Community Detection In Dynamic Social Networks A Game

This book presents selected papers from the 3rd International Conference on Micro-Electronics and Telecommunication Engineering, held at SRM Institute of Science and Technology, Ghaziabad, India, on 30-31 August 2019. It covers a wide variety of topics in micro-electronics and telecommunication engineering, including micro-electronic engineering, computational remote sensing, computer science and intelligent systems, signal and image processing, and information and communication technology.

This book constitutes the refereed proceedings of the 14th CCF Conference on Computer Supported Cooperative Work and Social Computing, ChineseCSCW 2019, held in Kunming, China, in August 2019. The 52 revised full papers and 10 short papers were carefully reviewed and selected from 169 submissions. The papers of this volume are organized in topical sections on: collaborative models, approaches, algorithms, and systems; social computing (online communities, crowdsourcing, recommendation, sentiment analysis, etc.); AI for CSCW and social computing.

This book is devoted to recent progress in social network analysis with a high focus on community detection and evolution. The eleven chapters cover the identification of cohesive groups, core components and key players either in static or dynamic networks of different kinds and levels of heterogeneity. Other important topics in social network analysis such as influential detection and maximization, information propagation, user behavior analysis, as well as network modeling and visualization are also presented. Many studies are validated through real social networks such as Twitter. This edited work will appeal to researchers, practitioners and students interested in the latest developments of social network analysis.

This volume provides the audience with an updated, in-depth and highly coherent material on the conceptually appealing and practically sound information technology of Computational Intelligence applied to the analysis, synthesis and evaluation of social networks. The volume involves studies devoted to key issues of social networks including community structure detection in networks, online social networks, knowledge growth and evaluation, and diversity of collaboration mechanisms. The book engages a wealth of methods of Computational Intelligence along with well-known techniques of linear programming, Formal Concept Analysis, machine learning, and agent modeling. Human-

centricity is of paramount relevance and this facet manifests in many ways including personalized semantics, trust metric, and personal knowledge management; just to highlight a few of these aspects. The contributors to this volume report on various essential applications including cyber attacks detection, building enterprise social networks, business intelligence and forming collaboration schemes. Given the subject area, this book is aimed at a broad audience of researchers and practitioners. Owing to the nature of the material being covered and a way it is organized, the volume will appeal to the well-established communities including those active in various disciplines in which social networks, their analysis and optimization are of genuine relevance. Those involved in operations research, management, various branches of engineering, and economics will benefit from the exposure to the subject matter.

Social Media and Journalism
Proceedings of the International Conference on Computing and Communication Systems
Business Information Systems
Proceedings of ICRIC 2020
Web-Age Information Management
Recent Innovations in Computing
Mobile, Ubiquitous, and Intelligent Computing

This book features selected papers presented at the 3rd International Conference on Recent Innovations in Computing (ICRIC 2020), held on 20–21 March 2020 at the Central University of Jammu, India, and organized by the university's Department of Computer Science & Information Technology. It includes the latest research in the areas of software engineering, cloud computing, computer networks and Internet technologies, artificial intelligence, information security, database and distributed computing, and digital India.

This book focuses on the theoretical side of temporal network research and gives an overview of the state of the art in the field. Curated by two pioneers in the field who have helped to shape it, the book contains contributions from many leading researchers. Temporal networks fill the border area between network science and time-series analysis and are relevant for the modeling of epidemics, optimization of transportation and logistics, as well as understanding biological phenomena. Network theory has proven, over the past 20 years to be one of the most powerful tools for the study and analysis of complex systems. Temporal network theory is perhaps the most recent significant development in the field in recent years, with direct applications to many of the "big data" sets. This monograph will appeal to students, researchers and professionals alike interested in theory and temporal networks, a field that has grown tremendously over the last decade.

This book constitutes the proceedings of the 33rd International Conference on Advanced Information Systems Engineering, CAiSE 2021, which was held online during June 28-July 2, 2021. The conference was planned to take place in Melbourne, Australia, and changed to an online format due to the COVID-19 pandemic. The papers

included in these proceedings focus on intelligent information systems and deal with novel approaches to IS engineering; models, methods and techniques in IS engineering; architectures and platforms for IS engineering; and domain specific and multi-aspect in IS engineering.

