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### 0A6 - RONNIE HESTER

For the past two decades, the protein kinase family has been an intense area of research for developing anticancer drugs. Despite tremendous advancements in kinase drug expansion, many kinases are still unexplored. As such, this book includes research and review articles from experts that focus on protein kinase signalling pathways as a molecular drug target. Chapters include illustrations and cover such topics as the mechanism of action and anticancer activity of protein kinase inhibitors on various cancer types. They also discuss new opportunities, challenges, and future perspectives in the field.

Coverage in this proceedings includes XML schemas, data mining, spatial data, indexes and cubes, data streams, P2P and transactions, complex pattern processing, IR techniques, queries and transactions, XML databases, data warehouses, and distributed data.

This book constitutes the refereed proceedings of the 12th European Conference on Ambient Intelligence, Aml 2015, held in Athens, Greece, in November 2015. The 21 revised full papers presented together with 5 short papers were carefully reviewed and selected from 48 submissions. Over the past 20 years, the vision of Ambient Intelligence has gradually materialized into a plethora of technologies and devices, which are being introduced into almost every aspect of everyday life, thus affecting our abilities, activities, behavior and in the end, shaping a new way of thinking.

The beginning of the age of artificial intelligence and machine learning has created new challenges and opportunities for data analysts, statisticians, mathematicians, econometricians, computer scientists and many others. At the root of these techniques are algorithms and methods for clustering and classifying different types of large datasets, including time series data. Time Series Clustering and Classification includes relevant developments on observation-based, feature-based and model-based traditional and fuzzy clustering methods, feature-based and model-based classification methods, and machine learning methods. It presents a broad and self-contained overview of techniques for both researchers and students. Features Provides an overview of the methods and applications of pattern recognition of time series Covers a wide range of techniques, including unsupervised and supervised approaches Includes a range of real examples from medicine, finance, environmental science, and more R and MATLAB code, and relevant data sets are available on a supplementary website

Data mining is a branch of computer science that is used to automatically extract meaningful, useful knowledge and previously unknown, hidden, interesting patterns from a large amount of data to support the decision-making process. This book presents recent theoretical and practical advances in the field of data mining. It discusses a number of data mining methods, including classification, clustering, and association rule mining. This book brings together many different successful data mining studies in various areas such as health, banking, education, software engineering, animal science, and the environment.

An authoritative guide to the essential techniques and most recent advances in urban remote sensing Techniques and Methods in Urban Remote Sensing offers a comprehensive guide to the recent theories, methods, techniques, and applications in urban remote sensing. Written by a noted expert on the subject, this book explores the requirements for mapping impervious surfaces and examines the issue of scale. The book covers a range of topics and includes illustrative examples of commonly used methods for estimating and mapping urban impervious surfaces, explains how to determine urban thermal landscape and surface energy balance, and offers information on impacts of urbanization on land surface temperature, water quality, and environmental health. Techniques and Methods in Urban Remote Sensing brings together in one volume the latest opportunities for combining ever-increasing computational power, more plentiful and capable data, and more advanced algorithms. This allows the technologies of remote sensing and GIS to become mature and to gain wider and better applications in environments, ecosystems, resources, geosciences, geography and urban studies. This important book: Contains a comprehensive resource to the latest developments in urban remote sensing Explains urban heat islands modeling and analysis Includes information on estimating urban surface energy fluxes Offers a guide to generating data on land surface temperature Written for professionals and students of environmental, ecological, civic and urban studies, Techniques and Methods in Urban Remote Sensing meets the demand for an updated resource that addresses the recent advances urban remote sensing.

