Machine Learning Algorithms For Event Detection

Gain expertise in ML techniques with AWS to create interactive apps using SageMaker, Apache Spark, and TensorFlow. Key Features Build machine learning apps on Amazon Web Services (AWS) using SageMaker, Apache Spark and TensorFlow Learn model optimization, and understand how to scale your models using simple and secure APIs Develop, train, tune and deploy neural network models to accelerate model performance in the cloud Book Description AWS is constantly driving new innovations that empower data scientists to explore a variety of machine learning (ML) cloud services. This book is your comprehensive reference for learning and implementing advanced ML algorithms in AWS cloud. As you go through the chapters, you'll gain insights into how these algorithms can be trained, tuned and deployed in AWS using Apache Spark on Elastic Map Reduce (EMR), SageMaker, and TensorFlow. While you focus on algorithms such as XGBoost, linear models, factorization machines, and deep nets, the book will also provide you with an overview of AWS as well as detailed practical applications that will help you solve real-world problems. Every practical application includes a series of companion notebooks with all the necessary code to run on AWS. In the next few chapters, you will learn to use SageMaker and EMR Notebooks to perform a range of tasks, right from smart analytics, and predictive modeling, through to sentiment analysis. By the end of this book, you will be equipped with the skills you need to effectively handle machine learning projects and implement and evaluate algorithms on AWS. What you will learn Manage AI workflows by using AWS cloud to deploy services that feed smart data products Use SageMaker services to create recommendation models Scale model training and deployment using Apache Spark on EMR Understand how to cluster big data through EMR and seamlessly integrate it with SageMaker Build deep learning models on AWS using TensorFlow and deploy them as services Enhance your apps by combining Apache Spark and Amazon SageMaker Who this book is for This book is for data scientists, machine learning developers, deep learning enthusiasts and AWS users who want to build advanced models and smart applications on the cloud using AWS and its integration services. Some understanding of machine learning concepts, Python programming and AWS will be beneficial.

Event mining encompasses techniques for automatically and efficiently extracting valuable knowledge from historical event/log data. The field, therefore, plays an important role in data-driven system management. Event Mining: Algorithms and Applications presents state-of-the-art event mining approaches and applications with a focus on computing system management. The book first explains how to transform log data in disparate formats and contents into a canonical form as well as how to optimize system monitoring. It then shows how to extract useful knowledge from data. It describes intelligent and efficient methods and algorithms to perform data-driven pattern discovery and problem determination for managing complex systems. The book also discusses data-driven approaches for the detailed diagnosis of a system issue and addresses the application of event summarization in Twitter messages (tweets). Understanding the interdisciplinary field of event mining can be challenging as it requires familiarity with several research areas and the relevant literature is scattered in diverse publications. This book makes it easier to explore the field by providing both a good starting point for readers not familiar with the topics and a comprehensive reference for those already working in this area.

This volume constitutes the proceedings of the 11th International Conference on Augmented Cognition, AC 2017, held as part of the International Conference on Human-Computer Interaction, HCII 2017, which took place in Vancouver, BC, Canada, in July 2017. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The papers thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The two volumes set of AC 2017 presents 81 papers which are organized in the following topical sections: electroencephalography and brain activity measurement, eye tracking in augmented cognition, physiological measuring and bio-sensing, machine learning in augmented cognition, cognitive load and performance, adaptive learning systems, brain-computer interfaces, human cognition and behavior in complex tasks and environments.

This book presents computational methods for extracting the useful information from audio signals, collecting the state of the art in the field of sound event and scene analysis. The authors cover the entire procedure for developing such methods, ranging from data acquisition and labeling, through the design of taxonomies used in the systems, to signal processing methods for feature extraction and machine learning methods for sound recognition. The book also covers advanced techniques for dealing with environmental variation and multiple overlapping sound sources, and taking advantage of multiple microphones or other modalities. The book gives examples of usage scenarios in large media databases, acoustic monitoring, bioacoustics, and context-aware devices. Graphical illustrations of sound signals and their spectrographic representations are presented, as well as block diagrams and pseudocode of algorithms.