The past decade has witnessed the emergence of participatory Web and social media, bringing people together in many creative ways. Millions of users are playing, tagging, working, and socializing online, demonstrating new forms of collaboration, communication, and intelligence that were hardly imaginable just a short time ago. Social media also helps reshape business models, sway opinions and emotions, and opens up numerous possibilities to study human interaction and collective behavior in an unparalleled scale. This lecture, from a data mining perspective, introduces characteristics of social media, reviews representative tasks of computing with social media, and illustrates associated challenges. It introduces basic concepts, presents state-of-the-art algorithms with easy-to-understand examples, and recommends effective evaluation methods. In particular, we discuss graph-based community detection techniques and many important extensions that handle dynamic, heterogeneous networks in social media. We also demonstrate how discovered patterns of communities can be used for social media mining. The concepts, algorithms, and methods presented in this lecture can help harness the power of social media and support building socially-intelligent systems. This book is an accessible introduction to the study of \emph{community detection and mining in social media}. It is an essential reading for students, researchers, and practitioners in disciplines and applications where social media is a key source of data that piques our curiosity to understand, manage, innovate, and excel. This book is supported by additional materials, including lecture slides, the complete set of figures, key references, some toy data sets used in the book, and the source code of representative algorithms. The readers are encouraged to visit the book website for the latest information. Table of Contents: Social Media and Social Computing / Nodes, Ties, and Influence / Community Detection and Evaluation / Communities in Heterogeneous Networks / Social Media Mining

18th Pacific-Asia Conference, PAKDD 2014, Tainan, Taiwan, May 13-16, 2014. Proceedings, Part I

13th International Conference, BIC-TA 2018, Beijing, China, November 2– 4, 2018, Proceedings, Part II

Proceedings of the 11th ICACCT 2018

I3CS 2020, NEHU, Shillong, India

Proceedings of 3rd ICMETE 2019

Advanced Computing and Communication Technologies

International Workshops of ECML PKDD 2019, Wü rzburg, Germany, September 16– 20, 2019, Proceedings, Part I

This book focuses on novel and state-of-the-art scientific work in the area of detection and prediction techniques using information found generally in graphs and particularly in social networks. Community detection techniques are presented in diverse contexts and for different applications while prediction methods for structured and unstructured data are applied to a variety of fields such as financial systems, security forums, and social networks. The rest of the book focuses on graph-based techniques for data analysis such

as graph clustering and edge sampling. The research presented in this volume was selected based on solid reviews from the IEEE/ACM International Conference on Advances in Social Networks, Analysis, and Mining (ASONAM '17). Chapters were then improved and extended substantially, and the final versions were rigorously reviewed and revised to meet the series standards. This book will appeal to practitioners, researchers and students in the field.

This two-volume set constitutes the refereed proceedings of the workshops which complemented the 19th Joint European Conference on Machine Learning and Knowledge Discovery in Databases, ECML PKDD, held in Würzburg, Germany, in September 2019. The 70 full papers and 46 short papers presented in the two-volume set were carefully reviewed and selected from 200 submissions. The two volumes (CCIS 1167 and CCIS 1168) present the papers that have been accepted for the following workshops: Workshop on Automating Data Science, ADS 2019; Workshop on Advances in Interpretable Machine Learning and Artificial Intelligence and eXplainable Knowledge Discovery in Data Mining, AIMLAI-XKDD 2019; Workshop on Decentralized Machine Learning at the Edge, DMLE 2019; Workshop on Advances in Managing and Mining Large Evolving Graphs, LEG 2019; Workshop on Data and Machine Learning Advances with Multiple Views; Workshop on New Trends in Representation Learning with Knowledge Graphs; Workshop on Data Science for Social Good, SoGood 2019; Workshop on Knowledge Discovery and User Modelling for Smart Cities, UMCIT 2019; Workshop on Data Integration and Applications Workshop, DINA 2019; Workshop on Machine Learning for Cybersecurity, MLCS 2019; Workshop on Sports Analytics: Machine Learning and Data Mining for Sports Analytics, MLSA 2019; Workshop on Categorising Different Types of Online Harassment Languages in Social Media; Workshop on IoT Stream for Data Driven Predictive Maintenance, IoTStream 2019; Workshop on Machine Learning and Music, MML 2019; Workshop on Large-Scale Biomedical Semantic Indexing and Question Answering, BioASQ 2019.