This two-volume set LNCS 10305 and LNCS 10306 constitutes the

refereed proceedings of the 14th International Work-Conference on Artificial Neural Networks, IWANN 2017, held in Cadiz, Spain, in June 2017. The 126 revised full papers presented in this double volume were carefully reviewed and selected from 199 submissions. The papers are organized in topical sections on Bio-inspired Computing; E-Health and Computational Biology; Human Computer Interaction; Image and Signal Processing; Mathematics for Neural Networks; Self-organizing Networks; Spiking Neurons; Artificial Neural Networks in Industry ANNI'17; Computational Intelligence Tools and Techniques for Biomedical Applications; Assistive Rehabilitation Technology; Computational Intelligence Methods for Time Series; Machine Learning Applied to Vision and Robotics; Human Activity Recognition for Health and Well-Being Applications; Software Testing and Intelligent Systems; Real World Applications of BCI Systems; Machine Learning in Imbalanced Domains; Surveillance and Rescue Systems and Algorithms for Unmanned Aerial Vehicles; End-User Development for Social Robotics; Artificial Intelligence and Games; and Supervised, Non-Supervised, Reinforcement and Statistical Algorithms.

The four-volume set LNCS 11334-11337 constitutes the proceedings of the 18th International Conference on Algorithms and Architectures for Parallel Processing, ICA3PP 2018, held in Guangzhou, China, in November 2018. The 141 full and 50 short papers presented were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on Distributed and Parallel Computing; High Performance Computing; Big Data and Information Processing; Internet of Things and Cloud Computing; and Security and Privacy in Computing.

This book contains accepted papers presented at SOCO 2020 conference held in the beautiful and historic city of Burgos (Spain), in September 2020. Soft computing represents a collection or set of computational techniques in machine learning, computer science and some engineering disciplines, which investigate, simulate, and analyze very complex issues and phenomena. After a through peer-review process, the SOCO 2020 International Program Committee selected 83 papers which are published in these conference proceedings and represents an acceptance rate of 35%. Due to the COVID-19 outbreak, the SOCO 2020 edition was blended, combining on-site and on-line participation. In this relevant edition a special emphasis was put on the organization of special sessions. Eleven special session were organized related to relevant topics such as: Soft Computing Applications in Precision Agriculture, Manufacturing and Management Systems, Management of Industrial and Environmental Enterprises, Logistics and Transportation Systems, Robotics and Autonomous Vehicles, Computer Vision, Laser-Based Sensing and Measurement and other topics such as Forecasting Industrial Time Series, IoT, Big Data and Cyber Physical Systems, Non-linear Dynamical Systems and Fluid Dynamics, Modeling and Control systems The selection of papers was extremely rigorous in order to maintain the high quality of SOCO conference editions and we would like to thank the members of the Program Committees for their hard work in the reviewing process. This is a crucial process to the creation of a high standard conference and the SOCO conference would not exist without their help.

This book constitutes the refereed proceedings of the 17th Australasian Conference on Data Mining, AusDM 2019, held in Adelaide, SA, Australia, in December 2019. The 20 revised full papers presented were carefully reviewed and selected from 56 submissions. The papers are organized in sections on research track, application track, and industry showcase.

Data mining can help pinpoint hidden information in medical data and accurately differentiate pathological from normal data. It can help to extract hidden features from patient groups and disease states and can aid in automated decision making. Data Mining in Biomedical Imaging, Signaling, and Systems provides an in-depth examination of the biomed

Handbook of Cluster Analysis provides a comprehensive and unified account of the main research developments in cluster analysis. Written by active, distinguished researchers in this area, the book helps readers make informed choices of the most suitable clustering approach for their problem and make better use of existing cluster analysis tools. The book is organized according to the traditional core approaches to cluster analysis, from the origins to recent developments. After an overview of approaches and a quick journey through the history of cluster analysis, the book focuses on the four major approaches to cluster analysis. These approaches include methods for optimizing an objective function that describes how well data is grouped around centroids, dissimilarity-based methods, mixture models and partitioning models, and clustering methods inspired by nonparametric density es-

timation. The book also describes additional approaches to cluster analysis, including constrained and semi-supervised clustering, and explores other relevant issues, such as evaluating the quality of a cluster. This handbook is accessible to readers from various disciplines, reflecting the interdisciplinary nature of cluster analysis. For those already experienced with cluster analysis, the book offers a broad and structured overview. For newcomers to the field, it presents an introduction to key issues. For researchers who are temporarily or marginally involved with cluster analysis problems, the book gives enough algorithmic and practical details to facilitate working knowledge of specific clustering areas.