Over the past years, businesses have had to tackle the issues caused by numerous forces from political, technological and societal environment. The changes in the global market and increasing uncertainty require us to focus on disruptive innovations and to investigate this phenomenon from different perspectives. The benefits of innovations are related to lower costs, improved efficiency, reduced risk, and better response to the customers' needs due to new products, services or processes. On the other hand, new business models expose various risks, such as cyber risks, operational risks, regulatory risks, and others. Therefore, we believe that the entrepreneurial behavior and global mindset of decision-makers significantly contribute to the development of innovations, which benefit by closing the prevailing gap between developed and developing countries. Thus, this Special Issue contributes to closing the research gap in the literature by providing a platform for a scientific debate on innovation, internationalization and

entrepreneurship, which would facilitate improving the resilience of businesses to future disruptions. Order Your Print Copy

The work presents new approaches to Machine Learning for Cyber Physical Systems, experiences and visions. It contains some selected papers from the international Conference ML4CPS – Machine Learning for Cyber Physical Systems, which was held in Karlsruhe, September 29th, 2016. Cyber Physical Systems are characterized by their ability to adapt and to learn: They analyze their environment and, based on observations, they learn patterns, correlations and predictive models. Typical applications are condition monitoring, predictive maintenance, image processing and diagnosis. Machine Learning is the key technology for these developments.

In recent years, many technologies for gait and posture assessments have emerged. Wearable sensors, active and passive in-house monitors, and many combinations thereof all promise to provide accurate measures of physical activity, gait, and posture parameters. Motivated by market projections for wearable technologies and driven by recent technological innovations in wearable sensors (MEMs, electronic textiles, wireless communications, etc.), wearable health/performance research is growing rapidly and has the potential to transform future healthcare from disease treatment to disease prevention. The objective of this Special Issue is to address and disseminate the latest gait, posture, and activity monitoring systems as well as various mathematical models/methods that characterize mobility functions. This Special Issue focuses on wearable monitoring systems and physical sensors, and its mathematical models can be utilized in varied environments under varied conditions to monitor health and performance

Advances in Machine Learning and Data Mining for Astronomy documents numerous successful collaborations among computer scientists, statisticians, and astronomers who illustrate the application of state-of-the-art machine learning and data mining techniques in astronomy. Due to the massive amount and complexity of data in most scientific disciplines

Machine learning (ML) is changing virtually every aspect of our lives. Today ML algorithms accomplish tasks that until recently only expert humans could perform. As it relates to finance, this is the most exciting time to adopt a disruptive technology that will transform how everyone invests for generations. Readers will learn how to structure Big data in a way that is amenable to ML algorithms; how to conduct research with ML algorithms on that data; how to use supercomputing methods; how to backtest your discoveries while avoiding false positives. The book addresses real-life problems faced by practitioners on a daily basis, and explains scientifically sound solutions using math, supported by code and examples. Readers become active users who can test the proposed solutions in their particular setting. Written by a recognized expert and portfolio manager, this book will equip investment professionals with the groundbreaking tools needed to succeed in modern finance.

The Intelligence Community Studies Board (ICSB) of the National Academies of Sciences, Engineering, and Medicine convened a workshop on December 11â€"12, 2018, in Berkeley, California, to discuss robust machine learning algorithms and systems for the detection and mitigation of adversarial attacks and anomalies. This publication summarizes the presentations and discussions from the workshop.

This book constitutes the proceedings of the satellite events held at the 17th Extended Semantic Web Conference, ESWC 2020, in May/June 2020. The conference was planned to take place in Heraklion, Crete, Greece, but changed to an online format due to the COVID-19 pandemic. ESWC is a major venue for presenting and discussing the latest scientific results and technology innovations related to the Semantic Web, Linked Data and Knowledge Graphs. The 36 poster and demo papers, 7 PhD symposium papers, and 4 industry track papers, included in this volume were carefully reviewed and selected from 59 submissions to the poster and demo track; 11 submissions to the PhD symposium track, and 5 submissions to the Industry track.

