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Data Mining in Agriculture *On The Move to Meaningful Internet Systems 2003: CoopIS, DOA, and ODBASE* **Dimensionality Reduction with Unsupervised Nearest Neighbors Knowledge Discovery in Databases: PKDD 2007** *Advances in Knowledge Discovery and Data Mining* **Classic Works of the Dempster-Shafer Theory of Belief Functions** Encyclopedia of Database Systems *Machine Learning Algorithms From Scratch with Python* **Enhancement to Selective Incremental Approach for Transductive Nearest Neighbour Classification** Lectures on the Nearest Neighbor Method **Reducing the Computational Requirements of the Nearest Neighbor Classifier** *Similarity Search and Applications* **Advanced Intelligent Computing Theories and Applications Explaining the Success of Nearest Neighbor Methods in Prediction** Advanced Data Mining and Applications *Interpretable Machine Learning* **Process, Data and Classifier Models for Accessible Supervised Classification Problem Solving** *Classification in BioApps* **Rough Set–Based Classification Systems Data Classification Computational Science and Technology** Nearest Neighbor (NN) Norms Machine Learning and Knowledge Discovery in Databases **Machine Learning Essentials Pattern Classification** *Master Machine Learning Algorithms* **Knowledge Discovery in Databases: PKDD 2005 Land Cover Classification of Remotely Sensed Images Dimensionality Reduction with Unsupervised Nearest Neighbors Classification Methods for Internet Applications Short-Term Load Forecasting by Artificial Intelligent Technologies Advanced Database Systems Advances in Smart Communication and Imaging Systems** Practical GIS Analysis **Practical Deep Learning for Cloud, Mobile, and Edge Model and Data Engineering Bridging the Gap Between Graph Edit Distance and Kernel Machines Rough Sets and Current Trends in Computing Advanced Data Mining and Applications Data Mining with R**

Process, Data and Classifier Models for Accessible Supervised Classification Problem Solving Jun 15 2021 Reporting on the current state of computer data mining methods, this reference describes the limits of the classifiers and algorithms that are typical in today's software. Ideal for students of any data mining course, the book describes new iterative techniques that reveal more hidden patterns and ultimately a more powerful system.

Advanced Data Mining and Applications Jul 25 2019 With the ever-growing power of generating, transmitting, and collecting huge amounts of data, information overloadis nowan imminent problemto mankind. The overwhelming demand for information processing is not just about a better understanding of data, but also a better usage of data in a timely fashion. Data mining, or knowledge discovery from databases, is proposed to gain insight into aspects ofdata and to help peoplemakeinformed,sensible,and better decisions. At present, growing attention has been paid to the study, development, and application of data mining. As a result there is an urgent need for sophisticated techniques and toolsthat can handle new ?elds of data mining, e. g. , spatialdata mining, biomedical data mining, and mining on high-speed and time-variant data streams. The knowledge of data mining should also be expanded to new applications. The 6th International Conference on Advanced Data Mining and Appli-tions(ADMA2010)aimedtobringtogethertheexpertsondataminingthrou- out the world. It provided a leading international forum for the dissemination of original research results in advanced data mining techniques, applications, al- rithms, software and systems, and di?erent applied disciplines. The conference attracted 361 online submissions from 34 di?erent countries and areas. All full papers were peer reviewed by at least three members of the Program Comm- tee composed of international experts in data mining ?elds. A total number of 118 papers were accepted for the conference. Amongst them, 63 papers were selected as regular papers and 55 papers were selected as short papers.

