Thinning Methodologies For Pattern Recognition | 12a0f0ba60569ee5a73570bc23fed20f

Document Image AnalysisComputer Analysis of Images and PatternsComputer Analysis of Images and PatternsDocument Image AnalysisCommunicating with Virtual WorldsDocument Analysis Systems VHandbook of Character Recognition and Document Image AnalysisApplications of X-ray Computed Tomography in the GeosciencesGraph-Based Representations in Pattern RecognitionDigital Image Processing MethodsCombinatorial Image AnalysisAdvances in Digital and Computational GeometryHandbook Of Pattern Recognition And Computer VisionComputer Perceptual Organization in Computer VisionImage Processing and Pattern RecognitionStructural, Syntactic, and Statistical Pattern RecognitionHandbook of Pattern Recognition and Computer VisionResearch Developments in Biometrics and Video Processing TechniquesDiscrete Geometry for Computer ImageryAdvances in Pattern RecognitionPattern-Recognition Methods for Classifying and Sizing Flaws Using Eddy-Current DataCharacter and Handwriting RecognitionHandwriting RecognitionParallel Image AnalysisDiscrete Geometry for Computer ImageryPattern Recognition with Neural Networks in C++Structural Pattern RecognitionThinning Methodologies for Pattern RecognitionEP '98Discrete Representation of Spatial Objects in Computer VisionComputer Vision and Pattern Recognition in Environmental InformaticsComputer-Aided Intelligent Recognition Techniques and ApplicationsConference B: Pattern recognition methodology and systemsParallel Image Analysis: Theory and ApplicationsThinning Methodologies for Pattern RecognitionAdvances in Handwriting RecognitionImage Analysis And RecognitionAnalysis of Images, Social Networks and TextsTopological Algorithms for Digital Image ProcessingOptical Engineering

Document Image Analysis

This book constitutes the refereed proceedings of the 9th International Conference on Computer Analysis of Images and Patterns, CAIP 2001, held in Warsaw, Poland in September 2001. The 88 revised papers presented were carefully reviewed and selected from numerous submissions. The book offers topical sections on image indexing, image compression, pattern recognition, medical image processing, motion analysis, augmented reality, industrial applications in various fields, image analysis, and computer vision.

Computer Analysis of Images and Patterns

This paper extends the work of Shankar et al to the classification of three types of machined defects in Inconel 600 steam-generator tubing: electrodischarge machined slots, uniform thinning, and elliptical wastage. Three different pattern-recognition techniques were used for classification: (1) an empirical Bayes procedure, (2) a nearest-neighbor algorithm, and (3) a multicategory linear discriminate function. The three types of defects were classified correctly with an overall accuracy of 96 to 98 percent depending on the technique used. Two pattern-recognition algorithms, least squares and nearest neighbor, were used to size uniform-thinning defects in steam-generator tubing. All of the defects were between 25 and 75 percent of the wall in depth. With the least-squares algorithm, we achieved a fit correlation of 0.99 with a 95 percent confidence interval of (0.98, 1.00).

Computer Analysis of Images and Patterns

This book constitutes the refereed proceedings of the 19th International Workshop on Combinatorial Image Analysis, IWCIA 2018, held in Porto, Portugal, in November 2018. The 18 revised full papers presented were carefully reviewed and selected from 32 submissions. The papers are grouped into two sections. The first one includes nine papers devoted to theoretical foundations of combinatorial image analysis, including digital geometry and topology, array grammars, tilings and patterns, discrete geometry in non-rectangular grids, and other technical tools for image analysis. The second part includes nine papers presenting application-driven research on topics such as discrete tomography, image segmentation, texture analysis, and medical imaging.

Document Image Analysis

One of the most natural representations for modelling spatial objects in computers is discrete representations in the form of a 2D square raster and a 3D cubic grid, since these are naturally obtained by segmenting sensor images. However, the main difficulty is that discrete representations are only approximations of the original

objects, and can only be as accurate as the cell size allows. If digitisation is done by real sensor devices, then there is the additional difficulty of sensor distortion. To overcome this, digital shape features must be used that abstract from the inaccuracies of digital representation. In order to ensure the correspondence of continuous and digital features, it is necessary to relate shape features of the underlying continuous objects and to determine the necessary resolution of the digital representation. This volume gives an overview and a classification of the actual approaches to describe the relation between continuous and discrete shape features that are based on digital geometric concepts of discrete structures. Audience: This book will be of interest to researchers and graduate students whose work involves computer vision, image processing, knowledge representation or representation of spatial objects.