This book constitutes the refereed proceedings of the First International Conference on Modeling Decisions for Artificial Intelligence, MDAI 2004, held in Barcelona, Spain in August 2004. The 26 revised full papers presented together with 4 invited papers were carefully reviewed and selected from 53 submissions. The papers are devoted to topics like models for information fusion, aggregation operators, model selection, fuzzy integrals, fuzzy sets, fuzzy multisets, neural learning, rule-based classification systems, fuzzy association rules, algorithmic learning, diagnosis, text categorization, unsupervised aggregation, the Choquet integral, group decision making, preference relations, vague knowledge processing, etc.

This volume contains both methodological papers showing new original methods, and papers on applications illustrating how new domain-specific knowledge can be made available from data by clever use of data analysis methods. The volume is subdivided in three parts: Classification and Data Analysis; Data Mining; and Applications. The selection of peer reviewed papers had been presented at a meeting of classification societies held in Florence, Italy, in the area of "Classification and Data Mining".

This book presents Proceedings of the 2021 Intelligent Systems Conference which is a remarkable collection of chapters covering a wider range of topics in areas of intelligent systems and artificial intelligence and their applications to the real world. The conference attracted a total of 496 submissions from many academic pioneering researchers, scientists, industrial engineers, and students from all around the world. These submissions underwent a double-blind peer-review process. Of the total submissions, 180 submissions have been selected to be included in these proceedings. As we witness exponential growth of computational intelligence in several directions and use of intelligent systems in everyday applications, this book is an ideal resource for reporting latest innovations and future of AI. The chapters include theory and application on all aspects of artificial intelligence, from classical to intelligent scope. We hope that readers find the book interesting and valuable; it provides the state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of the future research.

As our ability to acquire massive amounts of information about genome variation accelerates it is becoming increasingly clear that to make maximum use of this information we also need well-structured, systematic data on the phenotypic consequences of genomic changes. Phenomics is the new discipline of using standardized measurement techniques to characterize the phenotypic effects of random or systematic genome modifications (for example randomly generated mutations or systematic gene knockouts). This approach is now being used in an increasing range of species and systems. In this book, experts working in phenomics in most of the major species and systems that are currently being studied present overviews of the field from their different, but overlapping perspectives.

This two-volume set of LNCS 414 and 415 constitutes the refereed post-conference proceedings of the 2nd International Conference on IoT and Big Data Technologies for Health Care, IoT-CARE 2021, which took place in October 2021. Due to COVID-19 pandemic the conference was held virtually. The 79 revised full papers were carefully reviewed and selected from 165 submissions. The papers are arranged thematically as follows: Integrating healthcare with IoT; Information fusion for the devices of IoT; AI-based internet of medical things.

Research on the problem of clustering tends to be fragmented across the pattern recognition, database, data mining, and machine learning communities. Addressing this problem in a unified way, Data Clustering: Algorithms and Applications provides complete coverage of the entire area of clustering, from basic methods to more refined and complex data clustering approaches. It pays special attention to recent issues in graphs, social networks, and other domains. The book focuses on three primary aspects of data clustering: Methods, describing key techniques commonly used for clustering, such as feature selection, agglomerative clus-

tering, partitional clustering, density-based clustering, probabilistic clustering, grid-based clustering, spectral clustering, and non-negative matrix factorization Domains, covering methods used for different domains of data, such as categorical data, text data, multimedia data, graph data, biological data, stream data, uncertain data, time series clustering, high-dimensional clustering, and big data Variations and Insights, discussing important variations of the clustering process, such as semisupervised clustering, interactive clustering, multiview clustering, cluster ensembles, and cluster validation In this book, top researchers from around the world explore the characteristics of clustering problems in a variety of application areas. They also explain how to glean detailed insight from the clustering process—including how to verify the quality of the underlying clusters—through supervision, human intervention, or the automated generation of alternative clusters.