Many aspects of Nature, Biology or even from Society have become part of the techniques and algorithms used in computer science or they have been used to enhance or hybridize several techniques through the inclusion of advanced evolution, cooperation or biologically based additions. The previous NICSO workshops were held in Granada, Spain, 2006, Acireale, Italy, 2007, and in Tenerife, Spain, 2008. As in the previous editions, NICSO 2010, held in Granada, Spain, was conceived as a forum for the latest ideas and the state of the art research related to nature inspired cooperative strategies. The contributions collected in this book cover topics including nature-inspired techniques like Genetic Algorithms, Evolutionary Algorithms, Ant and Bee Colonies, Swarm Intelligence approaches, Neural Networks, several Cooperation Models, Structures and Strategies, Agents Models, Social Interactions, as well as new algorithms based on the behaviour of fireflies or bats.

Social network analysis has created novel opportunities within the field of data science. The complexity of these networks requires new techniques to optimize the extraction of useful information. Graph Theoretic Approaches for Analyzing Large-Scale Social Networks is a pivotal reference source for the latest academic research on emerging

algorithms and methods for the analysis of social networks. Highlighting a range of pertinent topics such as influence maximization, probabilistic exploration, and distributed memory, this book is ideally designed for academics, graduate students, professionals, and practitioners actively involved in the field of data science.

Knowledge Science, Engineering and Management

Swarm Intelligence Based Optimization

Modeling and Using Context

Emergent Computation

Detection and Dynamic of Local Communities in Large Social Networks

Trends, Connections, Implications

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

Network science offers a powerful language to represent and study complex systems composed of interacting elements — from the Internet to social and biological systems. A Guide to Temporal Networks presents recent theoretical and modelling progress in the emerging field of temporally varying networks and provides connections between the different areas of knowledge required to address this multi-disciplinary subject. After an introduction to key concepts on networks and stochastic dynamics, the authors guide the reader through a coherent selection of mathematical and computational tools for network dynamics. Perfect for students and professionals, this book is a gateway to an active field of research developing between the disciplines of applied mathematics, physics and computer science, with applications in others including social sciences, neuroscience and biology.This second edition extensively expands upon the coverage of the first edition as the authors expertly present recent theoretical and modelling progress in the emerging field of temporal networks, providing the keys to (and connections between) the different areas of knowledge required to address this multi-disciplinary problem.

The book includes papers on a wide range of emerging research topics spanning theory, systems and applications of computing and communication technologies viz. Nonlinear Dynamics in Cryptography, Discrete domain Swarm Robotics, Machine Learning, Facility Layout Problem, Crowdfunding Projects, Deep Learning, MHD Nanofluid Flow, Medical Diagnostics, Human Computer Interface, Social Networking, System Performance, Wireless Sensor Networks, Cognitive Radio Networks, Antenna Design etc.; presented at the 11th International Conference on Advanced Computing and Communications Technologies (11th ICACCT 2018) held on 17-18 February, 2018 at Asia Pacific Institute of Information Technology, Panipat, India.

This book is dedicated to Professor Selim G. Akl to honour his groundbreaking research achievements in computer science over four decades. The book is an intellectually stimulating excursion into emergent computing paradigms, architectures and implementations. World top experts in computer science, engineering and mathematics overview exciting and intriguing topics of musical rhythms generation algorithms, analyse the computational power of random

walks, dispelling a myth of computational universality, computability and complexity at the microscopic level of synchronous computation, descriptional complexity of error detection, quantum cryptography, context-free parallel communicating grammar systems, fault tolerance of hypercubes, finite automata theory of bulk-synchronous parallel computing, dealing with silent data corruptions in high-performance computing, parallel sorting on graphics processing units, mining for functional dependencies in relational databases, cellular automata optimisation of wireless sensors networks, connectivity preserving network transformers, constrained resource networks, vague computing, parallel evolutionary optimisation, emergent behaviour in multi-agent systems, vehicular clouds, epigenetic drug discovery, dimensionality reduction for intrusion detection systems, physical maze solvers, computer chess, parallel algorithms to string alignment, detection of community structure. The book is a unique combination of vibrant essays which inspires scientists and engineers to exploit natural phenomena in designs of computing architectures of the future.