Communicating with Virtual Worlds

This book constitutes the refereed proceedings of the 16th IAPR International Conference on Discrete Geometry for Computer Imagery, DGCI 2011, held in Nancy, France, in April 2011. The 20 revised full papers and 20 revised poster papers presented together with 3 invited lectures were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on models for discrete geometry, discrete and combinatorial topology, geometric transforms, discrete shape representation, recognition and analysis, discrete tomography, morphological analysis, as well as discrete and combinatorial tools for image segmentation and analysis.

Document Analysis Systems V

"The book provides an up-to-date and authoritative treatment of pattern recognition and computer vision, with chapters written by leaders in the field. On the basic methods in pattern recognition and computer vision, topics range from statistical pattern recognition to array grammars to projective geometry to skeletonization, and shape and texture measures."--BOOK JACKET.

Handbook of Character Recognition and Document Image Analysis

This volume contains all papers presented at SSPR 2004 and SPR 2004, hosted by the Instituto de Telecomunicac˜¸oes/Instituto Superior T´ ecnico, Lisbon, Portugal, August 18-20, 2004. This was the fourth time that the two workshops were held back-to-back. The SSPR was the tenth International Workshop on Structural and Synt- tic Pattern Recognition, and the SPR was the ?fth International Workshop on Statistical Techniques in Pattern Recognition. These workshops have traditi- ally been held in conjunction with ICPR (International Conference on Pattern Recognition), and are the major events for technical committees TC2 and TC1, respectively, of the International Association for Pattern Recognition (IAPR). The workshops were closely coordinated, being held in parallel, with plenary talks and a common session on hybrid systems. This was an attempt to resolve thedilemmaofhowto dealwiththeneedfornarrow-focusspecializedworkshops yet accommodate the presentation of new theories and techniques that blur the distinction between the statistical and the structural approaches. A total of 219 papers were received from many countries, with the subm- sion and reviewing processes being carried out separately for each workshop. A total of 59 papers were accepted for oral presentation and 64 for posters. In - dition, four invited speakers presented informative talks and overviews of their research. They were: Alberto Sanfeliu, from the Technical University of Cata- nia, Spain; Marco Gori, from the University of Siena, Italy; Nello Cristianini, from the University of California, USA; and Erkki Oja, from Helsinki University of Technology, Finland, winner of the 2004 Pierre Devijver Award.

Applications of X-ray Computed Tomography in the Geosciences

Computer Vision and Pattern Recognition (CVPR) together play an important role in the processes involved in environmental informatics due to their pervasive, non-destructive, effective, and efficient natures. As a result, CVPR has made significant contributions to the field of environmental informatics by enabling multi-modal data fusion and feature extraction, supporting fast and reliable object detection and classification, and mining the intrinsic relationship between different aspects of environmental data. Computer Vision and Pattern Recognition in Environmental Informatics describes a number of methods and tools for image interpretation and analysis, which enables observation, modelling, and understanding of environmental targets. In addition to case studies on monitoring and modeling plant, soil, insect, and aquatic animals, this publication includes discussions on innovative new ideas related to environmental monitoring, automatic fish segmentation and recognition, real-time motion tracking systems, sparse coding and decision fusion, and cell phone image-based classification and provides useful references for

professionals, researchers, engineers, and students with various backgrounds within a multitude of communities.

Graph-Based Representations in Pattern Recognition

This book constitutes the refereed proceedings of the 5th International Workshop on Document Analysis Systems, DAS 2002, held in Princeton, NJ, USA in August 2002 with sponsorship from IAPR. The 44 revised full papers presented together with 14 short papers were carefuly reviwed and selected for inclusion in the book. All current issues in document analysis systems are adressed. The papers are organized in topical sections on OCR features and systems, handwriting recognition, layout analysis, classifiers and learning, tables and forms, text extraction, indexing and retrieval, document engineering, and new applications.

