

Edge Weight Prediction In Weighted Signed Networks

The book, "Intelligent Computing - Proceedings of the 2022 Computing Conference", is a comprehensive collection of chapters focusing on the core areas of computing and their further applications in the real world. Each chapter is a paper presented at the Computing Conference 2022 held on July 14–15, 2022. Computing 2022 attracted a total of 498 submissions which underwent a double-blind peer-review process. Of those 498 submissions, 179 submissions have been selected to be included in this book. The goal of this conference is to give a platform to researchers with fundamental contributions and to be a premier venue for academic and industry practitioners to share new ideas and development experiences. We hope that readers find this book interesting and valuable as it provides the state-of-the-art intelligent methods and techniques for solving real-world problems. We also expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject.

The 30-volume set, comprising the LNCS books 12346 until 12375, constitutes the refereed proceedings of the 16th European Conference on Computer Vision, ECCV 2020, which was planned to be held in Glasgow, UK, during August 23-28, 2020. The conference was held virtually due to the COVID-19 pandemic. The 1360 revised papers presented in these proceedings were carefully reviewed and selected from a total of 5025 submissions. The papers deal with topics such as computer vision; machine learning; deep neural networks; reinforcement learning; object recognition; image classification; image processing; object detection; semantic segmentation; human pose estimation; 3d reconstruction; stereo vision; computational photography; neural networks; image coding; image reconstruction; object recognition; motion estimation.

This book (CCIS 837) constitutes the refereed proceedings of the Second International Conference on Soft Computing Systems, ICSCS 2018, held in Sasthamcotta, India, in April 2018. The 87 full papers were carefully reviewed and selected from 439 submissions. The papers are organized in topical sections on soft computing, evolutionary algorithms, image processing, deep learning, artificial intelligence, big data analytics, data mining, machine learning, VLSI, cloud computing, network communication, power electronics, green energy.

This book aims to bring together researchers and practitioners from diverse disciplines—from sociology, biology, physics, and computer science—who share a passion to better understand the interdependencies within and across systems. This volume

contains contributions presented at the 11th International Conference on Complex Networks (CompleNet) in Exeter, United Kingdom, 31 March - 3 April 2020. CompleNet is a venue for discussing ideas and findings about all types of networks, from biological, to technological, to informational and social. It is this interdisciplinary nature of complex networks that CompleNet aims to explore and celebrate.

**European Conference, ECML PKDD 2019, Würzburg, Germany, September 16-20, 2019, Proceedings, Part I
BIOKDD, IWCFS, MLKgraphs, AI-CARES, ProTime, AISys 2021, Virtual Event, September 27–30, 2021, Proceedings**

15th International Work-Conference on Artificial Neural Networks, IWANN 2019, Gran Canaria, Spain, June 12-14, 2019, Proceedings, Part II

**Results of the First KES International Symposium IDT'09
New Advances in Intelligent Decision Technologies**

Proceedings of the 2022 Computing Conference, Volume 2

15th IFIP WG 12.5 International Conference, AIAI 2019, Hersonissos, Crete, Greece, May 24–26, 2019, Proceedings

The Practitioner's Guide to Graph Data

This two volume set (CCIS 1451 and 1452) constitutes the refereed proceedings of the 7th International Conference of Pioneering Computer Scientists, Engineers and Educators, ICPCSEE 2021 held in Taiyuan, China, in September 2021. The 81 papers presented in these two volumes were carefully reviewed and selected from 256 submissions. The papers are organized in topic sections on big data management and applications; social media and recommendation systems; infrastructure for data science; basic theory and techniques for data science; machine learning in data science; multimedia data management and analysis; social media and recommendation systems; data security and privacy; applications of data science; education research, methods and materials for data science and engineering; research demo.

Cyber-physical systems are the next step in realizing the centuries old ubiquitous computing by focusing on open real-time systems design and device connectivity. Mobile ad hoc networks offer the flexible, local connectivity that cyber-physical systems require, if the connectivity can be realized dependably. One aspect of the dependability is the prediction of connectivity in the mobile ad hoc network. The presented research contributes to the connectivity prediction in mobile ad hoc networks with moving network participants in two ways: It systematically analyses the influence of scenario parameters on a set of connectivity metrics and it proposes and evaluates three classes of prediction models for these metrics.