The two-volume set LNAI 8443 + LNAI 8444 constitutes the refereed proceedings of the 18th Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD 2014, held in Tainan, Taiwan, in May 2014. The 40 full papers and the 60 short papers presented within these proceedings were carefully reviewed and selected from 371 submissions. They cover the general fields of pattern mining; social network and social media; classification; graph and network mining; applications; privacy preserving; recommendation; feature selection and reduction; machine learning; temporal and spatial data; novel algorithms; clustering; biomedical data mining; stream mining; outlier and anomaly detection; multi-sources mining; and unstructured data and text mining.

Computer Supported Cooperative Work and Social Computing

Dynamic Social Networks in Agent-based Modelling

10th International and Interdisciplinary Conference, CONTEXT 2017, Paris, France, June 20-23, 2017, Proceedings

Emerging Research Challenges and Opportunities in Computational Social Network Analysis and Mining

Data Mining in Dynamic Social Networks and Fuzzy Systems

Nature Inspired Cooperative Strategies for Optimization (NICSO 2010)

From Security to Community Detection in Social Networking Platforms

Nowadays, social media are amongst the most frequently used entertainment and information sources, offering the most recent news. National, international and global issues of social media journalism involve a wide spectrum of complex questions related to the production, distribution and reception of media contents, as well as a plethora of social, cultural, economic, legal and ethical aspects to consider. The publication you are holding in your hands is an attempt to provide various theoretical and empirical frameworks that may help us better understand social media journalism from different points of

view and in diverse contexts. The individual chapters are written by authors with various scholarly affiliations working in international academic circles. Even though the methods they use and problems they discuss vary, they all pursue the same objective - to find out more about the implications of the existence and popularity of social media, especially social media journalism.

MUSIC 2013 will be the most comprehensive text focused on the various aspects of Mobile, Ubiquitous and Intelligent computing. MUSIC 2013 provides an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of intelligent technologies in mobile and ubiquitous computing environment. MUSIC 2013 is the next edition of the 3rd International Conference on Mobile, Ubiquitous, and Intelligent Computing (MUSIC-12, Vancouver, Canada, 2012) which was the next event in a series of highly successful International Workshop on Multimedia, Communication and Convergence technologies MCC-11 (Crete, Greece, June 2011), MCC-10 (Cebu, Philippines, August 2010).

This book constitutes the refereed proceedings of the 4th International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction, held in College Park, MD, USA, March 29-31, 2011. The 48 papers and 3 keynotes presented in this volume were carefully reviewed and selected from 88 submissions. The papers cover a wide range of topics including social network analysis; modeling; machine learning and data mining; social behaviors; public health; cultural aspects; and effects and search.

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.

Social Network Analysis - Community Detection and Evolution
Increasingly Detailed Approaches of Network Initialisation and Network Dynamics
Web, Artificial Intelligence and Network Applications
14th CCF Conference, ChineseCSCW 2019, Kunming, China, August 16–18, 2019, Revised Selected Papers
Sustainable Data-Driven & Evidence-based Decision Support with applications to the Environment and Energy sector
Second International Conference, ICSIBO 2016, Mulhouse, France, June 13-14, 2016, Revised Selected Papers

Guide To Temporal Networks, A (Second Edition)

The volume LNAI 12179 constitutes the proceedings of the International Joint Conference on Rough Sets, IJCRS 2020, which was due to be held in Havana, Cuba, in June 2020. The conference was held virtually due to the COVID-19 pandemic. The 37 full papers accepted were carefully reviewed and selected from 50 submissions. The papers are grouped in the following topical sections: general rough sets; three-way decision theory; attribute reduction; granular computing; formal concept analysis; data summarization; community detection; fuzzy cognitive maps; tutorials.

