

1. Record Nr.	UNINA9911019651103321
Titolo	Character recognition systems : a guide for students and practioners / / Mohamed Cheriet ... [et al.]
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2007
ISBN	9786611134723 9781281134721 1281134724 9780470176535 0470176539 9780470176528 0470176520
Descrizione fisica	1 online resource (360 p.)
Altri autori (Persone)	CherietM (Mohamed)
Disciplina	006.4/24
Soggetti	Optical character recognition devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	CHARACTER RECOGNITION SYSTEMS; CONTENTS; Preface; Acknowledgments; List of Figures; List of Tables; Acronyms; 1 Introduction: Character Recognition, Evolution, and Development; 1.1 Generation and Recognition of Characters; 1.2 History of OCR; 1.3 Development of New Techniques; 1.4 Recent Trends and Movements; 1.5 Organization of the Remaining Chapters; References; 2 Tools for Image Preprocessing; 2.1 Generic Form-Processing System; 2.2 A Stroke Model for Complex Background Elimination; 2.2.1 Global Gray Level Thresholding; 2.2.2 Local Gray Level Thresholding 2.2.3 Local Feature Thresholding-Stroke-Based Model2.2.4 Choosing the Most Efficient Character Extraction Method; 2.2.5 Cleaning Up Form Items Using Stroke-Based Model; 2.3 A Scale-Space Approach for Visual Data Extraction; 2.3.1 Image Regularization; 2.3.2 Data Extraction; 2.3.3 Concluding Remarks; 2.4 Data Preprocessing; 2.4.1 Smoothing and Noise Removal; 2.4.2 Skew Detection and Correction; 2.4.3 Slant Correction; 2.4.4 Character Normalization; 2.4.5 Contour Tracing/Analysis; 2.4.6 Thinning; 2.5 Chapter Summary; References; 3

Feature Extraction, Selection, and Creation

3.1 Feature Extraction 3.1.1 Moments; 3.1.2 Histogram; 3.1.3 Direction Features; 3.1.4 Image Registration; 3.1.5 Hough Transform; 3.1.6 Line-Based Representation; 3.1.7 Fourier Descriptors; 3.1.8 Shape Approximation; 3.1.9 Topological Features; 3.1.10 Linear Transforms; 3.1.11 Kernels; 3.2 Feature Selection for Pattern Classification; 3.2.1 Review of Feature Selection Methods; 3.3 Feature Creation for Pattern Classification; 3.3.1 Categories of Feature Creation; 3.3.2 Review of Feature Creation Methods; 3.3.3 Future Trends; 3.4 Chapter Summary; References; 4 Pattern Classification Methods

4.1 Overview of Classification Methods 4.2 Statistical Methods; 4.2.1 Bayes Decision Theory; 4.2.2 Parametric Methods; 4.2.3 Nonparametric Methods; 4.3 Artificial Neural Networks; 4.3.1 Single-Layer Neural Network; 4.3.2 Multilayer Perceptron; 4.3.3 Radial Basis Function Network; 4.3.4 Polynomial Network; 4.3.5 Unsupervised Learning; 4.3.6 Learning Vector Quantization; 4.4 Support Vector Machines; 4.4.1 Maximal Margin Classifier; 4.4.2 Soft Margin and Kernels; 4.4.3 Implementation Issues; 4.5 Structural Pattern Recognition; 4.5.1 Attributed String Matching; 4.5.2 Attributed Graph Matching 4.6 Combining Multiple Classifiers 4.6.1 Problem Formulation; 4.6.2 Combining Discrete Outputs; 4.6.3 Combining Continuous Outputs; 4.6.4 Dynamic Classifier Selection; 4.6.5 Ensemble Generation; 4.7 A Concrete Example; 4.8 Chapter Summary; References; 5 Word and String Recognition; 5.1 Introduction; 5.2 Character Segmentation; 5.2.1 Overview of Dissection Techniques; 5.2.2 Segmentation of Handwritten Digits; 5.3 Classification-Based String Recognition; 5.3.1 String Classification Model; 5.3.2 Classifier Design for String Recognition; 5.3.3 Search Strategies 5.3.4 Strategies for Large Vocabulary

Sommario/riassunto

""Much of pattern recognition theory and practice, including methods such as Support Vector Machines, has emerged in an attempt to solve the character recognition problem. This book is written by very well-known academics who have worked in the field for many years and have made significant and lasting contributions. The book will no doubt be of value to students and practitioners.""-Sargur N. Srihari, SUNY Distinguished Professor, Department of Computer Science and Engineering, and Director, Center of Excellence for Document Analysis and Recognition (CEDAR), University at Buffalo, The Sta