Machine Learning

This book constitutes the proceedings of the first International Symposium on Cyber Security Cryptography and Machine Learning, held in Beer-Sheva, Israel, in June 2017. The 17 full and 4 short papers presented include cyber security; secure software development methodologies, formal methods semantics and verification of secure systems; fault tolerance, reliability, availability of distributed secure systems; game-theoretic approaches to secure computing; automatic recovery of self-stabilizing and self-organizing systems; communication, authentication and identification security; cyber security for mobile and Internet of things; cyber security of corporations; security and privacy for cloud, edge and fog computing; cryptography; cryptographic implementation analysis and construction; secure multi-party computation; privacy-enhancing technologies and anonymity; post-quantum cryptography and security; machine learning and big data; anomaly detection and malware identification; business intelligence and security; digital forensics; digital rights management; trust management and reputation systems; information retrieval, risk analysis, DoS.

We are pleased to present this LNCS volume, the Proceedings of the 22nd A- tralasianJointConferenceonArti?cialIntelligence(AI2009),heldinMelbourne, Australia, December 1–4,2009.This long established annual regionalconference is a forum both for the presentation of researchadvances in arti?cial intelligence and for scienti?c interchange amongst researchers and practitioners in the ?eld of arti?cial intelligence. Conference attendees were also able to enjoy AI 2009 being co-located with the Australasian Data Mining Conference (AusDM 2009) and the 4th Australian Conference on Arti?cial Life (ACAL 2009). This year AI 2009 received 174 submissions, from authors of 30 di?erent countries. After an extensive peer review process where each submitted paper was rigorously reviewed by at least 2 (and in most cases 3) independent revi- ers, the best 68 papers were selected by the senior Program Committee for oral presentation at the conference and included in this volume, resulting in an - ceptance rate of 39%. The papers included in this volume cover a wide range of topics in arti?cial intelligence: from machine learning to natural language s- tems, from knowledge representation to soft computing, from theoretical issues to real-world applications. AI 2009 also included 11 tutorials, available through the First Australian Computational Intelligence Summer School (ACISS 2009). These tutorials – some introductory, some advanced – covered a wide range of research topics within arti?cial intelligence, including data mining, games, evolutionary c- putation, swarm optimization, intelligent agents, Bayesian and belief networks.

This second volume of the three-volume set (CCIS 1193, CCIS 1194, and CCIS 1195) constitutes the refereed proceedings of the First International Conference on Applied Technologies, ICAT 2019, held in Quito, Ecuador, in December 2019. The 124 full papers were carefully reviewed and selected from 328 submissions. The papers are organized

according to the following topics: technology trends; computing; intelligent systems; machine vision; security; communication; electronics; e-learning; e-government; e-participation.

Advances in Geophysics, Volume 61 - Machine Learning and Artificial Intelligence in Geosciences, the latest release in this highly-respected publication in the field of geophysics, contains new chapters on a variety of topics, including a historical review on the development of machine learning, machine learning to investigate fault rupture on various scales, a review on machine learning techniques to describe fractured media, signal augmentation to improve the generalization of deep neural networks, deep generator priors for Bayesian seismic inversion, as well as a review on homogenization for seismology, and more. Provides high-level reviews of the latest innovations in geophysics Written by recognized experts in the field Presents an essential publication for researchers in all fields of geophysics

Special Issue on Machine Learning Algorithms for Event DetectionMachine Learning for Smart Grid Event DetectionNetwork Event Correlation Using Unsupervised Machine Learning AlgorithmsBroadening the Use of Machine Learning in HydrologyFrontiers Media SAEvent MiningAlgorithms and ApplicationsCRC Press