Digital Image Processing Methods

This volume deals with the following topics: 2-D, 3-D automata and grammars, parallel architecture for image processing, parallel digital geometry algorithms, data allocation strategies for parallel image processing algorithms, complexity analysis of parallel image operators. The contributions are written by leading experts in the fields of models, algorithms and architectures for parallel image processing.

Combinatorial Image Analysis

Pattern recognition and computer vision and their applications have experienced enormous progress in research and development over the last two decades. This comprehensive handbook, with chapters by leading experts in their fields, documents both the basics and new and advanced results.The book gives the most total treatment of basic methods in pattern recognition including statistical, neurocomputing, syntactic/structural/grammatical approaches, feature selection and cluster analysis; and an extensive presentation of basic methods in computer vision including texture analysis and models, color, geometrical tools, image sequence analysis, etc. Major and unique applications are also covered, such as food handling using computer vision, non-destructive evaluation of materials, applications in economics and business, medical image recognition and understanding, etc. Broader system aspects are also examined, including optical pattern recognition and architectures for computer vision.Researchers, students and users of pattern recognition and computer vision will find the book an essential reference tool. The volume is also an invaluable collection of basic techniques and principles, which would otherwise be hard to assemble, in one convenient volume.

Advances in Digital and Computational Geometry

This book constitutes the proceedings of the Fourth International Conference on Analysis of Images, Social Networks and Texts, AIST 2015, held in Yekaterinburg, Russia, in April 2015. The 24 full and 8 short papers were carefully reviewed and selected from 140 submissions. The papers are organized in topical sections on analysis of images and videos; pattern recognition and machine learning; social network analysis; text mining and natural language processing.

Handbook Of Pattern Recognition And Computer Vision

This book constitutes the refereed proceedings of the bienially held International Conference on Computer Analysis of Images and Patterns, CAIP 2009, which took place in Münster, Germany, September 2-4, 2009. The 148 papers presented together with 2 invited talks were carefully reviewed and selected from 405 submissions. The papers are organized in topical section on: biometrics, calibration, document analysis, features, graph representations, image processing, image registration, image and video retrieval, medical imaging, object and scene recognition, pattern recognition, shape recovery, segmentation, stereo and video analysis, texture analysis, and applications.

Computer Perceptual Organization in Computer Vision

This book constitutes the refereed proceedings of the 5th IAPR International Workshop on Graph-Based Representations in Pattern Recognition, GbRPR 2005, held in Poitiers, France in April 2005. The 18 revised full papers and 17 revised poster papers presented were carefully reviewed and selected from 50 submissions. The

papers are organized in topical sections on graph representations, graphs and linear representations, combinatorial maps, matching, hierarchical graph abstraction and matching, inexact

Image Processing and Pattern Recognition

Digital geometry deals with geometric properties of subsets of digital images or, equivalently, with geometric properties of finite sets of lattice points. Digital geometry can anticipate progress in imaging technology allowing higher and higher spatial resolution. It seems that the input data in both fields will "converge" to data embedded in digital arrays of very high spatial resolution.

Structural, Syntactic, and Statistical Pattern Recognition

Handbook of Pattern Recognition and Computer Vision

This volume presents the proceedings of COMPUTER GRAPHICS INTERNATIONAL '93 (COl '93), the Eleventh International Conference of the Computer Graphics Society (CGS), COl '93 has been held in Lausanne, Switzerland from June 21-25,1993 under the theme Communicating with Virtual Worlds. Since its foundation in 1983, COl conference has continued to attract high qUality research articles in all aspects of computer graphics and its applications. Previous conferences in this series were held in Japan (1983-1987), in Switzerland (1988), in the United Kingdom (1989), in Singapore (1990), in the United States (1991), and in Japan (1992). Future CG International conferences are planned in Australia (1994), and in the United Kingdom (1995). COS also organizes each year Computer Animation in Geneva, an international workshop and Computer Generated Film Festival. Two new CGS events are planned in 1993: Pacific Graphics '93 in Seoul and MMM '93, an International Conference on Multi-Media MOdeling in Singapore.

Research Developments in Biometrics and Video Processing Techniques

Discrete Geometry for Computer Imagery

Thinning is a technique widely used in the pre-processing stage of a pattern recognition system to compress data and to enhance feature extraction in the subsequent stage. It reduces a digitized pattern to a skeleton so that all resulting branches are 1 pixel thick. The method seems easy at first and has many advantages, however after two decades of intensive research, it has been found to be very challenging due to the difficulties in programming computers to do it.This collection of 15 papers by leading scientists working in the area examines the theoretical and experimental aspects of thinning methodologies. The authors have addressed the problems faced, compared their performance results with others, and assessed the challenges ahead. Researchers will find the volume helpful in shedding light on difficult issues and stimulating further research in the area.

