

# Data Communication Network By Ajit Pal Ebook

This book is a collection of best selected research papers presented at International Conference on Intelligent and Smart Computing in Data Analytics (ISCDA 2020), held at K L University, Guntur, Andhra Pradesh, India. The primary focus is to address issues and developments in advanced computing, intelligent models and applications, smart technologies and applications. It includes topics such as artificial intelligence and machine learning, pattern recognition and analysis, computational intelligence, signal and image processing, bioinformatics, ubiquitous computing, genetic fuzzy systems, hybrid evolutionary algorithms, nature-inspired smart hybrid systems, Internet of things, industrial IoT, health informatics, human-computer interaction and social network analysis. The book presents innovative work by leading academics, researchers and experts from industry. .

This volume of Advances in Intelligent Systems and Computing highlights key scientific achievements and innovations in all areas of automation, informatization, computer science, and artificial intelligence. It gathers papers presented at the IITI 2017, the Second International Conference on Intelligent Information Technologies for Industry,

which was held in Varna, Bulgaria on September 14–16, 2017. The conference was jointly co-organized by Technical University of Varna (Bulgaria), Technical University of Sofia (Bulgaria), VSB Technical University of Ostrava (Czech Republic) and Rostov State Transport University (Russia). The IITI 2017 brought together international researchers and industrial practitioners interested in the development and implementation of modern technologies for automation, informatization, computer science, artificial intelligence, transport and power electrical engineering. In addition to advancing both fundamental research and innovative applications, the conference is intended to establish a new dissemination platform and an international network of researchers in these fields.

Argues that competitiveness is essential to the health of the U.S. economy and standard of living Data science, data engineering and knowledge engineering requires networking and communication as a backbone and have wide scope of implementation in engineering sciences. Keeping this ideology in preference, this book includes the insights that reflect the advances in these fields from upcoming researchers and leading academicians across the globe. It contains high-quality peer-reviewed papers of 'International Conference on Recent Advancement in Computer, Communication and Computational Sciences (ICRACCCS 2016)',

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held at Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, India, during 25–26 November 2016. The volume covers variety of topics such as Advanced Communication Networks, Artificial Intelligence and Evolutionary Algorithms, Advanced Software Engineering and Cloud Computing, Image Processing and Computer Vision, and Security. The book will help the perspective readers from computer industry and academia to derive the advances of next generation communication and computational technology and shape them into real life applications.

This volume contains accepted papers presented at AECIA2014, the First International Afro-European Conference for Industrial Advancement. The aim of AECIA was to bring together the foremost experts as well as excellent young researchers from Africa, Europe, and the rest of the world to disseminate latest results from various fields of engineering, information, and communication technologies. The first edition of AECIA was organized jointly by Addis Ababa Institute of Technology, Addis Ababa University, and VSB - Technical University of Ostrava, Czech Republic and took place in Ethiopia's capital, Addis Ababa.

This volume of Advances in Intelligent Systems and Computing contains accepted papers presented at ICGEC 2014, the 8th International Conference on Genetic and Evolutionary Computing. The

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conference this year was technically co-sponsored by Nanchang Institute of Technology in China, Kaohsiung University of Applied Science in Taiwan, and VSB-Technical University of Ostrava. ICGEC 2014 is held from 18-20 October 2014 in Nanchang, China. Nanchang is one of is the capital of Jiangxi Province in southeastern China, located in the north-central portion of the province. As it is bounded on the west by the Jiuling Mountains, and on the east by Poyang Lake, it is famous for its scenery, rich history and cultural sites. Because of its central location relative to the Yangtze and Pearl River Delta regions, it is a major railroad hub in Southern China. The conference is intended as an international forum for the researchers and professionals in all areas of genetic and evolutionary computing.