Although somatosensory system works in tandem with the motor system in biology, the majority of the prosthetics research and commercial efforts had focused on accommodating movement deficits. With the development of neuroprostheses in the last 15 years, it has become evident that somatosensory input (mainly as touch and proprioception) is essential for motor control, manipulating objects, and embodiment, in addition to its primary role for sensory perception. Somatosensory Feedback for Neuroprosthetics covers all relevant aspects to facilitate learning and doing research and development in the field. To understand the properties of the body to create viable solutions, this book starts with chapters reviewing the basic anatomy, physiology, and psychophysics of the somatosensory system, sensorimotor control, and instrumentation. Some sections are dedicated to invasive (peripheral and central, mainly cortical) and noninvasive (vibrotactile, electrotactile, etc.) approaches. Final chapters cover future technologies such as novel sensors and electrodes, safety, and clinical testing, and help to make up future prospects for this field with an emphasis on development and end use. With contributions from renowned experts, the contents include their recent findings and technical details necessary to understand those findings. Provides a concise review of the somatosensory system and latest advances in the use of somatosensory feedback for neuroprosthetics Analyzes many approaches to somatosensory feedback Provides the most detailed work on somatosensory neuroprostheses, their development, and applications in real life work.

The recent rapid growth in the variety and complexity of new machine learning architectures requires the development of improved methods for designing, analyzing, evaluating, and communicating machine learning technologies. Statistical Machine Learning: A Unified Framework provides students, engineers, and scientists with tools from mathematical statistics and nonlinear optimization theory to become experts in the field of machine learning. In particular, the material in this text directly supports the mathematical analysis and design of old, new, and not-yet-invented nonlinear high-dimensional machine learning algorithms. Features: Unified empirical risk minimization framework supports rigorous mathematical analyses of widely used supervised, unsupervised, and reinforcement machine learning algorithms Matrix calculus methods for supporting machine learning analysis and design applications Explicit conditions for ensuring convergence of adaptive, batch, minibatch, MCEM, and MCMC learning algorithms that minimize both unimodal and multimodal objective functions Explicit conditions for characterizing asymptotic properties of M-estimators and model selection criteria such as AIC and BIC in the presence of possible model misspecification This advanced text is suitable for graduate students or highly motivated undergraduate students in statistics, computer science, electrical engineering, and applied mathematics. The text is self-contained and only assumes knowledge of lower-division linear algebra and upper-division probability theory. Students, professional engineers, and multidisciplinary scientists possessing these minimal prerequisites will find this text challenging yet accessible. About the Author: Richard M. Golden (Ph.D., M.S.E.E., B.S.E.E.) is Professor of Cognitive Science and Participating Faculty Member in Electrical Engineering at the University of Texas at Dallas. Dr. Golden has published articles and given talks at scientific conferences on a wide range of topics in the fields of both statistics and machine learning over the past three decades. His long-term research interests include identifying conditions for the convergence of deterministic and stochastic machine learning algorithms and investigating estimation and inference in the presence of possibly misspecified probability models.

We live in a world in which Google's search algorithms determine how we access information, Facebook's News Feed algorithms shape how we socialize, and Netflix collaborative filtering algorithms choose the media products we consume. As such, we live algorithmic lives. Life, however, is not blindly controlled or determined by algorithms. Nor are we simply victims of an ever-expanding artificial intelligence. Rather than looking at how technologies shape or are shaped by political institutions, this book is concerned with the ways in which informational infrastructure may be considered political in its capacity to shape social and cultural life. It looks specifically at the conditions of algorithmic life -- how algorithms work, both materially and discursively, to create the conditions for sociality and connectivity. The book argues that the most important aspect of algorithms is not what they are in terms of their specific technical details but rather how they become part of social practices and how different people enlist them as powerful brokers of information, communication and society. If we truly want to engage with the promises of automation and predictive analytics entailed by the promises of "big data", we also need to understand the contours of algorithmic life that condition such practices. Setting out to explore both the specific uses of algorithms and the cultural forms they generate, this book offers a novel understanding of the power and politics of algorithmic life as grounded in case studies that explore the material-discursive dimensions of software.

Annotation This book constitutes the refereed proceedings of the 13th International Conference on Text, Speech and Dialogue, TSD 2010, held in Brno, Czech Republic,

September 2010. The 71 revised full papers presented together with 3 invited papers were carefully reviewed and selected from 144 submissions. The topics of the conference include, but are not limited to text corpora and tagging, transcription problems in spoken corpora, sense disambiguation, links between text and speech oriented systems, parsing issues, multi-lingual issues, information retrieval and information extraction, text/topic summarization, machine translation, semantic web, speech modeling, speech recognition, search in speech for IR and IE, text-to-speech synthesis, emotions and personality modeling, user modeling, knowledge representation in relation to dialogue systems, assistive technologies based on speech and dialogue, applied systems and software, facial animation, as well as visual speech synthesis.