Dimensionality Reduction with Unsupervised Nearest Neighbors Jun 03 2020 This book is devoted to a novel approach for dimensionality reduction based on the famous nearest neighbor method that is a powerful classification and regression approach. It starts with an introduction to machine learning concepts and a real-world application from the energy domain. Then, unsupervised nearest neighbors (UNN) is introduced as efficient iterative method for dimensionality reduction. Various UNN models are developed step by step, reaching from a simple iterative strategy for discrete latent spaces to a stochastic kernel-based algorithm for learning submanifolds with independent parameterizations. Extensions that allow the embedding of incomplete and noisy patterns are introduced. Various optimization approaches are compared, from evolutionary to swarm-based heuristics. Experimental comparisons to related methodologies taking into account artificial test data sets and also real-world data demonstrate the behavior of UNN in practical scenarios. The book contains numerous color figures to illustrate the introduced concepts and to highlight the experimental results.

Advanced Data Mining and Applications Aug 18 2021 This book constitutes the proceedings of the 10th International Conference on Advanced Data Mining and Applications, ADMA 2014, held in Guilin, China during December 2014. The 48 regular papers and 10 workshop papers presented in this volume were carefully reviewed and selected from 90 submissions. They deal with the following topics: data mining, social network and social media, recommend systems, database, dimensionality reduction, advance machine learning techniques, classification, big data and applications, clustering methods, machine learning, and data mining and database.

Model and Data Engineering Oct 27 2019 This book constitutes the refereed proceedings of the 10th International Conference on Model and Data Engineering, MEDI 2021, held in Tallinn, Estonia, in June 2021. The 16 full papers and 8 short papers presented in this book were carefully reviewed and selected from 47 submissions. Additionally, the volume includes 3 abstracts of invited talks. The papers cover broad research areas on both theoretical, systems and practical aspects. Some papers include mining complex databases, concurrent systems, machine learning, swarm optimization, query processing, semantic web, graph databases, formal methods, model-driven engineering, blockchain, cyber physical systems, IoT applications, and smart systems. Due to the Corona pandemic the conference was held virtually.

Similarity Search and Applications Nov 20 2021 This book constitutes the refereed proceedings of the 14th International Conference on Similarity Search and Applications, SISAP 2021, held in Dortmund, Germany, in September/October 2021. The conference was held virtually due to the COVID-19 pandemic.The 23 full papers presented together with 5 short and 3 doctoral symposium papers were carefully reviewed and selected from 50 submissions. The papers are organized in the topical sections named: ?Similarity Search and Retrieval; Intrinsic Dimensionality; Clustering and Classification; Applications of Similarity Search; Similarity Search in Graph-Structured Data; Doctoral Symposium.

Encyclopedia of Database Systems Apr 25 2022

Dimensionality Reduction with Unsupervised Nearest Neighbors Aug 30 2022 This book is devoted to a novel approach for dimensionality reduction based on the famous nearest neighbor method that is a powerful classification and regression approach. It starts with an introduction to machine learning concepts and a real-world application from the energy domain. Then, unsupervised nearest neighbors (UNN) is introduced as efficient iterative method for dimensionality reduction. Various UNN models are developed step by step, reaching from a simple iterative strategy for discrete latent spaces to a stochastic kernel-based algorithm for learning submanifolds with independent parameterizations. Extensions that allow the embedding of incomplete and noisy patterns are introduced. Various optimization approaches are compared, from evolutionary to swarm-based heuristics. Experimental comparisons to related methodologies taking into account artificial test data sets and also real-world data demonstrate the behavior of UNN in practical scenarios. The book contains numerous color figures to illustrate the introduced concepts and to highlight the experimental results.

Practical GIS Analysis Dec 30 2019 The hard part of problem solving using GIS analysis is the selection of the proper tools. The only practical guide for solving geo-spatial problems independent of specific GIS software and hardware, Practical GIS Analysis will teach you how GIS tools work, and how you can use them to solve problems in both vector and grid GIS worlds. The book inclu

Master Machine Learning Algorithms Sep 06 2020 You must understand the algorithms to get good (and be recognized as being good) at machine learning. In this Ebook, finally cut through the math and learn exactly how machine learning algorithms work, then implement them from scratch, step-by-step.

