

<<人工智能>>

图书基本信息

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作者：（澳）Michael Negnevitsky

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## 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 programming experience. In terms of the coverage , this edition introduces a new chapter on data mining and demonstrates several new applications of intelligent tools for solving complex real-world problems. The major changes are as follows: In the new chapter , 'Data mining and knowledge discovery' , we introduce 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

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### 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。

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## 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 in philosophy 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 major contribution to AI: a model of neurons of the brain. McCulloch and his co-author Walter Pitts, a young mathematician, proposed a model of artificial neural networks in which each neuron was postulated as being 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 Pitts also showed that simple network structures could learn.



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