Extreme Events in Geospace: Origins, Predictability, and Consequences helps deepen the understanding, description, and forecasting of the complex and inter-related phenomena of extreme space weather events. Composed of chapters written by representatives from many different institutions and fields of space research, the book offers discussions ranging from definitions and historical knowledge to operational issues and methods of analysis. Given that extremes in ionizing radiation, ionospheric irregularities, and geomagnetically induced currents may have the potential to disrupt our technologies or pose danger to human health, it is increasingly important to synthesize the information available on not only those consequences but also the origins and predictability of such events. Extreme Events in Geospace: Origins, Predictability, and Consequences is a valuable source for providing the latest research for geophysicists and space weather scientists, as well as industries impacted by space weather events, including GNSS satellites and radio communication, power grids, aviation, and human spaceflight. The list of first/second authors includes M. Hapgood, N. Gopalswamy, K.D. Leka, G. Barnes, Yu. Yermolaev, P. Riley, S. Sharma, G. Lakhina, B. Tsurutani, C. Ngwira, A. Pulkkinen, J. Love, P. Bedrosian, N. Buzulukova, M. Sitnov, W. Denig, M. Panasyuk, R. Hajra, D. Ferguson, S. Lai, L. Narici, K. Tobiska, G. Gapirov, A. Mannucci, T. Fuller-Rowell, X. Yue, G. Crowley, R. Redmon, V. Airapetian, D. Boteler, M. MacAlester, S. Worman, D. Neudegg, and M. Ishii. Helps to define extremes in space weather and describes existing methods of analysis Discusses current scientific understanding of these events and outlines future challenges Considers the ways in which space weather may affect daily life Demonstrates deep connections between astrophysics, heliophysics, and space weather applications, including a discussion of extreme space weather events from the past Examines national and space policy issues concerning space weather in Australia, Canada, Japan, the United Kingdom, and the United States

This volume contains the proceedings of the European Conference on Machine Learning 1994, which continues the tradition of earlier meetings and which is a major forum for the presentation of the latest and most significant results in machine learning. Machine learning is one of the most important subfields of artificial intelligence and computer science, as it is concerned with the automation of learning processes. This volume contains two invited papers, 19 regular papers, and 25 short papers carefully reviewed and selected from in total 88 submissions. The papers describe techniques, algorithms, implementations, and experiments in the area of machine learning.

Students in social science courses communicate, socialize, shop, learn, and work online. When they are asked to collect data for course projects they are often drawn to social media platforms and other online sources of textual data. There are many software packages and programming languages available to help students collect data online, and there are many texts designed to help with different forms of online research, from surveys to ethnographic interviews. But there is no textbook available that teaches students how to construct a viable research project based on online sources of textual data such as newspaper archives, site user comment archives, digitized historical documents, or social media user comment archives. Gabe Ignatow and Rada F. Mihalcea's new text An Introduction to Text Mining will be a starting point for undergraduates and first-year graduate students interested in collecting and analyzing textual data from online sources, and will cover the most critical issues that students must take into consideration at all stages of their research projects, including: ethical and philosophical issues; issues related to research design; web scraping and crawling; strategic data selection; data sampling; use of specific text analysis methods; and report writing.