Advances in Pattern Recognition

This unique reference presents in-depth coverage of the latest methods and applications of digital image processing describing various computer architectures ideal for satisfying specific image processing demands.

Pattern-Recognition Methods for Classifying and Sizing Flaws Using Eddy-Current Data

Intelligent recognition methods have recently proven to be indispensable in a variety of modern industries, including computer vision, robotics, medical imaging, visualization and the media. Furthermore, they play a critical role in the traditional fields such as character recognition, natural language processing and personal

identification. This cutting-edge book draws together the latest findings of industry experts and researchers from around the globe. It is a timely guide for all those require comprehensive, state-of-the-art advice on the present status and future potential of intelligent recognition technology. Computer-Aided Intelligent Recognition Techniques and Applications: Provides the user community with systems and tools for application in a very wide range of areas, including: IT, education, security, banking, police, postal services, manufacturing, mining, medicine, multimedia, entertainment, communications, data visualization, knowledge extraction, pattern classification and virtual reality. Disseminates information in a plethora of disciplines, for example pattern recognition, AI, image processing, computer vision and graphics, neural networks, cryptography, fuzzy logic, databases, evolutionary algorithms, shape and numerical analysis. Illustrates all theory with real-world examples and case studies. This valuable resource is essential reading for computer scientists, engineers, and consultants requiring up-to-date comprehensive guidance on the latest developments in computer-aided intelligent recognition techniques and applications. Its detailed, practical approach will be of interest to senior undergraduate and graduate students as well as researchers and industry experts in the field of intelligent recognition.

Character and Handwriting Recognition

Over the last few decades, research on handwriting recognition has made impressive progress. The research and development on handwritten word recognition are to a large degree motivated by many application areas, such as automated postal address and code reading, data acquisition in banks, text-voice conversion, security, etc. As the prices of scanners, com puters and handwriting-input devices are falling steadily, we have seen an increased demand for handwriting recognition systems and software pack ages. Some commercial handwriting recognition systems are now available in the market. Current commercial systems have an impressive performance in recognizing machine-printed characters and neatly written texts. For in stance, High-Tech Solutions in Israel has developed several products for container ID recognition, car license plate recognition and package label recognition. Xerox in the U. S. has developed TextBridge for converting hardcopy documents into electronic document files. In spite of the impressive progress, there is still a significant perfor mance gap between the human and the machine in recognizing off-line unconstrained handwritten characters and words. The difficulties encoun tered in recognizing unconstrained handwritings are mainly caused by huge variations in writing styles and the overlapping and the interconnection of neighboring characters. Furthermore, many applications demand very high recognition accuracy and reliability. For example, in the banking sector, although automated teller machines (ATMs) and networked banking sys tems are now widely available, many transactions are still carried out in the form of cheques.

Handwriting Recognition

Character and handwriting recognition by computers is attracting much attention particularly because of its potential for application in many areas such as office automation, bank check processing, recognition of postal addresses and ZIP Codes, signature verification, and document and text recognition. Over the past four decades, many methods have been proposed, developed and tested for computers to recognize characters, and they have been reported in a variety of publications. The present volume is a coherent and integrated publication containing papers which give new research results in this increasingly active field. It is a boon to researchers, scientists and engineers who need to keep abreast of new developments in character and handwriting methodologies and applications. Contents: Foreword (C Y Suen)OCR and Off-Line Character Recognition:Optical Character Recognition — A Survey (S Impedovo et al.)Transformation-Ring-Projection (TRP) Algorithm and its VLSI Implementation (Y Y Tang et al.)Regularities and Singularities in Line Pictures (J C Simon & O Baret)On-Line Character Recognition:Speed, Accuracy, and Flexibility Trade-Offs in On-Line Character Recognition (C C Tappert)Chinese and Japanese Character Recognition: Some Research Achievements on Chinese Character Recognition in China (J-W Tai)Applications:Understanding Handwritten Text in a Structured Environment: Determining ZIP Codes from Addresses (E Cohen et al.)A Structural Approach to On-Line Character Recognition: System Design and Applications (F Nouboud & R Plamondon)Progress in Verification of Skillfully Simulated Handwritten Signatures (M Ammar)and other papers Readership: Computer scientists, engineers, researchers and industrialists.

