

《仿生模式识别与多权值神经元》

图书基本信息

书名：《仿生模式识别与多权值神经元》

13位ISBN编号：9787118080810

10位ISBN编号：7118080810

出版时间：2012-12

出版社：国防工业出版社

作者：王守觉//刘扬阳//来疆亮//刘星星

页数：167

版权说明：本站所提供下载的PDF图书仅提供预览和简介以及在线试读，请支持正版图书。

更多资源请访问：www.tushu000.com

《仿生模式识别与多权值神经元》

书籍目录

Part Review of Statistics Pattern Recognition Chapter 1 Introduction of Pattern Recognition 1.1 Pattern Recognition Concept 1.2 Pattern Recognition System Basic Processes 1.3 A Brief Survey of Pattern Recognition Approaches 1.4 Scope and Organization Chapter 2 Kernel of Statistical Pattern Recognition and Pre-Processing 2.1 Question Arise 2.1.1 Question Expression 2.1.2 Empirical Risk Minimization 2.1.3 Generalization Ability and Complexity 2.2 Kernel of Statistical Pattern Recognition 2.2.1 Vapnik-Chervonenkis Dimension 2.2.2 The Bounds of Generalization Ability 2.2.3 The Minimization of Structural Risk 2.3 Preprocessing 2.4 Feature Extraction and Feature Selection 2.4.1 Curse of Dimensionality 2.4.2 Feature Extraction 2.4.3 Feature Selection 2.5 Support Vector Machine 2.5.1 The Optimal Hyperplane Under Linearly Separable 2.5.2 The Soft Spacing Under Linearly Nonseparable 2.5.3 The Kernel Function Under Non-Linear Case 2.5.4 Support Vector Machine's Traits and Advantages References Part Biomimetic Pattern Recognition Chapter 3 Introduction Chapter 4 The Foundation of Biomimetic Pattern Recognition 4.1 Overview of High-Dimensional Biomimetic Informatics 4.1.1 The Proposal of the Problem of Computer Imaginal Thinking 4.1.2 The Principle of High-Dimensional Biomimetic Informatics 4.2 Basic Contents of High-Dimensional Biomimetic Informatics 4.3 Main Features of High-Dimensional Biomimetic Informatics 4.4 Concepts and Mathematical Symbols In High-Dimensional Biomimetic Informatics 4.4.1 Concepts and Definitions 4.4.2 Mathematical Symbols 4.4.3 Symbolic Computing Methods in Resolving Geometry Computing Problems 4.4.4 Several Applications in Solving Complicated Geometry Computing Problems 4.5 Some Applications 4.5.1 Blurred Image Restoration 4.5.2 Uneven Lighting Image Correction 4.5.3 Removing Facial Makeup Disturbances Chapter 5 The Theory of Biomimetic Pattern Recognition 5.1 The Concept of Biomimetic Pattern Recognition 5.2 The Choice of The Name 5.3 The Developments of Biomimetic Pattern Recognition 5.4 Covering. The Concept of Recognition in Biomimetic Pattern Recognition 5.5 The Principle of Homology-Continuity. The Starting Point of Biomimetic Pattern Recognition 5.6 Expansionary Product 5.7 Experiments 5.7.1 The Architecture of the Face Recognition System 5.7.2 Umist Face Data 5.7.3 Pre-treatment 5.7.4 The Realization of SVM Face Recognition Algorithms 5.7.5 The Realization of BPR Face Recognition Algorithms 5.7.6 Experiments Results and Analyzes 5.8 Summary Chapter 6 Applications 6.1 Object Recognition 6.2 A Multi-Camera Human-Face Personal Identification System 6.3 A Recognition System For Speaker-Independent Continuous Speech 6.4 Summary References Part Multi-Weight Neurons and Networks Chapter 7 History And Definitions of Artificial Neural Networks 7.1 From Biological Neural Networks to Artificial Neural Networks and Its Development 7.2 Some Definitions and Concepts of Artificial Neural Networks 7.3 Unifications and Divergences Between Array-Processors and Neural Networks 7.4 Artificial Neural Networks' Effects on Nanoelectronic Computational Technology Chapter 8 Geometric Concepts of Artificial Neurons 8.1 Mathematical Expressions of Common Neurons and Their Geometric Concepts 8.2 General Mathematical Model of Common Neurons and Its Geometric Concept 8.3 Direction Basis Function Neuron and Its Geometric Concept 8.4 Multi-Threshold Neurons and Networks Chapter 9 Multi-Weight Neurons and Their Applications 9.1 General Mathematical Expression of Multi-Weight Neurons' Functions 9.2 Interchangeabilities of Points, Vectors, Hyper Planes in High-Dimensional Space 9.3 Effect of High-Dimensional Point Distribution Analysis in Information Technology 9.4 Multi-Weight Neurons are Computing Tools on High-Dimensional Point Distribution Analysis 9.5 Applications of Multi-Weight Neurons and Networks On Biomimetic Pattern Recognition References Appendix Experts' Evaluation to The Book

章节摘录

版权页：插图：A child in a very small age can quickly identify their relatives, regardless of the situation whether his (her) relative is alone in the room or in the crowd; whether in sunny noon or in the dimly lit evening; and whether his or her dressing, wearing or hair-style changes. These capabilities seem so natural on children or adults. However, it is not easy to teach the computer to do similar things, despite the modern high-speed computers calculate 100 times faster than the speed of the sum of all human brains. Today's information science and artificial intelligence disciplines have developed over dozens of years, but the computers do not know how to calculate in face of imaginal thinking problems. The reason lies in the difference of imaginal thinking and logical thinking in time and space. The computer of Von Neumann structure can be "familiar" with the logical thinking problems dealt in the left brain of human, but is "helpless" with imaginal thinking problems dealt in the right brain. Therefore, the ancient mathematical tools and calculation methods are no longer applicable, thus the creation and development of new disciplines is expected.

4. 1.2 The Principle of High-Dimensional Biomimetic Informatics

It is well known that digital information such as an image can be thought of as a point in a high-dimensional Euclidean space in informatics. If each number of a piece of data is regarded as a coordinate value, the whole group of numbers could correspond to a vector in a high-dimensional space. Usually, representing digital data as points is a kind of illustration and visualization of analytic formulas, which helps people understand the classification and distribution of the sample data in high-dimensional space easily. For example, a hidden neuron in Back-Propagation (BP) Algorithm can be seen as a hyperplane, although BP Algorithm didn't come up from the geometric characters of hyperplanes in high-dimensional space.

《仿生模式识别与多权值神经元》

编辑推荐

《仿生模式识别与多权值神经元》由国防工业出版社出版。

《仿生模式识别与多权值神经元》

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:www.tushu000.com