Post-Authorization Safety Studies of Medicinal Products: The PASS Book bridges the gap in the literature by providing a complete look at post-authorization safety studies and important pharmacoepidemiology and pharmacovigilance aspects. It covers various types and limitations of active surveillance programs, including the use of large databases and disparate data sources for rapid signal detection, as well as novel and advanced design and analysis approaches for causal interference from observational data. This book serves as an important reference for pharmacovigilance scientists and pharmacoepidemiologists who are searching for the appropriate study design to answer safety research questions. Readers will be able to effectively and efficiently design and interpret findings from post-authorization safety studies with the goal of improving the benefit-risk balance of a drug in order to optimize patient safety. Discusses all types of observational studies in post-marketing drug safety assessment, from spontaneous reporting systems, to pragmatic trials, with examples from real-world settings Presents various types of post-authorization safety studies Offers solutions to the common challenges in the design and conduct of these studies Highlights active surveillance programs, including common data models for rapid signal detection of drug safety issues

Our increased understanding of health and disease coupled with major technologic advances has resulted in rapid and significant changes in the practice of medicine. How we prepare physicians for clinical practice 20, 30, or 40 years from now is of paramount importance to medical educators, to the future professionals, and to society at large. Implementing Biomedical Innovations into Health, Education, and Practice delves into this important question, discussing the effects of precision medicine, bioinformatics, biologic and environmental forces, and societal shifts on the physician's approach to diagnosis and therapy. The author interviewed world-renowned physicians, medical educators, healthcare leaders, and research professionals—their insights and quotes are woven throughout the narrative. Professionally illustrated, this relevant resource is a

must-have for all medical professionals who incorporate technology and biomedical innovations in their research and clinical practice. It encourages thoughtful analysis on adapting and developing the foundational knowledge, skills, and aptitudes of future physicians and other healthcare professionals, and it belongs in your library. "Having completed deanship at one of America's leading medical schools, Jim Woolliscroft produces an insightful, contemplative projection of the likely skill and behavioral needs of the physician workforce for the mid-21st century...The result is a playbook for physician training that responds effectively to the daunting challenges faced in the coming transformation of the role of physicians in protecting the health of our nation. James L. Madara, MD, CEO, American Medical Association "Dr. Woolliscroft's provocative new book will become must reading for all who are serious about educating the next generation of physicians and health care leaders. Leveraging his own experience as a consummate educator and interviews with numerous thought leaders, he identifies the uncertainties, challenges and disruptions to the practice of medicine in the decades ahead. The implications and imperatives for the coming generations of physicians are compelling and of critical importance for care givers, policy makers, and most pointedly educators in the U.S. and around the world. Gary S. Kaplan MD, Chairman and CEO, Virginia Mason Health System "This ambitious masterpiece, by one of the leading medical educators of our time, fully captures the ongoing changes and disruptions in medicine today, and how they will influence the care of patients and the training of young physicians in the future. Eric Topol, MD, Executive Vice President, Scripps Research, Author of Deep Medicine Discusses likely technologic disruptors: sensors, AI, machine learning, and robotics Highlights microbiota, genetics, molecular biology, gene therapy, and regenerative and precision medicine as likely disruptors Presents an intriguing set of scenarios depicting the life of future physicians

Our last video in this series introduced the Naive Bayes Classifier and now this video will cover more advanced concepts using this powerful algorithm. Follow along with machine learning expert Advait Jayant through a combination of lecture and hands-on to practice applying advanced Naive Bayes applications in Python using the pandas and numpy libraries. Also here are all of Advait Jayant's highly-rated videos on O'Reilly, including the full Data Science and Machine Learning Series . The following seven topics will be covered in this Data Science and Machine Learning course: The Multivariate Bernoulli Naive Bayes Classifier . Apply the Multivariate Bernoulli Naive Bayes Classifier to perform text classification in this first topic in the Data Science and Machine Learning Series. Follow along with Advait and use the Bag of Words algorithm. The Multinomial Event Naive Bayes Model . Apply the Multinomial Event Naive Bayes Model in this second topic in the Data Science and Machine Learning Series. Follow along with Advait and see how the Multinomial Event Naive Bayes Model differs from the Multivariate Bernoulli Naive Bayes Classifier. The Gaussian Naive Bayes Model . Apply probability distribution using the Gaussian Naive Bayes model in this third topic in the Data Science and Machine Learning Series. Follow along with Advait and apply this powerful algorithm in Python using the Scikit-learn library. MNIST (Modified National Institute of Standards and Technology dataset) Classification using Multinomial Event and Gaussian Models . Compare the Multinomial Event Naive Bayes and Gaussian Naive Bayes models in how they perform MNIST (Modified National Institute of Standards and Technology dataset) classification in this fourth topic in the Data Science and Machine Learning Series. Follow along with Advait and contrast these powerful algorithms in Python using the Scikit-learn library. Movie Review Classification using the Naive Bayes Classifier . Classify movies using the Naive Bayes Classifier in this fifth topic in the Data Science and Machine Learning Series. Follow along with Advait and practice building NLP pipelines, applying tokenization, and removing stop words in Python. Movie Review Prediction using the Multinomial Event and Multivariate Bernoulli Naive Bayes Models . Predict movie reviews using the Multinomial Event and Multivariate Bernoulli Naive Bayes models in this sixth topic in the Data Science and Machine Learning Series. Follow alo...