Parallel Image Analysis

"This book investigates advanced techniques in user identification and security, including retinal, facial, and finger print scans as well as signature and voice authentication models"--Provided by publisher.

Discrete Geometry for Computer Imagery

This book presents the refereed proceedings of the EP'98 and RIDT'98 conferences, held jointly during the Second International Week on Electronic Publishing and Typography in St. Malo, France, in March/April 1998. The 43 revised full papers presented were carefully selected for inclusion in the book. Among the topics covered are artistic imaging, tools and methods in typography, non-latin type, typographic creation, imaging, character recognition, handwriting models, legibility and design issues, fonts and design, time and multimedia, electronic and paper documents, document engineering, documents and linguistics, document reuse, hypertext and the Web, and hypertext creation and management.

Pattern Recognition with Neural Networks in C++

This book constitutes the thoroughly refereed proceedings of the Second Mexican Conference on Pattern Recognition, MCPR 2010, held in Puebly, Mexico, in September 2010. The 39 revised papers were carefully reviewed and selected from 89 submissions and are organized in topical sections on computer vision and robotics, image processing, neural networks and signal processing, pattern recognition, data mining, natural language and document processing.

Structural Pattern Recognition

Thinning Methodologies for Pattern Recognition

Basic topological algorithms are the subject of this new book. It presents their underlying theory and discusses their applications. Due to the wide variety of topics treated in the seven chapters, no attempt has been made to standardize the notation and terminology used by the authors. Each chapter, however, is self-contained and can be read independently of the others. Some of the basic terminology and fundamental concepts of digital topology are reviewed in the appendix which also describes important areas of the field. A bibliography of over 360 references is also provided. The notations and terminologies used in this book will serve to introduce readers to the even wider variety that exists in the voluminous literature dealing with topological algorithms.

EP '98

This volume deals with the following topics: 2-D, 3-D automata and grammars, parallel architecture for image processing, parallel digital geometry algorithms, data allocation strategies for parallel image processing algorithms, complexity analysis of parallel image operators. The contributions are written by leading experts in the fields of models, algorithms and architectures for parallel image processing. Contents:Data Allocation Strategies for Parallel Image Processing Algorithms (V Marion-Poty & S Miguet)Facilitating High-Performance Image Analysis on Reduced Hypercube (RH) Parallel Computers (S G Ziavras & M A Sideras)Time-Optimal Digital Geometry Algorithms on Meshes with Multiple Broadcasting (V Bokka et al.)A Time-Optimal Multiple-Query Nearest-Neighbor Algorithm on Meshes with Multiple Broadcasting (I Stoica)A Linear Algorithm for Segmentation of Digital Curves (I Debled-Rennesson & J-P Reveillès)Some Notes on Parallel Coordinate Grammars (A Nakamura)Basic Puzzle Languages (K G Subramanian et al.)Cooperating Systems of Three-Way Two-Dimensional Finite Automata (Y Wang et al.)The Effect of Inkdots for Two-Dimensional Automata (A Ito et al.)On Topology Preservation in 2-D and 3-D Thinning (T Y Kong)Two Methodologies to Implement 3D Thinning Algorithms on Distributed Memory Machines (V Marion-Poty)Analysis and Design of Parallel Thinning Algorithms — A Generic Approach (Y Y Zhang & P S P Wang)A New 26-Connected Objects Surface Tracking Algorithm and Its Related PRAM Version (L Perroton) Readership: Computer scientists. keywords:Parallilism;Digital Geometory;Mesh;Morphology;Array Grammar;Array Automata;Parallel Thinnning;Parallel Processing;Distributed Processing;Image Processing;Parallel Image Processing;Distributed Image Processing;Image Analysis;Parallel Image Analysis;Distributed Image Analysis