The 7 papers presented in this book are revised and significantly extended versions of papers submitted to three related workshops: 6th International Workshop on Mining Ubiquitous and Social Environments, MUSE 2015, held in Porto, Portugal, September 2015, in conjunction with the 6th European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, ECML-PKDD 2015; 6th International Workshop on Modeling Social Media, MSM 2015, held in Florence, Italy, May 2015, in conjunction with the 24th International World Wide Web Conference, WWW 2015; 7th International Workshop on Modeling Social Media, MSM 2016, Montreal, QC, Canada, April 2016, in conjunction with the 25th International World Wide Web Conference, WWW 2016.

This book constitutes the refereed proceedings of the 22nd International Conference on Principles and Practice of Multi-Agent Systems, PRIMA 2019, held in Turin, Italy, in October 2019. The 2

full papers presented and 25 short papers were carefully reviewed and selected from 112 submissions. The papers presented at the PRIMA 2019 conference focus on the following topics: Logic and Reasoning, Engineering Multi-Agent Systems, Agent-Based Modeling and Simulation, Collaboration and Coordination, Economic Paradigms, Human-Agent Interaction, Decentralized Paradigms, and Application Domains for Multi-Agent Systems.

17th International Conference, WISA 2020, Guangzhou, China, September 23–25, 2020, Proceedings

Complex Networks XI

Pattern Recognition and Machine Intelligence

25th International Conference, Held as Part of the Services Conference Federation, SCF 2018, Seattle, WA, USA, June 25-30, 2018, Proceedings

6th International Workshop on Mining Ubiquitous and Social Environments, MUSE 2015, Porto Portugal, September 7, 2015; 6th International Workshop on Modeling Social Media, MSM 2015, Florence, Italy, May 19, 2015; 7th International Workshop on Modeling Social Media, MSM 2016, Montreal, QC, Canada, April 12, 2016; Revised Selected Papers

Knowledge Science, Engineering and Management

28th International Conference on Artificial Neural Networks, Munich, Germany, September 17–19, 2019, Proceedings

Deep Learning models are at the core of artificial intelligence research today. It is well known that deep learning techniques are disruptive for Euclidean data, such as images or sequence data, and not immediately applicable to graph-structured data such as text. This gap has driven a wave of research for deep learning on graphs, including graph representation learning, graph generation, and graph classification. The new neural network architectures on graph-structured data (graph neural networks, GNNs in short) have performed remarkably on these tasks, demonstrated by applications in social networks, bioinformatics, and medical informatics. Despite these successes, GNNs still face many challenges ranging from the foundational methodologies to the theoretical understandings of the power of the graph representation learning. This book provides a comprehensive introduction of GNNs. It first discusses the goals of graph representation learning and then reviews the history, current developments, and future directions of GNNs. The second part presents and reviews fundamental methods and theories concerning GNNs while the third part describes various frontiers that are built on the GNNs. The book concludes with an overview of recent developments in a number of applications using GNNs. This book is suitable for a wide audience including undergraduate and graduate students, postdoctoral researchers, professors and lecturers, as well as industrial and government practitioners who are new to this area or who already have some basic background but want to learn more about advanced and promising techniques and applications.

The proceedings set LNCS 11727, 11728, 11729, 11730, and 11731 constitute the proceedings of the 28th International Conference on Artificial Neural Networks, ICANN 2019, held in Munich, Germany, in September 2019. The total of 277 full papers and 43 short papers presented in these proceedings was carefully reviewed and selected from 494 submissions. They were organized in 5 volumes focusing on theoretical neural

computation; deep learning; image processing; text and time series; and workshop and special sessions.