The two volumes LNCS 9041 and 9042 constitute the proceedings of the 16th International Conference on Computational Linguistics and Intelligent Text Processing, CICLing 2015, held in Cairo, Egypt, in April 2015. The total of 95 full papers presented was carefully reviewed and selected from 329 submissions. They were organized in topical sections on grammar formalisms and lexical resources; morphology and chunking; syntax and parsing; anaphora resolution and word sense disambiguation; semantics and dialogue; machine translation and multilingualism; sentiment analysis and emotion detection; opinion mining and social network analysis; natural language generation and text summarization; information retrieval, question answering, and information extraction; text classification; speech processing; and applications.

This book presents machine learning models and algorithms to address big data classification problems. Existing machine learning techniques like the decision tree (a hierarchical approach), random forest (an ensemble hierarchical approach), and deep learning (a layered approach) are highly suitable for the system that can handle such problems. This book helps readers, especially students and newcomers to the field of big data and machine learning, to gain a quick understanding of the techniques and technologies; therefore, the theory, examples, and programs (Matlab and R) presented in this book have been simplified, hardcoded, repeated, or spaced for improvements. They provide vehicles to test and understand the complicated concepts of various topics in the field. It is expected that the readers adopt these programs to experiment with the examples, and then modify or write their own programs toward advancing their knowledge for solving more complex and challenging problems. The presentation format of this book focuses on simplicity, readability, and dependability so that both undergraduate and graduate students as well as new researchers, developers, and practitioners in this field can easily trust and grasp the concepts, and learn them effectively. It has been written to reduce the mathematical complexity and help the vast majority of readers to understand the topics and get interested in the field. This book consists of four parts, with the total of 14 chapters. The first part mainly focuses on the topics that are needed to help analyze and understand data and big data. The second part covers the topics that can explain the systems required for processing big data. The third part presents the topics required to understand and select machine learning techniques to classify big data. Finally, the fourth part concentrates on the topics that explain the scaling-up machine learning, an important solution for modern big data problems.

Guide covering topics from machine learning, regression models, neural network to tensor flow DESCRIPTION Machine learning is mostly sought in the research field and has become an integral part of

many research projects nowadays including commercial applications, as well as academic research. Application of machine learning ranges from finding friends on social networking sites to medical diagnosis and even satellite processing. In this book, we have made an honest effort to make the concepts of machine learning easy and give basic programs in MATLAB right from the installation part. Although the real-time application of machine learning is endless, however, the basic concepts and algorithms are discussed using MATLAB language so that not only graduation students but also researchers are benefitted from it. KEY FEATURES Machine learning in MATLAB using basic concepts and algorithms. Deriving and accessing of data in MATLAB and next, pre-processing and preparation of data. Machine learning workflow for health monitoring. The neural network domain and implementation in MATLAB with explicit explanation of code and results. How predictive model can be improved using MATLAB? MATLAB code for an algorithm implementation, rather than for mathematical formula. Machine learning workflow for health monitoring. WHAT WILL YOU LEARN Pre-requisites to machine learning Finding natural patterns in data Building classification methods Data pre-processing in Python Building regression models Creating neural networks Deep learning WHO THIS BOOK IS FOR The book is basically meant for graduate and research students who find the algorithms of machine learning difficult to implement. We have touched all basic algorithms of machine learning in detail with a practical approach. Primarily, beginners will find this book more effective as the chapters are subdivided in a manner that they find the building and implementation of algorithms in MATLAB interesting and easy at the same time. Table of Contents ?1. Pre-requisite to Machine Learning 2. An introduction to Machine Learning 3. Finding Natural Patterns in Data 4. Building Classification Methods 5. Data Pre-Processing in Python ?6. Building Regression Models 7. Creating Neural Networks 8. Introduction to Deep Learning

