

1. Record Nr.	UNINA9910784636303321
Autore	Theodoridis Sergios <1951->
Titolo	Pattern recognition [[electronic resource] /] / Sergios Theodoridis, Konstantinos Koutroumbas
Pubbl/distr/stampa	San Diego, CA, : Academic Press, c2006
ISBN	1-281-31146-4 9786611311469 0-08-051361-1
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (854 p.)
Altri autori (Persone)	KoutroumbasKonstantinos <1967->
Disciplina	006.3 006.4
Soggetti	Pattern recognition systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Front cover; Title page; Copyright page; Table of contents; PREFACE; 1 INTRODUCTION; 1.1 IS PATTERN RECOGNITION IMPORTANT?; 1.2 FEATURES, FEATURE VECTORS, AND CLASSIFIERS; 1.3 SUPERVISED VERSUS UNSUPERVISED PATTERN RECOGNITION; 1.4 OUTLINE OF THE BOOK; 2 CLASSIFIERS BASED ON BAYES DECISION THEORY; 2.1 INTRODUCTION; 2.2 BAYES DECISION THEORY; 2.3 DISCRIMINANT FUNCTIONS AND DECISION SURFACES; 2.4 BAYESIAN CLASSIFICATION FOR NORMAL DISTRIBUTIONS; 2.5 ESTIMATION OF UNKNOWN PROBABILITY DENSITY FUNCTIONS; 2.6 THE NEAREST NEIGHBOR RULE; 2.7 BAYESIAN NETWORKS; 3 LINEAR CLASSIFIERS; 3.1 INTRODUCTION 3.2 LINEAR DISCRIMINANT FUNCTIONS AND DECISION HYPERPLANES3.3 THE PERCEPTRON ALGORITHM; 3.4 LEAST SQUARES METHODS; 3.5 MEAN SQUARE ESTIMATION REVISITED; 3.6 LOGISTIC DISCRIMINATION; 3.7 SUPPORT VECTOR MACHINES; 4 NONLINEAR CLASSIFIERS; 4.1 INTRODUCTION; 4.2 THE XOR PROBLEM; 4.3 THE TWO-LAYER PERCEPTRON; 4.4 THREE-LAYER PERCEPTRONS; 4.5 ALGORITHMS BASED ON EXACT CLASSIFICATION OF THE TRAINING SET; 4.6 THE BACKPROPAGATION ALGORITHM; 4.7 VARIATIONS ON THE BACKPROPAGATION THEME; 4.8 THE COST FUNCTION CHOICE; 4.9 CHOICE OF THE NETWORK SIZE; 4.10 A SIMULATION EXAMPLE 4.11 NETWORKS WITH WEIGHT SHARING4.12 GENERALIZED LINEAR

CLASSIFIERS; 4.13 CAPACITY OF THE 1-DIMENSIONAL SPACE IN LINEAR DICHOTOMIES; 4.14 POLYNOMIAL CLASSIFIERS; 4.15 RADIAL BASIS FUNCTION NETWORKS; 4.16 UNIVERSAL APPROXIMATORS; 4.17 SUPPORT VECTOR MACHINES: THE NONLINEAR CASE; 4.18 DECISION TREES; 4.19 COMBINING CLASSIFIERS; 4.20 THE BOOSTING APPROACH TO COMBINE CLASSIFIERS; 4.21 DISCUSSION; 5 FEATURE SELECTION; 5.1 INTRODUCTION; 5.2 PREPROCESSING; 5.3 FEATURE SELECTION BASED ON STATISTICAL HYPOTHESIS TESTING; 5.4 THE RECEIVER OPERATING CHARACTERISTICS (ROC) CURVE 5.5 CLASS SEPARABILITY MEASURES 5.6 FEATURE SUBSET SELECTION; 5.7 OPTIMAL FEATURE GENERATION; 5.8 NEURAL NETWORKS AND FEATURE GENERATION/ SELECTION; 5.9 A HINT ON GENERALIZATION THEORY; 5.10 THE BAYESIAN INFORMATION CRITERION; 6 FEATURE GENERATION I: LINEAR TRANSFORMS; 6.1 INTRODUCTION; 6.2 BASIS VECTORS AND IMAGES; 6.3 THE KARHUNEN-LOEVE TRANSFORM; 6.4 THE SINGULAR VALUE DECOMPOSITION; 6.5 INDEPENDENT COMPONENT ANALYSIS; 6.6 THE DISCRETE FOURIER TRANSFORM (DFT); 6.7 THE DISCRETE COSINE AND SINE TRANSFORMS; 6.8 THE HADAMARD TRANSFORM; 6.9 THE HAAR TRANSFORM; 6.10 THE HAAR EXPANSION REVISITED 6.11 DISCRETE TIMEWAVELET TRANSFORM (DTWT) 6.12 THE MULTIREOLUTION INTERPRETATION; 6.13 WAVELET PACKETS; 6.14 A LOOK AT TWO-DIMENSIONAL GENERALIZATIONS; 6.15 APPLICATIONS; 7 FEATURE GENERATION II; 7.1 INTRODUCTION; 7.2 REGIONAL FEATURES; 7.3 FEATURES FOR SHAPE AND SIZE CHARACTERIZATION; 7.4 A GLIMPSE AT FRACTALS; 7.5 TYPICAL FEATURES FOR SPEECH AND AUDIO CLASSIFICATION; 8 TEMPLATE MATCHING; 8.1 INTRODUCTION; 8.2 MEASURES BASED ON OPTIMAL PATH SEARCHING TECHNIQUES; 8.3 MEASURES BASED ON CORRELATIONS; 8.4 DEFORMABLE TEMPLATE MODELS; 9 CONTEXT-DEPENDENT CLASSIFICATION; 9.1 INTRODUCTION 9.2 THE BAYES CLASSIFIER

Sommario/riassunto

Pattern recognition is a fast growing area with applications in a widely diverse number of fields such as communications engineering, bioinformatics, data mining, content-based database retrieval, to name but a few. This new edition addresses and keeps pace with the most recent advancements in these and related areas. This new edition: a) covers Data Mining, which was not treated in the previous edition, and is integrated with existing material in the book, b) includes new results on Learning Theory and Support Vector Machines, that are at the forefront of today's research, with a lot of inter