Advanced Intelligent Computing Theories and Applications Oct 20 2021 This volume, in conjunction with the two volumes LNCS 4681 and LNAI 4682, constitutes the refereed proceedings of the Third International Conference on Intelligent Computing held in Qingdao, China, in August 2007. The conference sought to establish contemporary intelligent computing techniques as an integral method that underscores trends in advanced computational intelligence and links theoretical research with applications.

On The Move to Meaningful Internet Systems 2003: CoopIS, DOA, and ODBASE Sep 30 2022 missions in fact also treat an envisaged mutual impact among them. As for the 2002 edition in Irvine, the organizers wanted to stimulate this cross-pollination with a program of shared famous keynote speakers (this year we got Sycara, - ble, Soley and Mylopoulos!), and encouraged multiple attendance by providing authors with free access to another conference or workshop of their choice. We received an even larger number of submissions than last year for the three conferences (360 in total) and the workshops (170 in total). Not only can we therefore again claim a measurable success in attracting a representative volume of scienti?c papers, but such a harvest allowed the program committees of course to compose a high-quality cross-section of worldwide research in the areas covered. In spite of the increased number of submissions, the Program Chairs of the three main conferences decided to accept only approximately the same number of papers for presentation and publication as in 2002 (i. e. , around 1 paper out of every 4–5 submitted). For the workshops, the acceptance rate was about 1 in 2. Also for this reason, we decided to separate the proceedings into two volumes with their own titles, and we are grateful to Springer-Verlag for their collaboration in producing these two books. The reviewing process by the respective program committees was very professional and each paper in the main conferences was reviewed by at least three referees.

Nearest Neighbor (NN) Norms Jan 11 2021

Data Classification Mar 13 2021 Comprehensive Coverage of the Entire Area of Classification Research on the problem of classification tends to be fragmented across such areas as pattern recognition, database, data mining, and machine learning. Addressing the work of these different communities in a unified way, Data Classification: Algorithms and Applications explores the underlying algorithms of classification as well as applications of classification in a variety of problem domains, including text, multimedia, social network, and biological data. This comprehensive book focuses on three primary aspects of data classification: Methods: The book first describes common techniques used for classification, including probabilistic methods, decision trees, rule-based methods, instance-based methods, support vector machine methods, and neural networks. Domains: The book then examines specific methods used for data domains such as multimedia, text, time-series, network, discrete sequence, and uncertain data. It also covers large data sets and data streams due to the recent importance of the big data paradigm. Variations: The book concludes with insight on variations of the classification process. It discusses ensembles, rare-class learning, distance function learning, active learning, visual learning, transfer learning, and semi-supervised learning as well as evaluation aspects of classifiers.

Knowledge Discovery in Databases: PKDD 2005 Aug 06 2020 The European Conference on Machine Learning (ECML) and the European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD) were jointly organized this year for the ?fth time in a row, after some years of mutual independence before. After Freiburg (2001), Helsinki (2002), Cavtat (2003) and Pisa (2004), Porto received the 16th edition of ECML and the 9th PKDD in October 3–7. Having the two conferences together seems to be working well: 585 di?erent paper submissions were received for both events, which maintains the high s- mission standard of last year. Of these, 335 were submitted to ECML only, 220 to PKDD only and 30 to both. Such a high volume of scienti?c work required a tremendous e?ort from Area Chairs, Program Committee members and some additional reviewers. On average, PC members had 10 papers to evaluate, and Area Chairs had 25 papers to decide upon. We managed to have 3 highly qua-?edindependentreviewsperpaper(withveryfewexceptions)andoneadditional overall input from one of the Area Chairs. After the authors' responses and the online discussions for many of the papers, we arrived at the ?nal selection of 40 regular papers for ECML and 35 for PKDD. Besides these, 32 others were accepted as short papers for ECML and 35 for PKDD. This represents a joint acceptance rate of around 13% for regular papers and 25% overall. We thank all involved for all the e?ort with reviewing and selection of papers. Besidesthecoretechnicalprogram,ECMLandPKDDhad6invitedspeakers, 10 workshops, 8 tutorials and a Knowledge Discovery Challenge.