This three-volume set LNAI 8188, 8189 and 8190 constitutes the refereed proceedings of the European Conference on Machine Learning and Knowledge Discovery in Databases, ECML PKDD 2013, held in Prague, Czech Republic, in September 2013. The 111 revised research papers presented together with 5 invited talks were carefully reviewed and selected from 447 submissions. The papers are organized in topical sections on reinforcement learning; Markov decision processes; active learning and optimization; learning from sequences; time series and spatio-temporal data; data streams; graphs and networks; social network analysis; natural language processing and information extraction; ranking and recommender systems; matrix and tensor analysis; structured output prediction, multi-label and multi-task learning; transfer learning; bayesian learning; graphical models; nearest-neighbor methods; ensembles; statistical learning; semi-supervised learning; unsupervised learning; subgroup discovery, outlier detection and anomaly detection; privacy and security; evaluation; applications; and medical applications.

Soccer is the world's most popular sport but published research in soccer analytics has yet to attain the same level of sophistication as analytics in other professional sports. We hope to discover new knowledge from a soccer ball-event dataset by applying different machine learning techniques. In this thesis we present three experiments that address three interesting questions in soccer that involve game prediction and team style. We approach each question by constructing features using the ball-event data, where an event is a pass, shot, etc., and applying machine learning algorithms. In the first experiment, we construct three models that use different features to predict which team won a given game, without any knowledge of goals. We achieve a top accuracy rate of 0.84 using an L2-regularized logistic regression classifier. We also investigate the feature weights to learn relationships between game events and a team's chances of success. In the second experiment we try several classifiers to predict which team produced the sequence of ball-events that occurred during a game. Despite the relatively small number of events per game, we achieved an accuracy rate of 0.345 for a 20-team classification task when using a RBF SVM. By learning which sequences are characteristic of teams we are potentially able to discover if successful teams have a common style. We also learn the efficacy of transforming ball-events into predefined symbols. Finally, in the third experiment, we predict which team attempted a given set of passes. We first construct 2D histograms of the locations of the origins of the passes. We then use the histograms as features in a 20-team classification task and discover that teams have characteristic passing styles, by achieving an accuracy rate of 0.735 using a learned K-NN classifier. The results demonstrate that approaching soccer analytics with a machine learning framework is effective. In addition to achieving good classification performance, we are able to discover useful, potentially actionable, knowledge by investigating the models and features that we construct.

This book constitutes the refereed proceedings of the joint conference on Machine Learning and Knowledge Discovery in Databases: ECML PKDD 2009, held in Bled, Slovenia, in September 2009. The 106 papers presented in two volumes, together with 5 invited talks, were carefully reviewed and selected from 422 paper 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.

Conferences, symposiums, and other large events that take place at far away hotels require many hours of preparation to plan and need a capable event staff to market. Without the innovative technologies that have changed the face of the tourism industry, many destinations would be unequipped to handle such a task. Impact of ICTs on Event Management and Marketing is a collection of innovative research on the methods and applications of information and communications technologies on almost all facets of hospitality and tourism-related businesses including hotels, restaurants, and other tourism areas. While highlighting topics including digital marketing, artificial intelligence, and event tourism, this book is ideally designed for business managers, event planners, and marketing professionals.

This book constitutes the thoroughly refereed post- conference proceedings of the Ninth International Conference on Risks and Security of Internet Systems, CRiSIS 2014, held in Trento, Italy, in August 2014. The 13 full papers and 6 short papers presented were selected from 48 submissions. They explore risks and security issues in Internet applications, networks and systems covering topics such as trust, security risks and threats, intrusion detection and prevention, access control and security modeling.

Copyright: 7f355d1bbcf45bb5d466036c588bd5a1