Discrete Representation of Spatial Objects in Computer Vision

Interest in the automatic processing and analysis of document images has been rapidly increasing during the past few years. This book addresses the different subfields of document image analysis, including preprocessing and segmentation, form processing, handwriting recognition, line drawing and map processing, and contextual processing. Contents:Preface (H Bunke et al.)A New Parallel Thinning Algorithm (Y Y Zhang & P S P Wang)Background Structure in Document Images (H S

Baird)Analysis of Form Images (D Wang & S N Srihari)Model-Based Analysis and Understanding of Check Forms (T M Ha & H Bunke)Document Structures: A Survey (Y Y Tang & C Y Suen)Automatic Input of Logic Diagrams by Recognizing Loop-Symbols and Rectilinear Connections (S H Kim & J H Kim)Syntactic Analysis of Technical Drawing Dimensions (S Collin & D Colnet)Recognition of Elevation Value in Topographic Maps by Multi-Angled Parallelism (H Yamada et al.)Character Recognition by Signature Approximation (N Papamarkos et al.)An Adaptive Modular Neural Network with Application to Unconstrained Character Recognition (L Mui et al.)A Model-Based Split-and-Merge Method for Character String Recognition (H Nishida & S Mori)A Robust Stroke Extraction Method for Handwritten Chinese Characters (H-D Chang & J-F Wang)Handprinted Chinese Character Recognition Using Probability Distribution Feature (T F Li & S S Yu)An Algorithm for Matching OCR-Generated Text Strings (S V Rice et al.) Readership: Computer scientists. keywords:

Computer Vision and Pattern Recognition in Environmental Informatics

Computer-Aided Intelligent Recognition Techniques and Applications

The addition of artificial neural network computing to traditional pattern recognition has given rise to a new, different, and more powerful methodology that is presented in this interesting book. This is a practical guide to the application of artificial neural networks. Geared toward the practitioner, Pattern Recognition with Neural Networks in C++ covers pattern classification and neural network approaches within the same framework. Through the book's presentation of underlying theory and numerous practical examples, readers gain an understanding that will allow them to make judicious design choices rendering neural application predictable and effective. The book provides an intuitive explanation of each method for each network paradigm. This discussion is supported by a rigorous mathematical approach where necessary. C++ has emerged as a rich and descriptive means by which concepts, models, or algorithms can be precisely described. For many of the neural network models discussed, C++ programs are presented for the actual implementation. Pictorial diagrams and in-depth discussions explain each topic. Necessary derivative steps for the mathematical models are included so that readers can incorporate new ideas into their programs as the field advances with new developments. For each approach, the authors clearly state the known theoretical results, the known tendencies of the approach, and their recommendations for getting the best results from the method. The material covered in the book is accessible to working engineers with little or no explicit background in neural networks. However, the material is presented in sufficient depth so that those with prior knowledge will find this book beneficial. Pattern Recognition with Neural Networks in C++ is also suitable for courses in neural networks at an advanced undergraduate or graduate level. This book is valuable for academic as well as practical research.

Conference B: Pattern recognition methodology and systems

Parallel Image Analysis: Theory and Applications

Thinning Methodologies for Pattern Recognition

A comprehensive guide to the essential principles of image processing and pattern recognition Techniques and applications in the areas of image processing and pattern recognition are growing at an unprecedented rate. Containing the latest state-of-the-art developments in the field, Image Processing and Pattern Recognition presents clear explanations of the fundamentals as well as the most recent applications. It explains the essential principles so readers will not only be able to easily implement the algorithms and techniques, but also lead themselves to discover new problems and applications. Unlike other books on the subject, this volume presents numerous fundamental and advanced image processing algorithms and pattern recognition techniques to illustrate the framework. Scores of graphs and examples, technical assistance, and practical tools illustrate the basic principles and help simplify the problems, allowing students as well as professionals to easily grasp even complicated theories. It also features unique coverage of the most interesting developments and updated techniques, such as image watermarking, digital steganography, document processing and classification, solar image processing and event classification, 3-D Euclidean distance transformation, shortest path planning, soft morphology, recursive morphology, regulated morphology, and sweep morphology. Additional topics include enhancement and segmentation

techniques, active learning, feature extraction, neural networks, and fuzzy logic. Featuring supplemental materials for instructors and students, Image Processing and Pattern Recognition is designed for undergraduate seniors and graduate students, engineering and scientific researchers, and professionals who work in signal processing, image processing, pattern recognition, information security, document processing, multimedia systems, and solar physics.