Classic Works of the Dempster-Shafer Theory of Belief Functions May 27 2022 This is a collection of classic research papers on the Dempster-Shafer theory of belief functions. The book is the authoritative reference in the field of evidential reasoning and an important archival reference in a wide range of areas including uncertainty reasoning in artificial intelligence and decision making in economics, engineering, and management. The book includes a foreword reflecting the development of the theory in the last forty years.

Enhancement to Selective Incremental Approach for Transductive Nearest Neighbour Classification Feb 21 2022 Master's Thesis from the year 2012 in the subject Computer Science - Didactics, , course: COMPUTER SCIENCE & ENGINEERING, language: English, abstract: During the last years, semi-supervised learning has emerged as an exciting new direction in machine learning research. It is closely related to profound issues of how to do inference from data, as witnessed by its overlap with transductive inference. Semi-Supervised learning is the half-way between Supervised and Unsupervised Learning. In this majority of the patterns are unlabelled, they are present in Test set and knowed labeled patterns are present in Training set. Using these training set, we assign the labels for test set. Here our Proposed method is using Nearest Neighbour Classifier for Semi-Supervised learning we can label the unlabelled patterns using the labeled patterns and then compare these method with the traditionally Existing methods as graph mincut, spectral graph partisan, ID3,Nearest Neighbour Classifier and we are going to prove our Proposed method is more scalable than the Existing methods and reduce time complexity of SITNNC(Selective Incremental Approach for Transductive Nearest Neighbour Classifier) using Leaders Algorithm.

Interpretable Machine Learning Jul 17 2021 This book is about making machine learning models and their decisions interpretable. After exploring the concepts of interpretability, you will learn about simple, interpretable models such as decision trees, decision rules and linear regression. Later chapters focus on general model-agnostic methods for interpreting black box models like feature importance and accumulated local effects and explaining individual predictions with Shapley values and LIME. All interpretation methods are explained in depth and discussed critically. How do they work under the hood? What are their strengths and weaknesses? How can their outputs be interpreted? This book will enable you to select and correctly apply the interpretation method that is most suitable for your machine learning project.

Practical Deep Learning for Cloud, Mobile, and Edge Nov 28 2019 Whether you're a software engineer aspiring to enter the world of deep learning, a veteran data scientist, or a hobbyist with a simple dream of making the next viral AI app, you might have wondered where to begin. This step-by-step guide teaches you how to build practical deep learning applications for the cloud, mobile, browsers, and edge devices using a hands-on approach. Relying on years of industry experience transforming deep learning research into award-winning applications, Anirudh Koul, Siddha Ganju, and Meher Kasam guide you through the process of