This book constitutes revised and selected papers from the 6th International Symposium on Security and Privacy in Social Networks and Big Data, SocialSec 2020, held in Tianjin, China, in September 2020. The 38 full papers presented in this volume were carefully reviewed and selected from a total of 111 submissions. The papers are organized according to the topical sections on big data security; social networks; privacy-preserving and security.

This book constitutes the refereed proceedings of the 5th International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction, held in College Park, MD, USA, in April 2012. The 43 revised papers presented in this volume were carefully reviewed and selected from 76 submissions. The papers cover a wide range of topics including economics, public health, and terrorist activities, as well as utilize a broad variety of methodologies, e.g., machine learning, cultural modeling and cognitive modeling.

Security and Privacy in Social Networks and Big Data

Behavioral Analytics in Social and Ubiquitous Environments

Predicting Transcription Factor Complexes

Medical Image Computing and Computer-Assisted Intervention - MICCAI 2016

19th International Conference, Athens, Greece, October 17-21, 2016, Proceedings, Part I

Volume 1, Proceedings of the Tenth International Conference on Complex Networks and Their Applications COMPLEX NETWORKS 2021

7th International Conference of Pioneering Computer Scientists, Engineers and Educators, ICPCSEE 2021, Taiyuan, China, September 17-20, 2021, Proceedings, Part I

8th International Conference, PReMI 2019, Tezpur, India, December 17-20, 2019, Proceedings, Part I

With the advent of digital computers more than half a century ago, - searchers working in a wide range of scienti?c disciplines have obtained an extremely powerful tool to pursue deep understanding of natural processes in physical, chemical, and biological systems. Computers pose a great ch- lenge to mathematical sciences, as the range of phenomena available for rigorous mathematical analysis has been enormously expanded, demanding the development of a new generation of mathematical tools. There is an explosive growth of new mathematical disciplines to satisfy this demand, in particular related to discrete mathematics. However, it can be argued that at large mathematics is yet to provide the essential breakthrough to meet the challenge. The required paradigm shift in our view should be compa- ble to the shift in scienti?c thinking provided by the Newtonian revolution over 300 years ago. Studies of large-scale random graphs and networks are critical for the progress, using methods of discrete mathematics, probabil- tic combinatorics, graph theory, and statistical physics. Recent advances in large scale random network studies are described in this handbook, which provides a signi?cant update and

extension - yond the materials presented in the “Handbook of Graphs and Networks” published in 2003 by Wiley. The present volume puts special emphasis on large-scale networks and random processes, which deemed as crucial for - ture progress in the?eld. The issues related to random graphs and networks pose very di?cult mathematical questions.

This book constitutes the refereed proceedings of the 15th IFIP WG 12.5 International Conference on Artificial Intelligence Applications and Innovations, AIAI 2019, held in Hersonissos, Crete, Greece, in May 2019. The 49 full papers and 6 short papers presented were carefully reviewed and selected from 101 submissions. They cover a broad range of topics such as deep learning ANN; genetic algorithms - optimization; constraints modeling; ANN training algorithms; social media intelligent modeling; text mining/machine translation; fuzzy modeling; biomedical and bioinformatics algorithms and systems; feature selection; emotion recognition; hybrid Intelligent models; classification - pattern recognition; intelligent security modeling; complex stochastic games; unsupervised machine learning; ANN in industry; intelligent clustering; convolutional and recurrent ANN; recommender systems; intelligent telecommunications modeling; and intelligent hybrid systems using Internet of Things. The papers are organized in the following topical sections: AI anomaly detection - active learning; autonomous vehicles - aerial vehicles; biomedical AI; classification - clustering; constraint programming - brain inspired modeling; deep learning - convolutional ANN; fuzzy modeling; learning automata - logic based reasoning; machine learning - natural language; multi agent - IoT; nature inspired flight and robot; control - machine vision; and recommendation systems.

This volume constitutes the proceedings of the 16th International Conference on Web Services, ICWS 2018, held as Part of SCF 2018 in Seattle, WA, USA in June 2018. The 31 full papers together with 1 short paper published in this volume were carefully reviewed and selected from 116 submissions. They are organized in topical sections such as Web Services, RESTful web services, Web Services Description Language, Universal Description Discovery and Integration, Service discovery and interfaces, Domain-specific security and privacy architectures, Location bases services, Sercurity Services and Markup languages.