Computer Network Simulations Using NS2 provides a solid foundation of computer networking knowledge and skills, covering everything from simple operating system commands to the analysis of complex network performance metrics. The book begins with a discussion of the evolution of data communication techniques and the fundamental issues associated with performance evaluation. After presenting a preliminary overview of simulation and other performance evaluation techniques, the authors: Describe a number of computer network protocols and TCP/IP and OSI models, highlighting the networking devices used Explain a socket and its

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use in network programming, fostering the development of network applications using C and socket API Introduce the NS2 network simulator, exhibiting its internal architecture, constituent software packages, and installation in different operating systems Delve into simulation using NS2, elaborating on the use of Tcl and OTcl scripts as well as AWK scripting and plotting with Gnuplot Show how to simulate wired and wireless network protocols step by step, layer by layer Explore the idea of simulating very large networks, identifying the challenges associated with measuring and graphing the various network parameters Include nearly 90 example programs, scripts, and outputs, along with several exercises requiring application of the theory and programming Computer Network Simulations Using NS2 emphasizes the implementation and simulation of real-world computer network protocols, affording readers with valuable opportunities for hands-on practice while instilling a deeper understanding of how computer network protocols work.

This book discusses applications of computational intelligence in sensor networks. Consisting of twenty chapters, it addresses topics ranging from small-scale data processing to big data processing realized through sensor nodes with the help of computational approaches. Advances in sensor technology and computer networks have enabled

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sensor networks to evolve from small systems of large sensors to large nets of miniature sensors, from wired communications to wireless communications, and from static to dynamic network topology. In spite of these technological advances, sensor networks still face the challenges of communicating and processing large amounts of imprecise and partial data in resource-constrained environments. Further, optimal deployment of sensors in an environment is also seen as an intractable problem. On the other hand, computational intelligence techniques like neural networks, evolutionary computation, swarm intelligence, and fuzzy systems are gaining popularity in solving intractable problems in various disciplines including sensor networks. The contributions combine the best attributes of these two distinct fields, offering readers a comprehensive overview of the emerging research areas and presenting first-hand experience of a variety of computational intelligence approaches in sensor networks.

Social networking has increased drastically in recent years, resulting in an increased amount of data being created daily. Furthermore, diversity of issues and complexity of the social networks pose a challenge in social network mining. Traditional algorithm software cannot deal with such complex and vast amounts of data, necessitating the

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development of novel analytic approaches and tools. This reference work deals with social network aspects of big data analytics. It covers theory, practices and challenges in social networking. The book spans numerous disciplines like neural networking, deep learning, artificial intelligence, visualization, e-learning in higher education, e-healthcare, security and intrusion detection. Social networking has increased drastically in recent years, resulting in an increased amount of data being created daily. Furthermore, diversity of issues and complexity of the social networks pose a challenge in social network mining. Traditional algorithm software cannot deal with such complex and vast amounts of data, necessitating the development of novel analytic approaches and tools. This reference work deals with social network aspects of big data analytics. It covers theory, practices and challenges in social networking. The book spans numerous disciplines like neural networking, deep learning, artificial intelligence, visualization, e-learning in higher education, e-healthcare, security and intrusion detection. Bulletin of Electrical Engineering and Informatics (Buletin Teknik Elektro dan Informatika) ISSN: 2089-3191, e-ISSN: 2302-9285 is open to submission from scholars and experts in the wide areas of electrical, electronics, instrumentation, control, telecommunication and computer

engineering from the global world. The journal publishes original papers in the field of electrical, electronics, instrumentation & control, telecommunication, computer and informatics engineering. Vol 2, No 2 June 2013 Table of Contents A Multi-Zone HVAC System for a Typical Building for MATLAB/SIMULINK Platform PDF Ahmad Parvaresh, Seyed Mohammad Ali Mohammadi 83-87 Aspects in Formulating Mathematical Model of Wind Turbine PDF Waleed Khalil Ahmed 88-94 Recent Trends in Power Transformer Fault Diagnosis and Condition Assessment PDF Zakir Husain, Hasmat Malik, Mohd. Arif Khan 95-104 Load Frequency Control in Four Area Power Systems Using Fuzzy Logic PI Controller PDF Ch. Varaha Narasimha Raja 105-110 Voltage Controlled Integrator and Linear Quadrature-VCO Using MMCC PDF P. Venkateswaran, R. Nandi, Sagarika Das 111-116 A Study of image compression based transmission algorithm Using SPIHT for low bit rate application PDF Ritu Chourasiya, Ajit Shrivastava 117-122 Optimized Microstrip Antennas with Metamaterial Superstrates Using Particle Swarm Optimization PDF Nooshin Feiz, Farzad Mohajeri, Anahita Ghaznavi 123-131 GASA-JOSH: A Hybrid Evolutionary-Annealing Approach for Job-Shop Scheduling Problem PDF Somayeh Kalantari, Mohamad Saniee Abadeh 132-140 Adaptive Mobile E-Learning Environment