converting an idea into something that people in the real world can use. Train, tune, and deploy computer vision models with Keras, TensorFlow, Core ML, and TensorFlow Lite Develop AI for a range of devices including Raspberry Pi, Jetson Nano, and Google Coral Explore fun projects, from Silicon Valley's Not Hotdog app to 40+ industry case studies Simulate an autonomous car in a video game environment and build a miniature version with reinforcement learning Use transfer learning to train models in minutes Discover 50+ practical tips for maximizing model accuracy and speed, debugging, and scaling to millions of users
Machine Learning and Knowledge Discovery in Databases Dec 10 2020 This book constitutes the refereed proceedings of the joint conference on Machine Learning and Knowledge Discovery in Databases: ECML PKDD 2008, held in Antwerp, Belgium, in September 2008. The 100 papers presented in two volumes, together with 5 invited talks, were carefully reviewed and selected from 521 submissions. In addition to the regular papers the volume contains 14 abstracts of papers appearing in full version in the Machine Learning Journal and the Knowledge Discovery and Databases Journal of Springer. The conference intends to provide an international forum for the discussion of the latest high quality research results in all areas related to machine learning and knowledge discovery in databases. The topics addressed are application of machine learning and data mining methods to real-world problems, particularly exploratory research that describes novel learning and mining tasks and applications requiring non-standard techniques.
Short-Term Load Forecasting by Artificial Intelligent Technologies Apr 01 2020 This book is a printed edition of the Special Issue "Short-Term Load Forecasting by Artificial Intelligent Technologies" that was published in Energies
Machine Learning Essentials Nov 08 2020 Discovering knowledge from big multivariate data, recorded every days, requires specialized machine learning techniques. This book presents an easy to use practical guide in R to compute the most popular machine learning methods for exploring real word data sets, as well as, for building predictive models. The main parts of the book include: A) Unsupervised learning methods, to explore and discover knowledge from a large multivariate data set using clustering and principal component methods. You will learn hierarchical clustering, k-means, principal component analysis and correspondence analysis methods. B) Regression analysis, to predict a quantitative outcome value using linear regression and non-linear regression strategies. C) Classification techniques, to predict a qualitative outcome value using logistic regression, discriminant analysis, naive bayes classifier and support vector machines. D) Advanced machine learning methods, to build robust regression and classification models using k-nearest neighbors methods, decision tree models, ensemble methods (bagging, random forest and boosting). E) Model selection methods, to select automatically the best combination of predictor variables for building an optimal predictive model. These include, best subsets selection methods, stepwise regression and penalized regression (ridge, lasso and elastic net regression models). We also present principal component-based regression methods, which are useful when the data contain multiple correlated predictor variables. F) Model validation and evaluation techniques for measuring the performance of a predictive model. G) Model diagnostics for detecting and fixing a potential problems in a predictive model. The book presents the basic principles of these tasks and provide many examples in R. This book offers solid guidance in data mining for students and researchers. Key features: - Covers machine learning algorithm and implementation - Key mathematical concepts are presented - Short, self-contained chapters with practical examples.
Data Mining with R Jun 23 2019 Data Mining with R: Learning with Case Studies, Second Edition uses practical examples to illustrate the power of R and data mining. Providing an extensive update to the best-selling first edition, this new edition is divided into two parts. The first part will feature introductory material, including a new chapter that provides an introduction to data mining, to complement the already existing introduction to R. The second part includes case studies, and the new edition strongly revises the R code of the case studies making it more up-to-date with recent packages that have emerged in R. The book does not assume any prior knowledge about R. Readers who are new to R and data mining should be able to follow the case studies, and they are designed to be self-contained so the reader can start anywhere in the document. The book is accompanied by a set of freely available R source files that can be obtained at the book's web site. These files include all the code used in the case studies, and they facilitate the "do-it-yourself" approach followed in the book. Designed for users of data analysis tools, as well as researchers and developers, the book should be useful for anyone interested in entering the "world" of R and data mining. About the Author Luís Torgo is an associate professor in the Department of Computer Science at the University of Porto in Portugal. He teaches Data Mining in R in the NYU Stern School of Business' MS in Business Analytics program. An active researcher in machine learning and data mining for more than 20 years, Dr. Torgo is also a researcher in the Laboratory of Artificial Intelligence and Data Analysis (LIAAD) of INESC Porto LA.
Machine Learning Algorithms From Scratch with Python Mar 25 2022 You must understand algorithms to get good at machine learning. The problem is that they are only ever explained using Math. No longer. In this Ebook, finally cut through the math and learn exactly how machine learning algorithms work. Using clear explanations, simple pure Python code (no libraries!) and step-by-step tutorials you will discover how to load and prepare data, evaluate model skill, and implement a suite of linear, nonlinear and ensemble machine learning algorithms from scratch.