This volume constitutes the proceedings of the 8th International Work-Conference on IWBBIO 2020, held in Granada, Spain, in May 2020. The total of 73 papers presented in the proceedings, was carefully reviewed and selected from 241 submissions. The papers are organized in topical sections as follows: Biomarker Identification; Biomedical Engineering; Biomedical Signal Analysis; Bio-Nanotechnology; Computational Approaches for Drug Design and Personalized Medicine; Computational Proteomics and Protein-Protein Interactions; Data Mining from UV/VIS/NIR Imaging and Spectrophotometry; E-Health Technology, Services and Applications; Evolving Towards Digital Twins in Healthcare (EDITH); High Performance in Bioinformatics; High-Throughput Genomics: Bioinformatic Tools and Medical Applications; Machine Learning in Bioinformatics; Medical Image Processing; Simulation and Visualization of Biological Systems.

Proceedings of the 11th Conference on Complex Networks CompleNet 2020
8th International Work-Conference, IWBBIO 2020, Granada, Spain, May 6-8, 2020, Proceedings

Computer Security - ESORICS 2020

6th International Workshop, DILS 2009, Manchester, UK, July 20-22, 2009, Proceedings

Advanced Data Mining and Applications

Second International Conference, ICSCS 2018, Kollam, India, April 19-20, 2018,

Revised Selected Papers

Connectivity Prediction in Mobile Ad Hoc Networks for Real-Time Control

15th International Conference, ADMA 2019, Dalian, China, November 21-23, 2019,

Proceedings

The three-volume set LNCS 9900, 9901, and 9902 constitutes the refereed proceedings of the 19th International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2016, held in Athens, Greece, in October 2016. Based on rigorous reviews, the program committee carefully selected 228 revised regular papers from 750 submissions for presentation in three volumes. The papers have been organized in the following topical sections: Part I: brain analysis; brain analysis - connectivity; brain analysis - computer-aided diagnosis; morphology; Alzheimer disease; surgical guidance and tracking; computer aided intervention; ultrasound image analysis; cancer image analysis; Part II: machine learning and feature selection; deep learning in medical imaging; applications of machine learning; segmentation; cell image analysis; Part III: registration and deformation estimation; shape modeling; cardiac and vascular image analysis; image reconstruction; and MR image analysis.

Data integration in the life sciences continues to be important but challenging. The ongoing development of new experimental methods gives rise to an increasingly wide range of data, which in turn must be combined to allow more integrative views of biological systems. The growing prominence of systems biology, where mathematical models characterize and predict the behavior of biological systems, emphasizes the importance of data integration in the life sciences. In this context, the representation of models of biological behavior as data gives rise to challenges relating to provenance, data quality, annotation, etc., all of which are associated with significant research activities within computer science. The Data Integration in the Life Sciences (DILS) Workshop Series brings together data and knowledge management researchers from the computer science research community with bioinformaticians and computational biologists, to improve the understanding of how emerging data integration techniques can address requirements identified in the life sciences.

IDT (Intelligent Decision Technologies) seeks an interchange of research on intelligent systems and intelligent technologies which enhance or improve decision making in industry, government, and academia. The focus is interdisciplinary in nature, and includes research on all aspects of intelligent decision technologies, from fundamental development to the applied systems. It is a great honor and pleasure for us to publish the works and new research of the scholars from the First KES International Symposium on Intelligent Decision Technologies (KES IDT'09), hosted and organized by University of Hyogo in conjunction with KES International (Himeji, Japan, April, 2009). The symposium was concerned with theory, development, implementation, testing and evaluation of intelligent decision systems. Its topics included intelligent agents, fuzzy logic, multi-agent systems, artificial neural networks, genetic algorithms, expert systems, intelligent decision making support systems, information retrieval systems, geographic information systems, and knowledge management systems. These intelligent technologies have the potential to support decision making in many areas of management, international business, finance, accounting, marketing, healthcare, military applications, production, networks, traffic management, crisis response, and human interfaces.