This two-volume set (CCIS 951 and CCIS 952) constitutes the proceedings of the 13th International Conference on Bio-inspired Computing: Theories and Applications, BIC-TA 2018, held in Beijing, China, in November 2018. The 88 full papers presented in both volumes were selected from 206 submissions. The papers deal with studies abstracting computing ideas such as data structures, operations with data, ways to control operations, computing models from living phenomena or biological systems such as evolution, cells, neural networks, immune systems, swarm intelligence.

The main objective of this book is to provide the necessary background to work with big data by introducing some novel optimization algorithms and codes capable of working in the big data setting as well as introducing some applications in big data optimization for both academics and practitioners interested, and to benefit society, industry, academia, and government. Presenting applications in a variety of industries, this book will be useful for the researchers aiming to analyses large scale data. Several optimization algorithms for big data including convergent parallel algorithms, limited memory bundle algorithm, diagonal bundle method, convergent parallel algorithms, network analytics, and many more have been explored in this book.

The conference solicits experimental and theoretical works on social network analysis and mining along with their application to real life situations

Graph Theoretic Approaches for Analyzing Large-Scale Social Networks

Social Network Data Analytics

A Festschrift for Selim G. Akl

Machine Learning and Knowledge Discovery in Databases

Big Data Optimization: Recent Developments and Challenges

Community Detection in Dynamic Social Networks

17th EAI International Conference, CollaborateCom 2021, Virtual Event, October 16–18, 2021, Proceedings, Part I

"A reasonable representation of some complex systems such as social and biological systems is a network topology that allows its components and interactions among them to change over time. Understanding the time-dependence of these networks can lead to invaluable insight about characteristics and structure of time-varying networks. In this thesis, several classes of static and dynamic clustering algorithms and ideas are reviewed. A challenge arising in dynamic clustering schemes is that the detected communities are not independent over time and the identified clusters at one point of time should not dramatically deviate from the results of previous timesteps. It is especially important to reduce large short term variations and ensure that communities smoothly change over time. Here we present a novel method which is built upon a probabilistic generative Bayesian model to address the problem of identifying consistent and stable overlapping communities in dynamic networks. Synthetic and real networks are used to evaluate the performance with respect to different parameter settings, the model order selection, and the run-time of the proposed algorithm. Performance analysis indicates thatthe algorithm proposed in this thesis outperforms several other state-of-the-art algorithms and provides valuable insights into the evolution and underlying structure." --

Data Science and Classification provides new methodological developments in data analysis and classification. The broad and comprehensive coverage includes the measurement of similarity and dissimilarity, methods for classification and clustering, network and graph analyses, analysis of symbolic data, and web mining. Beyond structural and theoretical results, the book offers application advice for a variety of problems, in medicine, microarray analysis, social network structures, and music. Complex networks arises in many contexts and applications : biology, transports, online social networks (ONS). Many recent applications deal with large amount of personal data. The links between peoples may reflect freindship, messaging, or some common interests. Entities in complex network, and espacially persons, tend to form communities. Here, a community can be defined as a set of entities interacting more between each other than with the rest of the network. The topic of community detection in large networks as been extensively studied during the last decades, following the seminal work by newman, who popularized the modularity criteria. However, most community detection algorithms assume that the network is entirely known and that is does not evolve with time. This is usually not true in real world applications. In this thesis, we start by proposing novel methods for local community identification (considering only the vicinity of a given node, without accessing the whole graph). Our algorithms experimentally outperform the state-of-art methods. We show how to use the local communities to enhance the prediction of a user's behaviour. Secondly, we propose some approaches to predict the evolution of the detected communities based on machine learning methods. Finally we propose a framework for storing and processing distributed social networks in a Big Data environment. The proposed methods are validated using (among others) real world data, provided by a industrial partner operating a major social network platform in France (40 millions of users).

This book constitutes the thoroughly refereed post-conference proceedings of the Second International Conference on Swarm Intelligence Based Optimization, ICSIBO 2016, held in Mulhouse, France, in June 2016. The 9 full papers presented were carefully reviewed and selected from 20 submissions. They are centered around the following topics: theoretical advances of swarm intelligence metaheuristics; combinatorial discrete, binary, constrained, multi-objective, multi-modal, dynamic, noisy, and large scale optimization; artificial immune systems, particle swarms, ant colony, bacterial forging, artificial bees, fireflies algorithm; hybridization of algorithms; parallel/distributed computing, machine learning, data mining, data clustering, decision making and multi-agent systems based on swarm intelligence principles; adaptation and applications of swarm intelligence principles to real world problems in various domains.