Classification Methods for Internet Applications May 03 2020 This book explores internet applications in which a crucial role is played by classification, such as spam filtering, recommender systems, malware detection, intrusion detection and sentiment analysis. It explains how such classification problems can be solved using various statistical and machine learning methods, including K nearest neighbours, Bayesian classifiers, the logit method, discriminant analysis, several kinds of artificial neural networks, support vector machines, classification trees and other kinds of rule-based methods, as well as random forests and other kinds of classifier ensembles. The book covers a wide range of available classification methods and their variants, not only those that have already been used in the considered kinds of applications, but also those that have the potential to be used in them in the future. The book is a valuable resource for post-graduate students and professionals alike.
Pattern Classification Oct 08 2020 The first edition, published in 1973, has become a classicreference in the field. Now with the second edition, readers willfind information on key new topics such as neural networks andstatistical pattern recognition, the theory of machine learning,and the theory of invariances. Also included are worked examples,comparisons between different methods, extensive graphics, expandedexercises and computer project topics. An Instructor's Manual presenting detailed solutions to all theproblems in the book is available from the Wiley editorialdepartment.
Data Mining in Agriculture Nov 01 2022 Data Mining in Agriculture represents a comprehensive effort to provide graduate students and researchers with an analytical text on data mining techniques applied to agriculture and environmental related fields. This book presents both theoretical and practical insights with a focus on presenting the context of each data mining technique rather intuitively with ample concrete examples represented graphically and with algorithms written in MATLAB®.
Explaining the Success of Nearest Neighbor Methods in Prediction Sep 18 2021 Explains the success of Nearest Neighbor Methods in Prediction, both in theory and in practice.
Knowledge Discovery in Databases: PKDD 2007 Jul 29 2022 This book constitutes the refereed proceedings of the 11th European Conference on Principles and Practice of Knowledge Discovery in Databases, PKDD 2007, held in Warsaw, Poland, co-located with ECML 2007, the 18th European Conference on Machine Learning. The 28 revised full papers and 35 revised short papers present original results on leading-edge subjects of knowledge discovery from conventional and complex data and address all current issues in the area.
Advances in Smart Communication and Imaging Systems Jan 29 2020 This book presents select and peer-reviewed proceedings of the International Conference on Smart Communication and Imaging Systems (MedCom 2020). The contents explore the recent technological advances in the field of next generation communication systems and latest techniques for image processing, analysis and their related applications. The topics include design and development of smart, secure and reliable future communication networks; satellite, radar and microwave techniques for intelligent communication. The book also covers methods and applications of GIS and remote sensing; medical image analysis and its applications in smart health. This book can be useful for students, researchers and professionals working in the field of communication systems and image processing.
Rough Set–Based Classification Systems Apr 13 2021 This book demonstrates an original concept for implementing the rough set theory in the construction of decision-making systems. It addresses three types of decisions, including those in which the information or input data is insufficient. Though decision-making and classification in cases with missing or inaccurate data is a common task, classical decision-making systems are not naturally adapted to it. One solution is to apply the rough set theory proposed by Prof. Pawlak. The proposed classifiers are applied and tested in two configurations: The first is an iterative mode in which a single classification system requests completion of the input data until an unequivocal decision (classification) is obtained. It allows us to start classification processes using very limited input data and supplementing it only as needed, which limits the cost of obtaining data. The second configuration is an ensemble mode in which several rough set-based classification systems achieve the unequivocal decision collectively, even though the systems cannot separately deliver such results.
Computational Science and Technology Feb 09 2021 This book gathers the proceedings of the Sixth International Conference on Computational Science and Technology 2019 (ICCST2019), held in Kota Kinabalu, Malaysia, on 29–30 August 2019. The respective contributions offer practitioners and researchers a range of new computational techniques and solutions, identify emerging issues, and outline future research directions, while also showing them how to apply the latest large-scale, high-performance computational methods.
Land Cover Classification of Remotely Sensed Images Jul 05 2020 The book introduces two domains namely Remote Sensing and Digital Image Processing. It discusses remote sensing, texture, classifiers, and procedures for performing the texture-based segmentation and land cover classification. The first chapter discusses the important terminologies in remote sensing, basics of land cover classification, types of remotely sensed images and their characteristics. The second chapter introduces the texture and a detailed literature survey citing papers related to texture analysis and image processing. The third chapter describes basic texture models for gray level images and multivariate texture models for color or remotely sensed images with relevant Matlab source codes. The fourth chapter focuses on texture-based classification and texture-based segmentation. The Matlab source codes for performing supervised texture based segmentation using basic texture models and minimum distance classifier are listed. The fifth chapter describes supervised and unsupervised classifiers. The experimental results obtained using a basic texture model (Uniform Local Binary Pattern) with the classifiers described earlier are discussed through the relevant Matlab source codes. The sixth chapter describes land cover classification procedure using multivariate (statistical and spectral) texture models and minimum distance classifier with Matlab source codes. A few performance metrics are