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| Descrizione fisica      | 1 online resource (360 p.)  |
| Altri autori (Persone)  | CherietM (Mohamed)  |
| Disciplina              | 006.4/24<br>006.424   |
| Soggetti                | Optical character recognition devices<br>Electronic books.  |
| 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 Extraction3.1.1 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 Methods4.1 Overview of Classification Methods4.2 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 Matching4.6 Combining Multiple Classifiers4.6.1 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 Strategies5.3.4 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