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This book is a collection of high-quality peer-reviewed research papers presented in the Third International Conference on Computing Informatics and Networks (ICIN 2020) organized by the Department of Computer Science and Engineering (CSE), Bhagwan Parshuram Institute of Technology (BPIT), Delhi, India, during 29-30 July 2020. The book discusses a wide variety of industrial, engineering and scientific applications of the emerging techniques. Researchers from academic and industry present their original work and exchange ideas, information, techniques and applications in the field of artificial intelligence, expert systems, software engineering, networking, machine learning, natural language processing and high-performance computing.

This is one of the best Study Materials for CS-09 "Networking" MCA III Semester Students. In this book, question papers of the previous year exams as well as their solutions have been given. In this book, you can also identify the problems and their solutions. All things are as per the Syllabus. No other Study Material can give you more perfect idea about the examination, the problems one faces in the exam, questions pattern etc., than this one. There

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are three question paper sets in this book which are also important and according to the examination pattern. Every effort has been made to make the book simple and error-free. I welcome any constructive criticism of the book and will be grateful for any honest appraisal from the readers.

This book highlights recent research on intelligent systems and nature-inspired computing. It presents 130 selected papers from the 19th International Conference on Intelligent Systems Design and Applications (ISDA 2020), which was held online. The ISDA is a premier conference in the field of computational intelligence, and the latest installment brought together researchers, engineers and practitioners whose work involves intelligent systems and their applications in industry. Including contributions by authors from 40 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of Computer Science and Engineering.

This book focuses on the emerging advances in distributed communication systems, big data, intelligent computing and Internet of Things, presenting state-of-the-art research in frameworks, algorithms, methodologies, techniques and applications associated with data engineering and wireless distributed communication technologies. In addition, it discusses potential topics like performance analysis, wireless communication networks, data security and privacy, human computer interaction, 5G Networks, and smart automated systems, which will provide insights for the evolving data

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communication technologies. In a nutshell, this proceedings book compiles novel and high-quality research that offers innovative solutions for communications in IoT networks. The book Cutting Edge Research in Technologies responds to the great interest for innovation in the large domain of technologies. It presents contributions by researchers with high expertise in the field, serving as a valuable reference for scientists, researchers, graduate students, and professionals. The book has five chapters covering the following subjects: information and communication technologies and services with the aim of improving the quality of life and the mobility of users, localisation technologies for deployment of mobile robots in dynamic environments, embedded video processing circuit design flow in the Python language, data communications and networking, and textile weaving. Introducing the basic concepts in total program control of the intelligent agents and machines, Intelligent Internet Knowledge Networks explores the design and architecture of information systems that include and emphasize the interactive role of modern computer/communication systems and human beings. Here, you'll discover specific network configurations that sense environments, presented through case studies of IT platforms, electrical governments, medical networks, and educational networks. This fully revised and updated book, now in its Fourth Edition, continues to provide a comprehensive coverage of data communications and computer networks in an easy to understand style. The text places as much emphasis on the application of the concepts as on the concepts themselves. While the theoretical part is intended to offer a solid foundation of the basics so as to equip the student for further study, the stress on the applications is meant to acquaint the student with the realistic status of data communications and computer networks as of now. Audience Intended primarily as

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a textbook for the students of computer science and engineering, electronics and communication engineering, master of computer applications (MCA), and those offering IT courses, this book would also be useful for practising professionals. NEW TO THIS EDITION • Three new chapters on: o Network Architecture and OSI Model o Wireless Communication Technologies o Web Security • Appendix on Binary and Hexadecimal Numbering Key features • Illustrates the application of the principles through highly simplified block diagrams. • Contains a comprehensive glossary which gives simple and accurate descriptions of various terms. • Provides Questions and Answers at the end of the book which facilitate quick revision of the concept.