also explained. The seventh chapter explains how texture based segmentation and land cover classification are performed using the hidden Markov model with relevant Matlab source codes. The eighth chapter gives an overview of spatial data analysis and other existing land cover classification methods. The ninth chapter addresses the research issues and challenges associated with land cover classification using textural approaches. This book is useful for undergraduates in Computer Science and Civil Engineering and postgraduates who plan to do research or project work in digital image processing. The book can serve as a guide to those who narrow down their research to processing remotely sensed images. It addresses a wide range of texture models and classifiers. The book not only guides but aids the reader in implementing the concepts through the Matlab source codes listed. In short, the book will be a valuable resource for growing academicians to gain expertise in their area of specialization and students who aim at gaining in-depth knowledge through practical implementations. The exercises given under texture based segmentation (excluding land cover classification exercises) can serve as lab exercises for the undergraduate students who learn texture based image processing.
Classification in BioApps May 15 2021 This book on classification in biomedical image applications presents original and valuable research work on advances in this field, which covers the taxonomy of both supervised and unsupervised models, standards, algorithms, applications and challenges. Further, the book highlights recent scientific research on artificial neural networks in biomedical applications, addressing the fundamentals of artificial neural networks, support vector machines and other advanced classifiers, as well as their design and optimization. In addition to exploring recent endeavours in the multidisciplinary domain of sensors, the book introduces readers to basic definitions and features, signal filters and processing, biomedical sensors and automation of biomeasurement systems. The target audience includes researchers and students at engineering and medical schools, researchers and engineers in the biomedical industry, medical doctors and healthcare professionals.
Bridging the Gap Between Graph Edit Distance and Kernel Machines Sep 26 2019 In graph-based structural pattern recognition, the idea is to transform patterns into graphs and perform the analysis and recognition of patterns in the graph domain OCo commonly referred to as graph matching. A large number of methods for graph matching have been proposed. Graph edit distance, for instance, defines the dissimilarity of two graphs by the amount of distortion that is needed to transform one graph into the other and is considered one of the most flexible methods for error-tolerant graph matching.This book focuses on graph kernel functions that are highly tolerant towards structural errors. The basic idea is to incorporate concepts from graph edit distance into kernel functions, thus combining the flexibility of edit distance-based graph matching with the power of kernel machines for pattern recognition. The authors introduce a collection of novel graph kernels related to edit distance, including diffusion kernels, convolution kernels, and random walk kernels. From an experimental evaluation of a semi-artificial line drawing data set and four real-world data sets consisting of pictures, microscopic images, fingerprints, and molecules, the authors demonstrate that some of the kernel functions in conjunction with support vector machines significantly outperform traditional edit distance-based nearest-neighbor classifiers, both in terms of classification accuracy and running time."
Lectures on the Nearest Neighbor Method Jan 23 2022 This text presents a wide-ranging and rigorous overview of nearest neighbor methods, one of the most important paradigms in machine learning. Now in one self-contained volume, this book systematically covers key statistical, probabilistic, combinatorial and geometric ideas for understanding, analyzing and developing nearest neighbor methods. Gérard Biau is a professor at Université Pierre et Marie Curie (Paris). Luc Devroye is a professor at the School of Computer Science at McGill University (Montreal).
Advances in Knowledge Discovery and Data Mining Jun 27 2022 This book constitutes the refereed proceedings of the 6th Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD 2002, held in Taipei, Taiwan, in May 2002. The 32 revised full papers and 20 short papers presented together with 4 invited contributions were carefully reviewed and selected from a total of 128 submissions. The papers are organized in topical sections on association rules; classification; interestingness; sequence mining; clustering; Web mining; semi-structure and concept mining; data warehouse and data cube; bio-data mining; temporal mining; and outliers, missing data, and causation.
Advanced Database Systems Mar 01 2020 The database field has experienced a rapid and incessant growth since the development of relational databases. The progress in database systems and applications has produced a diverse landscape of specialized technology areas that have often become the exclusive domain of research specialists. Examples include active databases, temporal databases, object-oriented databases, deductive databases, imprecise reasoning and queries, and multimedia information systems. This book provides a systematic introduction to and an in-depth treatment of these advanced database areas. It supplies practitioners and researchers with authoritative coverage of recent technological advances that are shaping the future of commercial database systems and intelligent information systems. Advanced Database Systems was written by a team of six leading specialists who have made significant contributions to the development of the technology areas covered in the book. Benefiting from the authors' long experience teaching graduate and professional courses, this book is designed to provide a gradual introduction to advanced research topics and includes many examples and exercises to support its use for individual study, desk reference, and graduate classroom teaching.
Reducing the Computational Requirements of the Nearest Neighbor Classifier Dec 22 2021 Doctoral Thesis / Dissertation from the year 2018 in the subject Engineering - Computer Engineering, Jawaharlal