Micro-Electronics and Telecommunication Engineering
Bio-inspired Computing: Theories and Applications
Data Science and Classification
Social Networks: A Framework of Computational Intelligence
4th International Conference, SBP 2011, College Park, MD, USA, March 29-31, 2011. Proceedings
WAIM 2016 International Workshops, MWDA, SDMMW, and SemiBDMA, Nanchang,

China, June 3-5, 2016, Revised Selected Papers

Rough Sets

The contributors in this book share, exchange, and develop new concepts, ideas, principles, and methodologies in order to advance and deepen our understanding of social networks in the new generation of Information and Communication Technologies (ICT) enabled by Web 2.0, also referred to as social media, to help policy-making. This interdisciplinary work provides a platform for researchers, practitioners, and graduate students from sociology, behavioral science, computer science, psychology, cultural studies, information systems, operations research and communication to share, exchange, learn, and develop new concepts, ideas, principles, and methodologies. Emerging Research Challenges and Opportunities in Computational Social Network Analysis and Mining will be of interest to researchers, practitioners, and graduate students from the various disciplines listed above. The text facilitates the dissemination of investigations of the dynamics and structure of web based social networks. The book can be used as a reference text for advanced courses on Social Network Analysis, Sociology, Communication, Organization Theory, Cyber-anthropology, Cyber-diplomacy, and Information Technology and Justice. This book constitutes the refereed proceedings of 3 workshops of the 17th International Conference on Web-Age Information Management, WAIM 2016, held in Nanchang, China, in June 2016.The three workshops were as follows: • The International Workshop on Spatiotemporal Data Management and Mining for the Web (SDMMW 2016) • The International Workshop on Semi-structured Big Data Management and Applications (SemiBDMA 2016). • The International Workshop on Mobile Web Data Analytics (MWDA2016)

This proceedings book presents the latest research findings, and theoretical and practical perspectives on innovative methods and development techniques related to the emerging areas of Web computing, intelligent systems and Internet computing. The Web has become an important source of information, and techniques and methodologies that extract quality information are of paramount importance for many Web and Internet applications. Data mining and knowledge discovery play a key role in many of today's major Web applications, such as e-commerce and computer security. Moreover, Web services provide a new platform for enabling service-oriented systems. The emergence of large-scale distributed computing paradigms, such as cloud computing and mobile computing systems, has opened many opportunities for collaboration services, which are at the core of any information system. Artificial intelligence (AI) is an area of computer science that builds intelligent systems and algorithms that work and react like humans. AI techniques and computational intelligence are powerful tools for learning, adaptation, reasoning and planning, and they have the potential to become enabling technologies for future intelligent networks. Research in the field of intelligent systems, robotics, neuroscience, artificial intelligence and cognitive sciences is vital for the future development and innovation of Web and Internet applications.

