
- 5.2 Frames as a knowledge representation technique
- 5.3 Inheritance in frame-based systems
- 5.4 Methods and demons
- 5.5 Interaction of frames and rules
- 5.6 Buy Smart: a frame-based expert system
- 5.7 Summary
- Questions for review

References

Bibliography

- 6 Artificial neural networks
- 6.1 Introduction, or how the brain works
- 6.2 The neuron as a simple computing element
- 6.3 The perceptron
- 6.4 Multilayer neural networks
- 6.5 Accelerated learning in multilayer neural networks
- 6.6 The Hopfield network
- 6.7 Bidirectional associative memory
- 6.8 Self-organising neural networks
- 6.9 Summary
- Questions for review

References

- 7 Evolutionary computation
- 7.1 Introduction, or can evolution be intelligent?
- 7.2 Simulation of natural evolution
- 7.3 Genetic algorithms
- 7.4 Why genetic algorithms work
- 7.5 Case study: maintenance scheduling with genetic algorithms
- 7.6 Evolution strategies
- 7.7 Genetic programming
- 7.8 Summary
- Questions for review

References

Bibliography

- 8 Hybrid intelligent systems
- 8.1 Introduction, or how to combine German mechanics with Italian love
- 8.2 Neural expert systems
- 8.3 Neuro-fuzzy systems
- 8.4 ANFIS: Adaptive Neuro-Fuzzy Inference System
- 8.5 Evolutionary neural networks
- 8.6 Fuzzy evolutionary systems
- 8.7 Summary

第一图书网, tushu007.com



Questions for review

References

- 9 Knowledge engineering
- 9.1 Introduction, or what is knowledge engineering?
- 9.2 Will an expert system work for my problem?
- 9.3 Will a fuzzy expert system work for my problem?
- 9.4 Will a neural network work for my problem?
- 9.5 Will genetic algorithms work for my problem?
- 9.6 Will a hybrid intelligent system work for my problem?
- 9.7 Summary

Questions for review

References

- 10 Data mining and knowledge discovery
- 10.1 Introduction, or what is data mining?
- 10.2 Statistical methods and data visualisation
- 10.3 Principal component analysis
- 10.4 Relational databases and database queries
- 10.5 The data warehouse and multidimensional data analysis
- 10.6 Decision trees
- 10.7 Association rules and market basket analysis
- 10.8 Summary
- Questions for review
- References

Glossary

Appendix: AI tools and vendors

index



章节摘录

版权页:插图: The first work recognised in the field of artificial intelligence (AI) was presented by Warren McCulloch and Walter Pitts in 1943. McCulloch had degrees inphilosophy and medicine from Columbia University and became the Director of the Basic Research Laboratory in the Department of Psychiatry at the University of Illinois. His research on the central nervous system resulted in the first majorcontribution to AI: a model of neurons of the brain. McCulloch and his co-author Walter Pitts, a young mathematician, proposeda model of artificial neural networks in which each neuron was postulated asbeing in a binary state: that is, in either an on or off condition (McCulloch and Pitts, 1943). They demonstrated that their neural network model was, in fact, equivalent to the Turing machine, and proved that any computable function could be computed by some network of connected neurons. McCulloch and Pittsalso showed that simple network structures could learn.





编辑推荐

《人工智能:智能系统指南(英文版)(第3版)》为经典原版书库之一。





版权说明

本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com