This book presents the proceedings of the Fourth International Workshop on Soft Computing as Transdisciplinary Science and Technology (WSTST '05), May 25-27, 2005, Muroran, Japan. It brings together the original work of international soft computing/computational intelligence researchers, developers, practitioners, and users. This proceedings provide contributions to all areas of soft computing including intelligent hybrid systems, agent-based systems, intelligent data mining, decision support systems, cognitive and reactive distributed artificial intelligence (AI), internet modelling, human interface, and applications in science and technology.

This book discusses data communication and computer networking, communication technologies and the applications of IoT (Internet of Things), big data, cloud computing and healthcare informatics. It explores, examines and critiques intelligent data communications and presents inventive methodologies in communication technologies and IoT. Aimed at researchers and academicians who need to understand the importance of data communication and advanced technologies in IoT, it offers different perspectives

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to help readers increase their knowledge and motivates them to conduct research in the area, highlighting various innovative ideas for future research.

Collecting and processing data is a necessary aspect of living in a technologically advanced society. Whether it's monitoring events, controlling different variables, or using decision-making applications, it is important to have a system that is both inexpensive and capable of coping with high amounts of data. As the application of these networks becomes more common, it becomes imperative to evaluate their effectiveness as well as other opportunities for possible implementation in the future. *Sensor Technology: Concepts, Methodologies, Tools, and Applications* is a vital reference source that brings together new ways to process and monitor data and to put it to work in everything from intelligent transportation systems to healthcare to multimedia applications. It also provides inclusive coverage on the processing and applications of wireless communication, sensor networks, and mobile computing. Highlighting a range of topics such as internet of things, signal processing hardware, and wireless sensor technologies, this multi-volume book is ideally designed for research and development engineers, IT specialists, developers, graduate students, academics, and researchers.

This volume of *Advances in Intelligent Systems and Computing* contains accepted papers presented in the main track of ECC 2015, the Second Euro-China Conference on Intelligent Data Analysis and Applications. The aim of ECC is to provide an internationally respected forum for scientific research in the broad area of intelligent data analysis, computational intelligence, signal processing, and all associated applications of AIs. The second edition of ECC was organized jointly by VSB - Technical University of Ostrava, Czech Republic, and Fujian University of

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Technology, Fuzhou, China. The conference, organized under the patronage of Mr. Miroslav Novak, President of the Moravian-Silesian Region, took place in late June and early July 2015 in the Campus of the VSB - Technical University of Ostrava, Czech Republic.

The book constitutes selected high quality papers presented in International Conference on Computing, Power and Communication Technologies 2018 (GUCON 2018) organised by Galgotias University, India, in September 2018. It discusses issues in electrical, computer and electronics engineering and technologies. The selected papers are organised into three sections - cloud computing and computer networks; data mining and big data analysis; and bioinformatics and machine learning. In-depth discussions on various issues under these topics provides an interesting compilation for researchers, engineers, and students.

This book is the second of three volumes that illustrate the concept of social networks from a computational point of view. The book contains contributions from a international selection of world-class experts, concentrating on topics relating to security and privacy (the other two volumes review Tools, Perspectives, and Applications, and Mining and Visualization in CSNs). Topics and features: presents the latest advances in security and privacy issues in CSNs, and illustrates how both organizations and individuals can be protected from real-world threats; discusses the design and use of a wide range of computational tools and software for social network analysis; describes simulations of social networks, and the representation and analysis of social networks, with a focus on issues of security, privacy, and anonymization; provides experience reports, survey articles, and intelligence techniques and theories relating to specific problems in network technology.

This volume presents the proceedings of the First Euro-China

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Conference on Intelligent Data Analysis and Applications (ECC 2014), which was hosted by Shenzhen Graduate School of Harbin Institute of Technology and was held in Shenzhen City on June 13-15, 2014. ECC 2014 was technically co-sponsored by Shenzhen Municipal People's Government, IEEE Signal Processing Society, Machine Intelligence Research Labs, VSB-Technical University of Ostrava (Czech Republic), National Kaohsiung University of Applied Sciences (Taiwan), and Secure E-commerce Transactions (Shenzhen) Engineering Laboratory of Shenzhen Institute of Standards and Technology.