Nehru University , language: English, abstract: The tremendous growth of data due to the Internet and electronic commerce has created serious challenges to the researches in pattern recognition. There is a need of processing and analysing data. Advances in data mining and knowledge discovery provide the requirement of new approaches to reduce the data. In this work, methods are proposed to overcome the computational requirements of the nearest neighbor classifiers. The work shows some of the possible remedies to overcome problems with nearest neighbor based classifiers. The work proposes a new method of reducing the data set size. The author reduces the data set size in terms of number of samples and also in terms of number of features. Therefore, the holistic goal of the work is to reduce the time and space requirements and at the same time not to degrade the performance of the nearest neighbor classifier. The nearest neighbor classifier is a popular non-parametric classifier used in many fields since the 1950s. It is conceptually a simple classifier and shows good performance.

Rough Sets and Current Trends in Computing Aug 25 2019 In recent years rough set theory has attracted the attention of many researchers and practitioners all over the world, who have contributed essentially to its development and applications. Weareobservingagrowingresearchinterestinthefoundationsofroughsets, including the various logical, mathematical and philosophical aspects of rough sets. Some relationships have already been established between rough sets and other approaches, and also with a wide range of hybrid systems. As a result, rough sets are linked with decision system modeling and analysis of complex systems, fuzzy sets, neural networks, evolutionary computing, data mining and knowledge discovery, pattern recognition, machine learning, and approximate reasoning. In particular, rough sets are used in probabilistic reasoning, granular computing (including information granule calculi based on rough mereology), intelligent control, intelligent agent modeling, identi?cation of autonomous s- tems, and process speci?cation. Methods based on rough set theory alone or in combination with other - proacheshavebeendiscoveredwith awide rangeofapplicationsinsuchareasas: acoustics, bioinformatics, business and ?nance, chemistry, computer engineering (e.g., data compression, digital image processing, digital signal processing, p- allel and distributed computer systems, sensor fusion, fractal engineering), de- sion analysis and systems, economics, electrical engineering (e.g., control, signal analysis, power systems), environmental studies, informatics, medicine, mole- lar biology, musicology, neurology, robotics, social science, software engineering, spatial visualization, Web engineering, and Web mining.