Advances in Handwriting Recognition

This book constitutes the refereed proceedings of the 12th International Conference on Discrete Geometry for Computer Imagery, DGCI 2005, held in Poitiers, France in April 2005. The 36 revised full papers presented together with an invited paper were carefully reviewed and selected from 53 submissions. The papers are organized in topical sections on applications, discrete hierarchical geometry, discrete tomography, discrete topology, object properties, reconstruction and recognition, uncertain geometry, and visualization.

Image Analysis And Recognition

X-ray computed tomography (CT) is a technique that allows non-destructive imaging and quantification of internal features of objects. X-ray CT reveals differences in density and atomic composition and can therefore be used for the study of porosity, the relative distribution of contrasting solid phases and the penetration of injected solutions. In this book, various applications of X-ray CT in the geosciences are illustrated by papers covering a wide range of disciplines, including petrology, soil science, petroleum geology, geomechanics and sedimentology.

Analysis of Images, Social Networks and Texts

This book constitutes the refereed proceedings of the Second International Conference on Image Analysis and Recognition, ICIAR 2005, held in Toronto, Canada, in September 2005.The 153 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 295 submissions. The papers are organized in topical sections on image segmentation, image and video processing and analysis, image and video coding, shape and matching, image description and recognition, image retrieval and indexing, 3D imaging, morphology, colour analysis, texture analysis, motion analysis, tracking, biomedical applications, face recognition and biometrics, image secret sharing, single-sensor imaging, and real-time imaging.

Topological Algorithms for Digital Image Processing

Optical character recognition and document image analysis have become very important areas with a fast growing number of researchers in the field. This comprehensive handbook with contributions by eminent experts, presents both the theoretical and practical aspects at an introductory level wherever possible. Contents:Pattern Classification Techniques Based on Function Approximation (U Kressel & J Schürmann)Combination of Multiple Classifier Decisions for Optical Character Recognition (L Lam et al.)Segmentation-Based Cursive Handwriting Recognition (M Shridhar & F Kimura)Handwritten Word Recognition Using Hidden Markov Models (A Kundu)Techniques for Improving OCR Results (A Dengel et al.)Multilingual Document Recognition (A L Spitz)Arabic Character Recognition (A Amin)Interpretation of Engineering Drawings (K Tombre & D Dori)Automatic Reading of Music Notation (D Bainbridge & N Carter)Algorithms for Automatic Signature Verification (G Dimauro et al.)Automatic Reading of Braille Documents (A Antonacopoulos)Information Retrieval and OCR (K Taghva et al.)Benchmarking DIA Systems (T A Nartker et al.)and other papers Readership: Computer scientists and engineers. keywords:

Optical Engineering

Advances in Handwriting Recognition contains selected key papers from the 6th International Workshop on Frontiers in Handwriting Recognition (IWFHR '98), held in Taejon, Korea from 12 to 14, August 1998. Most of the papers have been expanded or extensively revised to include helpful discussions, suggestions or comments made during the workshop. Contents:On-Line Hand Writing Recognition by Discrete HMM with Fast Learning (H Yasuda et al.)Diacritical Processing Using Efficient Accounting Procedures in a Forward Search (G Seni & J Seybold)A Handwritten Form Reader Architecture (C Cracknell & A C Downton)Combining Different Classifiers and Level of Knowledge: A First Step Towards an Adaptive Recognition System (D Ollivier et al.)Architecture for Handwritten Text Recognition Systems (G Kim et

al.)Search Algorithms for the Recognition of Cursive Phrases Without World Segmentation (C Scagliola)A Method for the Determination of Features Used in Human Reading of Cursive Handwriting (L Schomaker & E Segers)Global Methods for Stroke Segmentation (Y Nakajima et al.)An Advanced Segmentation Technique for Cursive Word Recognition (G Dimauro et al.)Document Understanding Based on Maximum a Posteriori Probability Estimation (T Akagi & H Mizutani)Combining Shape Matrices and HMMs for Hand-Drawn Pictogram Recognition (S Muller et al.)and other papers Readership: Researchers and graduate students in computer science and electrical engineering. Keywords:Handwriting Recognition;Character Recognition;Document Analysis and Recognition;OCR (Optical Character Recognition);Online Recognition;Offline Recognition;Pen-Computing