Pattern Recognition and Machine Intelligence 8th International Conference, PReMI 2019, Tezpur, India, December 17-20, 2019, Proceedings, Part I Springer Nature

PRIMA 2019: Principles and Practice of Multi-Agent Systems

Applying Graph Thinking and Graph Technologies to Solve Complex Problems
Web Services - ICWS 2018

25th European Symposium on Research in Computer Security, ESORICS 2020, Guildford
September 14-18, 2020, Proceedings, Part II

14th International Conference, KSEM 2021, Tokyo, Japan, August 14-16, 2021, Proceedings
Part I

Graph Neural Networks: Foundations, Frontiers, and Applications

22nd International Conference, Turin, Italy, October 28-31, 2019, Proceedings

6th International Symposium, SocialSec 2020, Tianjin, China, September 26-27, 2020,
Proceedings

The two volume set, LNCS 12308 + 12309, constitutes the proceedings of the 25th European Symposium on Research in Computer Security, ESORICS 2020, which was held in September 2020. The conference was planned to take place in Guildford, UK. Due to the COVID-19 pandemic, the conference changed to an online format. The total of 72 full papers included in these proceedings was carefully reviewed and selected from 366 submissions. The papers were organized in topical sections named: database and Web security; system security; network security; software security; machine learning security; privacy; formal modelling; applied cryptography; analyzing attacks; post-quantum cryptography; security analysis; and blockchain.

Graph data closes the gap between the way humans and computers view the world. While computers rely on static rows and columns of data, people navigate and reason about life through relationships. This practical guide demonstrates how graph data brings these two approaches together. By working with concepts from graph theory, database schema, distributed systems, and data analysis, you'll arrive at a unique intersection known as graph thinking. Authors Denise Koessler Gosnell and Matthias Broecheler show data engineers, data scientists, and data analysts how to solve complex problems with graph databases. You'll explore templates for building with graph technology, along with examples that demonstrate how teams think about graph data within an application. Build an example application architecture with relational and graph technologies Use graph technology to build a Customer 360 application, the most popular graph data pattern today Dive into hierarchical data and troubleshoot a new paradigm that comes from working with graph data Find paths in graph data and learn why your trust in different paths motivates and informs your preferences Use collaborative filtering to design a Netflix-inspired recommendation system

This volume constitutes the refereed proceedings of the workshops held at the 32nd International Conference on Database and Expert Systems Applications, DEXA 2021, held in a virtual

format in September 2021: The 12th International Workshop on Biological Knowledge Discovery from Data (BIOKDD 2021), the 5th International Workshop on Cyber-Security and Functional Safety in Cyber-Physical Systems (IWCFSS 2021), the 3rd International Workshop on Machine Learning and Knowledge Graphs (MLKgraphs 2021), the 1st International Workshop on Artificial Intelligence for Clean, Affordable and Reliable Energy Supply (AI-CARES 2021), the 1st International Workshop on Time Ordered Data (ProTime2021), and the 1st International Workshop on AI System Engineering: Math, Modelling and Software (AISys2021). Due to the COVID-19 pandemic the conference and workshops were held virtually. The 23 papers were thoroughly reviewed and selected from 50 submissions, and discuss a range of topics including: knowledge discovery, biological data, cyber security, cyber-physical system, machine learning, knowledge graphs, information retriever, data base, and artificial intelligence.