This book constitutes the refereed conference proceedings of the 11th International Conference on Multi-disciplinary Trends in Artificial Intelligence, MIWAI 2017, held in Gadong, Brunei, in November 2017. The 40 revised full papers presented were carefully reviewed and selected from 82 submissions. They are organized in the following topical sections: knowledge representation and reasoning; data mining and machine learning; deep learning and its applications; document analysis; intelligent information systems; swarm intelligence.

This two-volume set LNCS 12777 and 12778 constitutes the thoroughly refereed proceedings of the 12th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, DHM 2021, which was held virtually as part of the 23rd HCI International Conference, HCII 2021, in July 2021. The total of 1276 papers and 241 posters included in the 39 HCII 2021 proceedings volumes were carefully reviewed and selected from 5222 submissions. DHM 2021 includes a total of 56 papers; they were organized in topical sections named: Part I, Human Body, Motion and Behavior: Ergonomics, human factors and occupational health; human body and motion modeling; and language, communication and behavior modeling. Part II, AI, Product and Service: Rethinking healthcare; artificial intelligence applications and ethical issues; and digital human modeling in product and service design.

This book constitutes the refereed proceedings of the 18th International Conference on Data Warehousing and Knowledge Discovery, DaWaK 2016, held in Porto, Portugal, September 2016. The 25 revised full papers presented were carefully reviewed and selected from 73 submissions. The papers are organized in topical sections on Mining Big Data, Applications of Big Data Mining, Big Data Indexing and Searching, Big Data Learning and Security, Graph Databases and Data Warehousing, Data Intelligence and Technology.

This book constitutes the thoroughly refereed post-conference proceedings of the 11th International Conference on Mobile Computing, Applications, and Services, MobiCASE 2020, held in Shanghai, China, in September 2020. The conference was held virtually due to the COVID-19 pandemic. The 15 full papers were carefully reviewed and selected from 49 submissions. The papers are organized in topical sections on mobile application and framework; mobile application with data analysis; and AI application.

This two-volume set (CCIS 1601-1602) constitutes the proceedings of the 19th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU 2021, held in Milan, Italy, in July 2022. The 124 papers were carefully reviewed and selected from 188 submissions. The papers are organized in topical sections as follows: aggregation theory beyond the unit interval; formal concept analysis and uncertainty; fuzzy implication functions; fuzzy mathematical analysis and its applications; generalized sets and operators; information fusion techniques based on aggregation functions, pre-aggregation functions, and their generalizations; interval uncertainty; knowledge acquisition, representation and reasoning; logical structures of opposition and logical syllogisms; mathematical fuzzy logics; theoretical and applied aspects of imprecise probabilities; data science and machine learning; decision making modeling and applications; e-health; fuzzy methods in data mining and knowledge discovery; soft computing and artificial intelligence techniques in image processing; soft methods in statistics and data analysis; uncertainty, heterogeneity, reliability and explainability in AI; weak and cautious supervised learning.

Shows how Galileo, Newton, and Einstein tried to explain gravity. Discusses the concept of microgravity and NASA's research on gravity and microgravity.

The two-volume set LNAI 7301 and 7302 constitutes the refereed proceedings of the 16th Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD 2012, held in Kuala Lumpur, Malaysia, in May 2012. The total of 20 revised full papers and 66 revised short papers were carefully reviewed and selected from 241 submissions. The papers present new ideas, original research

results, and practical development experiences from all KDD-related areas. The papers are organized in topical sections on supervised learning: active, ensemble, rare-class and online; unsupervised learning: clustering, probabilistic modeling in the first volume and on pattern mining: networks, graphs, time-series and outlier detection, and data manipulation: pre-processing and dimension reduction in the second volume.