This book contains the latest research work presented at the
International Conference on Computing and Communication Systems (I3CS
2020) held at North-Eastern Hill University (NEHU), Shillong, India.
The book presents original research results, new ideas and practical
development experiences which concentrate on both theory and
practices. It includes papers from all areas of information
technology, computer science, electronics and communication
engineering written by researchers, scientists, engineers and scholar
students and experts from India and abroad.
Advanced Information Systems Engineering
Proceedings of the Workshops of the 34th International Conference on
Advanced Information Networking and Applications (WAINA-2020)
2019 IEEE ACM International Conference on Advances in Social Networks
Analysis and Mining (ASONAM)
Proceedings of the 4th International Conference on Decision Support
System Technology – ICDSST 2018 & PROMETHEE DAYS 2018
Social Computing, Behavioral-Cultural Modeling and Prediction
Collaborative Computing: Networking, Applications and Worksharing
MUSIC 2013
This book constitutes the proceedings of the 10th International and Interdisciplinary
Conference on Modeling and Using Context, CONTEXT 2017, held in Paris, France, in June
2017. The 26 full papers and 15 short papers presented were carefully reviewed and selected
from 88 submissions. The papers feature research in a wide range of disciplines related to
issues of context and contextual knowledge and discuss commonalities across and differences
between the disciplines' approaches to the study of context. They are organized in the
following topical sections: context in representation; context modeling of human activities;
context in communication; context awareness; and various specific topics.
Social network analysis applications have experienced tremendous advances within the last
few years due in part to increasing trends towards users interacting with each other on the
internet. Social networks are organized as graphs, and the data on social networks takes on
the form of massive streams, which are mined for a variety of purposes. Social Network Data
Analytics covers an important niche in the social network analytics field. This edited volume,
contributed by prominent researchers in this field, presents a wide selection of topics on
social network data mining such as Structural Properties of Social Networks, Algorithms for
Structural Discovery of Social Networks and Content Analysis in Social Networks. This book
is also unique in focussing on the data analytical aspects of social networks in the internet
scenario, rather than the traditional sociology-driven emphasis prevalent in the existing
books, which do not focus on the unique data-intensive characteristics of online social
networks. Emphasis is placed on simplifying the content so that students and practitioners
benefit from this book. This book targets advanced level students and researchers
concentrating on computer science as a secondary text or reference book. Data mining,
database, information security, electronic commerce and machine learning professionals will
find this book a valuable asset, as well as primary associations such as ACM, IEEE and
Management Science.
Many organizations, whether in the public or private sector, have begun to take advantage of

the tools and techniques used for data mining. Utilizing data mining tools, these organizations are able to reveal the hidden and unknown information from available data. Data Mining in Dynamic Social Networks and Fuzzy Systems brings together research on the latest trends and patterns of data mining tools and techniques in dynamic social networks and fuzzy systems. With these improved modern techniques of data mining, this publication aims to provide insight and support to researchers and professionals concerned with the management of expertise, knowledge, information, and organizational development. The two-volume set LNBIP 353 and 354 constitutes the proceedings of the 22nd International Conference on Business Information Systems, BIS 2019, held in Seville, Spain, in June 2019. The theme of the BIS 2019 was "Data Science for Business Information Systems", inspiring researchers to share theoretical and practical knowledge of the different aspects related to Data Science in enterprises. The 67 papers presented in these proceedings were carefully reviewed and selected from 223 submissions. The contributions were organized in topical sections as follows: Part I: Big Data and Data Science; Artificial Intelligence; ICT Project Management; and Smart Infrastructure. Part II: Social Media and Web-based Systems; and Applications, Evaluations and Experiences. Community Detection in Dynamic Networks 33rd International Conference, CAiSE 2021, Melbourne, VIC, Australia, June 28 – July 2, 2021, Proceedings Advances in Knowledge Discovery and Data Mining International Joint Conference, IJCRS 2020, Havana, Cuba, June 29 – July 3, 2020, Proceedings 22nd International Conference, BIS 2019, Seville, Spain, June 26–28, 2019, Proceedings, Part II Community Detection and Mining in Social Media Temporal Network Theory

Agent-based modelling enables the explicit representation of entities and their interaction with each other and the environment, and so it became an important method to study complex systems. Social networks form an important part of agent-based social simulation, as they define the topology of agent interaction. This dissertation initially identifies important properties of social networks and their dynamics and reviews their representation in agent-based models of relevant domains. A classification of levels of detail for the network modelling components initialisation, dynamics of networks, and dynamics on networks is proposed and guides the identification of deficits. A formal, iterative evaluation framework is developed to quantitatively assess network modelling approaches under a set of weighted criteria (representativity, adjustability, validity, and efficiency). The framework is applied to an abstract model of opinion dynamics and to an empirically grounded model of social influence. A lifestyle-specific network survey is designed, conducted, and analysed and helps to ground the

evaluation of the network modelling's representativity on empirical data. The study finds significant differences of degree and distance distributions as well as in the composition of ego networks between lifestyles. New network modelling approaches are developed to account for requirements in agent-based models such as agent-type specific link preferences, degree and distance distributions, community structures, and interaction dynamics. The comparison of simple to elaborated network modelling for the application models shows a significant impact on simulation results, highlighting the need for informed decisions about suitable approaches.