Complexes of physically interacting proteins constitute fundamental functional units that drive almost all biological processes within cells. A faithful reconstruction of the entire set of protein complexes (the "complexosome") is therefore important not only to understand the composition of complexes but also the higher level functional organization within cells. Advances over the last several years, particularly through the use of high-throughput proteomics techniques, have made it possible to map substantial fractions of protein interactions (the "interactomes") from model organisms including *Arabidopsis thaliana* (a flowering plant), *Caenorhabditis elegans* (a nematode), *Drosophila melanogaster* (fruit fly), and *Saccharomyces cerevisiae* (budding yeast). These interaction datasets have enabled systematic inquiry into the identification and study of protein complexes from organisms. Computational methods have played a significant role in this context, by contributing accurate, efficient, and exhaustive ways to analyze the enormous amounts of data. These methods have helped to compensate for some of the limitations in experimental datasets including the presence of biological and technical noise and the relative paucity of credible interactions. In this book, we systematically walk through computational methods devised to date (approximately between 2000 and 2016) for identifying protein complexes from the network of protein interactions (the protein-protein interaction (PPI) network). We present a detailed taxonomy of these methods, and comprehensively evaluate them for protein complex identification across a variety of scenarios including the absence of many true interactions and the presence of false-positive interactions (noise) in PPI networks. Based on this evaluation, we highlight challenges

faced by the methods, for instance in identifying sparse, sub-, or small complexes and in discerning overlapping complexes, and reveal how a combination of strategies is necessary to accurately reconstruct the entire complexosome.

19th International Conference, Faro, Portugal, June 12–14, 2019, Proceedings, Part III

16th European Conference, Glasgow, UK, August 23–28, 2020, Proceedings, Part VI

Web and Big Data

Network Resilience and Robustness: Theory and Applications

Advances in Computational Intelligence

Handbook of Large-Scale Random Networks

Artificial Intelligence Applications and Innovations

Data Integration in the Life Sciences

The three-volume set LNCS 13245, 13246 and 13247 constitutes the proceedings of the 26th International Conference on Database Systems for Advanced Applications, DASFAA 2022, held online, in April 2021. The total of 72 full papers, along with 76 short papers, are presented in this three-volume set was carefully reviewed and selected from 543 submissions. Additionally, 13 industrial papers, 9 demo papers and 2 PhD consortium papers are included. The conference was planned to take place in Hyderabad, India, but it was held virtually due to the COVID-19 pandemic.

An intuitive and accessible text explaining the fundamentals and applications of graph signal processing. Requiring only an elementary understanding of linear algebra, it covers both basic and advanced topics, including node domain processing, graph signal frequency, sampling, and graph signal representations, as well as how to choose a graph. Understand the basic insights behind key concepts and learn how graphs can be associated to a range of specific applications across physical, biological and social networks, distributed sensor networks, image and video processing, and machine learning. With numerous exercises and Matlab examples to help put knowledge into practice, and a solutions manual available online for instructors, this unique text is essential reading for graduate and senior undergraduate students taking courses on graph signal processing, signal processing, information processing, and data analysis, as well as researchers and industry professionals.

This book begins by briefly explaining learning automata (LA) models and a recently developed cellular learning automaton (CLA) named wavefront CLA. Analyzing social networks is increasingly important, so as to identify behavioral patterns in interactions among individuals and in the networks' evolution, and to develop the algorithms required for meaningful analysis. As an emerging artificial intelligence research area, learning automata (LA) has already had a significant impact in many areas of social networks. Here, the research areas related to learning and social networks are addressed from bibliometric and network analysis perspectives. In turn, the second part of the book highlights a range of LA-based applications addressing social network problems, from network sampling, community detection, link prediction, and trust management, to recommender systems and finally influence maximization. Given its scope, the book offers a valuable guide for all researchers whose work involves reinforcement learning, social networks and/or artificial intelligence.

This two-volume set, LNCS 10987 and 10988, constitutes the thoroughly refereed proceedings of the Second International Joint Conference, APWeb-WAIM 2018, held in Macau, China in July 2018. The 40 full papers presented together with 30 short papers, 6 demonstration papers and 3 keynotes were carefully reviewed and selected from 168 submissions. The papers are organized around the following topics: Text Analysis, Social Networks, Recommender Systems, Information Retrieval, Machine Learning, Knowledge Graphs, Database and Web Applications, Data Streams, Data Mining and Application, Query Processing, Big Data and Blockchain.