This book presents machine learning and type-2 fuzzy sets for the prediction of time-series with a particular focus on business forecasting applications. It also proposes new uncertainty management techniques in an economic time-series using type-2 fuzzy sets for prediction of the time-series at a given time point from its preceding value in fluctuating business environments. It employs machine learning to determine repetitively occurring similar structural patterns in the time-series and uses stochastic automaton to predict the most probabilistic structure at a given partition of the time-series. Such predictions help in determining probabilistic moves in a stock index time-series Primarily written for graduate students and researchers in computer science, the book is equally useful for researchers/professionals in business intelligence and stock index prediction. A background of undergraduate level mathematics is presumed, although not mandatory, for most of the sections. Exercises with tips are provided at the end of each chapter to the readers' ability and understanding of the topics covered.

Cluster analysis is an unsupervised process that divides a set of objects into homogeneous groups. This book starts with basic information on cluster analysis, including the classification of data and the corresponding similarity measures, followed by the presentation of over 50 clustering algorithms in groups according to some specific baseline methodologies such as hierarchical, center-based, and search-based methods. As a result, readers and users can easily identify an appropriate algorithm for their applications and compare novel ideas with existing results. The book also provides examples of clustering applications to illustrate the advantages and shortcomings of different clustering architectures and algorithms. Application areas include pattern recognition, artificial intelligence, information technology, image processing, biology, psychology, and marketing. Readers also learn how to perform cluster analysis with the C/C++ and MATLAB programming languages.

Many industry experts consider unsupervised learning the next frontier in artificial intelligence, one that may hold the key to general artificial intelligence. Since the majority of the world's data is unlabeled, conventional supervised learning cannot be applied. Unsupervised learning, on the other hand, can be applied to unlabeled datasets to discover meaningful patterns buried deep in the data, patterns that may be near impossible for humans to uncover. Author Ankur Patel shows you how to apply unsupervised learning using two simple, production-ready Python frameworks: Scikit-learn and TensorFlow using Keras. With code and hands-on examples, data scientists will identify difficult-to-find patterns in data and gain deeper business insight, detect anomalies, perform automatic feature engineering and selection, and generate synthetic datasets. All you need is programming and some machine learning experience to get started. Compare the strengths and weaknesses of the different machine learning approaches: supervised, unsupervised, and reinforcement learning Set up and manage machine learning projects end-to-end Build an anomaly detection system to catch credit card fraud Clusters users into distinct and homogeneous groups Perform semisupervised learning Develop movie recommender systems using restricted Boltzmann machines Generate synthetic images using generative adversarial networks

This book constitutes the refereed proceedings of the 16th Australasian Conference on Data Mining, AusDM 2018, held in Bathurst, NSW, Australia, in November 2018. The 27 revised full papers presented together with 3 short papers were carefully reviewed and selected from 80 submissions. The papers are organized in topical sections on classification task; transport, environment, and energy; applied data mining; privacy and clustering; statistics in data science; health, software and smartphone; image data mining; industry showcase.

This book constitutes the refereed proceedings of the 14th International Conference on Advanced Data Mining and Applications, ADMA 2018, held in Nanjing, China in November 2018. The 23 full and 22 short papers presented in this volume were carefully reviewed and selected from 104 submissions. The papers were organized in topical sections named: Data Mining Foundations; Big Data; Text and Multimedia Mining; Miscellaneous Topics.

Data clustering, also known as cluster analysis, is an unsupervised process that divides a set of objects into homogeneous groups. Since the publication of the first edition of this monograph in 2007, development in the area has exploded, especially in clustering algorithms for big data and open-source software for cluster analysis. This second edition reflects these new developments,

covers the basics of data clustering, includes a list of popular clustering algorithms, and provides program code that helps users implement clustering algorithms. Data Clustering: Theory, Algorithms and Applications, Second Edition will be of interest to researchers, practitioners, and data scientists as well as undergraduate and graduate students.

The Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) is a leading international conference in the area of data mining and knowledge discovery. It provides an international forum for researchers and industry practitioners to share their new ideas, original research results and practical development experiences from all KDD-related areas including data mining, data warehousing, machine learning, databases, statistics, knowledge acquisition and automatic scientific discovery, data visualization, causality induction, and knowledge-based systems. This year's conference (PAKDD 2005) was the ninth of the PAKDD series, and carried the tradition in providing high-quality technical programs to facilitate research in knowledge discovery and data mining. It was held in Hanoi, Vietnam at the Melia Hotel, 18-20 May 2005. We are pleased to provide some statistics about PAKDD 2005. This year we received 327 submissions (a 37% increase over PAKDD 2004), which is the highest number of submissions since the first PAKDD in 1997) from 28 countries/regions: Australia (33), Austria (1), Belgium (2), Canada (11), China (91), Switzerland (2), France (9), Finland (1), Germany (5), Hong Kong (11), Indonesia (1), India (2), Italy (2), Japan (21), Korea (51), Malaysia (1), Macau (1), New Zealand (3), Poland (4), Pakistan (1), Portugal (3), Singapore (12), Taiwan (19), Thailand (7), Tunisia (2), UK (5), USA (31), and Vietnam (9). The submitted papers went through a rigorous reviewing process. Each submission was reviewed by at least two reviewers, and most of them by three or four reviewers.

The three-volume set LNCS 6675, 6676 and 6677 constitutes the refereed proceedings of the 8th International Symposium on Neural Networks, ISNN 2011, held in Guilin, China, in May/June 2011. The total of 215 papers presented in all three volumes were carefully reviewed and selected from 651 submissions. The contributions are structured in topical sections on computational neuroscience and cognitive science; neurodynamics and complex systems; stability and convergence analysis; neural network models; supervised learning and unsupervised learning; kernel methods and support vector machines; mixture models and clustering; visual perception and pattern recognition; motion, tracking and object recognition; natural scene analysis and speech recognition; neuro-morphic hardware, fuzzy neural networks and robotics; multi-agent systems and adaptive dynamic programming; reinforcement learning and decision making; action and motor control; adaptive and hybrid intelligent systems; neuroinformatics and bioinformatics; information retrieval; data mining and knowledge discovery; and natural language processing.

This two-volume set of LNCS 11871 and 11872 constitutes the thoroughly refereed conference proceedings of the 20th International Conference on Intelligent Data Engineering and Automated Learning, IDEAL 2019, held in Manchester, UK, in November 2019. The 94 full papers presented were carefully reviewed and selected from 149 submissions. These papers provided a timely sample of the latest advances in data engineering and machine learning, from methodologies, frameworks, and algorithms to applications. The core themes of IDEAL 2019 include big data challenges, machine learning, data mining, information retrieval and management, bio-/neuro-informatics, bio-inspired models (including neural networks, evolutionary computation and swarm intelligence), agents and hybrid intelligent systems, real-world applications of intelligent techniques and AI.

This book constitutes the refereed proceedings of the Third European Conference on Principles and Practice of Knowledge Discovery in Databases, PKDD'99, held in Prague, Czech Republic in September 1999. The 28 revised full papers and 48 poster presentations were carefully reviewed and selected from 106 full papers submitted. The papers are organized in topical sections on time series, applications, taxonomies and partitions, logic methods, distributed and multirelational databases, text mining and feature selection, rules and induction, and interesting and unusual issues.

This compendium contains 10 chapters written by world renowned researchers with expertise in semantic computing, genome sequence analysis, biomolecular interaction, time-series microarray analysis, and machine learning algorithms. The salient feature of this book is that it highlights eight types of computational techniques to tackle different biomedical applications. These techniques include unsupervised learning algorithms, principal component analysis, fuzzy integral, graph-based ensemble clustering method, semantic analysis, interolog approach, molecular simulations and enzyme kinetics. The unique volume will be a useful reference material and an inspirational read for advanced undergraduate and graduate students, computer scientists, computational biologists, bioinformatics and biomedical professionals.