Artificial Neural Networks and Machine Learning – ICANN 2019: Workshop and Special Sessions

Soft Computing Systems

Social Computing, Behavioral-Cultural Modeling and Prediction

Introduction to Graph Signal Processing

Database Systems for Advanced Applications

Computational Science – ICCS 2019

The International Conference on Advanced Machine Learning Technologies and Applications (AMLTA2019)

Learning Automata Approach for Social Networks

In his master thesis Thorsten Will proposes the substantial information content of protein complexes involving transcription factors in the context of gene regulatory networks, designs the first computational approaches to predict such complexes as well as their regulatory function and verifies the practicability using data of the well-studied yeast *S.cerevisiae*. The novel insights offer extensive capabilities towards a better understanding of the combinatorial control driving transcriptional regulation.

This book constitutes the proceedings of the 17th International Conference on Web Information Systems and Applications, WISA 2020, held in Guangzhou, China, in September 2020. The 42 full papers and 16 short papers presented were carefully reviewed and selected from 165 submissions. The papers are grouped in topical sections on world wide web, recommendation, query processing and algorithm, natural language processing, machine learning, graph query, edge computing and data mining, data privacy and security, and blockchain.

This book constitutes the proceedings of the 15th International Conference on Advanced Data Mining and Applications, ADMA 2019, held in Dalian, China in November 2019. The 39 full papers presented together with 26 short papers and 2 demo papers were carefully reviewed and selected from 170 submissions. The papers were organized in topical sections named: Data Mining Foundations; Classification and Clustering Methods; Recommender Systems; Social Network and Social Media; Behavior Modeling and User Profiling; Text and Multimedia Mining; Spatial-Temporal Data; Medical and Healthcare Data/Decision Analytics; and Other Applications.

The five-volume set LNCS 11536, 11537, 11538, 11539 and 11540 constitutes the proceedings of the 19th International Conference on Computational Science, ICCS 2019, held in Faro, Portugal, in June 2019. The total of 65 full papers and 168

workshop papers presented in this book set were carefully reviewed and selected from 573 submissions (228 submissions to the main track and 345 submissions to the workshops). The papers were organized in topical sections named: Part I: ICCS Main Track Part II: ICCS Main Track; Track of Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Track of Agent-Based Simulations, Adaptive Algorithms and Solvers; Track of Applications of Matrix Methods in Artificial Intelligence and Machine Learning; Track of Architecture, Languages, Compilation and Hardware Support for Emerging and Heterogeneous Systems Part III: Track of Biomedical and Bioinformatics Challenges for Computer Science; Track of Classifier Learning from Difficult Data; Track of Computational Finance and Business Intelligence; Track of Computational Optimization, Modelling and Simulation; Track of Computational Science in IoT and Smart Systems Part IV: Track of Data-Driven Computational Sciences; Track of Machine Learning and Data Assimilation for Dynamical Systems; Track of Marine Computing in the Interconnected World for the Benefit of the Society; Track of Multiscale Modelling and Simulation; Track of Simulations of Flow and Transport: Modeling, Algorithms and Computation Part V: Track of Smart Systems: Computer Vision, Sensor Networks and Machine Learning; Track of Solving Problems with Uncertainties; Track of Teaching Computational Science; Poster Track ICCS 2019 Chapter “Comparing Domain-decomposition Methods for the Parallelization of Distributed Land Surface Models” is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Integer Linear Programming in Computational and Systems Biology

Intelligent Computing

An Entry-Level Text and Course

Data Science

A Novel Approach to Data Integration in Systems Biology

27th International Conference, DASFAA 2022, Virtual Event, April 11–14, 2022,

Proceedings, Part I

Socioinformatics - The Social Impact of Interactions between Humans and IT

Complex Networks & Their Applications X

This book presents the peer-reviewed proceedings of the 4th International Conference on Advanced Machine Learning Technologies and Applications (AMLTA 2019), held in Cairo, Egypt, on March 28–30, 2019, and organized by the Scientific Research Group in Egypt (SRGE). The papers cover the latest research on machine learning, deep learning, biomedical engineering, control and chaotic systems, text mining, summarization and language identification, machine learning in image processing, renewable energy, cyber security, and intelligence swarms and optimization.

The two-volume set of LNCS 11941 and 11942 constitutes the refereed proceedings of the 8th International Conference on Pattern Recognition and Machine Intelligence, PRMI 2019, held in Tezpur, India, in December 2019. The 131 revised full papers presented were carefully

reviewed and selected from 341 submissions. They are organized in topical sections named: Pattern Recognition; Machine Learning; Deep Learning; Soft and Evolutionary Computing; Image Processing; Medical Image Processing; Bioinformatics and Biomedical Signal Processing; Information Retrieval; Remote Sensing; Signal and Video Processing; and Smart and Intelligent Sensors.

Socioinformatics is a new scientific approach to study the interactions between humans and IT. These proceedings are a collection of the contributions during a workshop of the Gesellschaft für Informatik (GI). Researchers in this emerging field discuss the main aspects of interactions between IT and humans with respect to; social connections, social changes, acceptance of IT and the social conditions affecting this acceptance, effects of IT on humans and in response changes of IT, structures of the society and the influence of IT on these structures, changes of metaphysics influenced by IT and the social context of a knowledge society.

Chapter "Heavy-tailed Kernels Reveal a Finer Cluster Structure in t-SNE Visualisations" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Database and Expert Systems Applications - DEXA 2021 Workshops
Computational Prediction of Protein Complexes from Protein Interaction Networks

Bioinformatics and Biomedical Engineering

Web Information Systems and Applications

Second International Joint Conference, APWeb-WAIM 2018, Macau, China, July 23-25, 2018, Proceedings, Part I

Computer Vision - ECCV 2020

5th International Conference, SBP 2012, College Park, MD, USA, April 3-5, 2012, Proceedings

Machine Learning and Knowledge Discovery in Databases

This three-volume set constitutes the refereed proceedings of the 14th International Conference on Knowledge Science, Engineering and Management, KSEM 2021, held in Tokyo, Japan, in August 2021. The 164 revised full papers were carefully reviewed and selected from 492 submissions. The contributions are organized in the following topical sections: knowledge science with learning and AI; knowledge engineering research and applications; knowledge management with optimization and security.

Integer linear programming (ILP) is a versatile modeling and optimization technique that is increasingly used in non-traditional ways in biology, with the potential to transform biological computation. However, few biologists know about it. This how-to and why-do text introduces ILP through the lens of computational and systems biology. It uses in-depth examples from genomics, phylogenetics, RNA, protein folding, network analysis, cancer, ecology, co-evolution, DNA sequencing, sequence analysis, pedigree and sibling inference, haplotyping, and more, to establish the power of ILP. This book aims to teach the logic of modeling and solving problems with ILP, and to teach the practical 'work flow' involved in using ILP in biology. Written for a wide audience, with no biological or computational prerequisites, this book is appropriate for entry-level and advanced courses aimed at biological and computational students, and as a source for specialists. Numerous

exercises and accompanying software (in Python and Perl) demonstrate the concepts. This two-volume set LNCS 10305 and LNCS 10306 constitutes the refereed proceedings of the 15th International Work-Conference on Artificial Neural Networks, IWANN 2019, held at Gran Canaria, Spain, in June 2019. The 150 revised full papers presented in this two-volume set were carefully reviewed and selected from 210 submissions. The papers are organized in topical sections on machine learning in weather observation and forecasting; computational intelligence methods for time series; human activity recognition; new and future tendencies in brain-computer interface systems; random-weights neural networks; pattern recognition; deep learning and natural language processing; software testing and intelligent systems; data-driven intelligent transportation systems; deep learning models in healthcare and biomedicine; deep learning beyond convolution; artificial neural network for biomedical image processing; machine learning in vision and robotics; system identification, process control, and manufacturing; image and signal processing; soft computing; mathematics for neural networks; internet modeling, communication and networking; expert systems; evolutionary and genetic algorithms; advances in computational intelligence; computational biology and bioinformatics.