This book highlights recent research on Soft Computing, Pattern Recognition, Information Assurance and Security. It presents 38 selected papers from the 10th International Conference on Soft Computing and Pattern Recognition (SoCPaR 2018) and the 14th International Conference on Information Assurance and Security (IAS 2018) held at Instituto Superior de Engenharia do Porto (ISEP), Portugal during December 13–15, 2018. SoCPaR – IAS 2018 is a premier conference and brings together researchers, engineers and practitioners whose work involves soft computing and information assurance and their applications in industry and the real world. Including contributions by authors from over 25 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of Computer Science and Engineering.

Intended primarily as a textbook for the students of computer science and engineering, electronics and communication engineering, master of computer applications (MCA), and those offering IT courses, the book provides a comprehensive coverage of the subject. Basic elements of communication such as data, signal and channel alongwith their characteristics such as bandwidth, bit internal and bit rate have been explained. Contents related to guided and

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unguided transmission media, Bluetooth wireless technology, developed for Personal Area Network (PAN) and issues related to routing covering popular routing algorithms namely RIP, OSPF and BGP, have been introduced in the book. Various aspects of data link control alongwith their application in HDLC network and techniques such as encoding, multiplexing and encryption/decryption are presented in detail. Characteristics and implementation of PSTN, SONET, ATM, LAN, PACKET RADIO network, Cellular telephone network and Satellite network have also been explained. Different aspects of IEEE 802.11 WLAN and congestion control protocols have also been discussed in the book. Key Features • Each chapter is divided into section and subsection to provide flexibility in curriculum design. • The text contains numerous solved examples, and illustrations to bring clarity to the subject and enhance its understanding. • Review questions given at the end of each chapter, are meant to enable the teacher to test student's grasping of the subject.

This book highlights the recent research on hybrid intelligent systems and their various practical applications. It presents 34 selected papers from the 18th International Conference on Hybrid Intelligent Systems (HIS 2019) and 9 papers from the 15th International Conference on Information Assurance and Security (IAS 2019), which was held at VIT Bhopal University, India, from December 10 to 12, 2019. A premier conference in the field of artificial intelligence, HIS - IAS 2019 brought together researchers, engineers and practitioners whose work involves intelligent systems, network security and their applications in industry. Including contributions by authors from 20 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of Computer Science and Engineering.

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This book constitutes the proceedings of the First International Conference on Computational Intelligence and Information Technology, CIIT 2011, held in Pune, India, in November 2011. The 58 revised full papers, 67 revised short papers, and 32 poster papers presented were carefully reviewed and selected from 483 initial submissions. The papers are contributed by innovative academics and industrial experts in the field of computer science, information technology, computational engineering, mobile communication and security and offer a stage to a common forum, where a constructive dialog on theoretical concepts, practical ideas and results of the state of the art can be developed.

Computer Network Simulations Using NS2 provides a solid foundation of computer networking knowledge and skills, covering everything from simple operating system commands to the analysis of complex network performance metrics. The book begins with a discussion of the evolution of data communication techniques and the fundamental issues associated with performance evaluation. After presenting a preliminary overview of simulation and other performance evaluation techniques, the authors: Describe a number of computer network protocols and TCP/IP and OSI models, highlighting the networking devices used Explain a socket and its use in network programming, fostering the development of network applications using C and

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socket API Introduce the NS2 network simulator, exhibiting its internal architecture, constituent software packages, and installation in different operating systems Delve into simulation using NS2, elaborating on the use of Tcl and OTcl scripts as well as AWK scripting and plotting with Gnuplot Show how to simulate wired and wireless network protocols step by step, layer by layer Explore the idea of simulating very large networks, identifying the challenges associated with measuring and graphing the various network parameters Include nearly 90 example programs, scripts, and outputs, along with several exercises requiring application of the theory and programming Computer Network Simulations Using NS2 emphasizes the implementation and simulation of real-world computer network protocols, affording readers with valuable opportunities for hands-on practice while instilling a deeper understanding of how computer network protocols work.

This volume contains the papers presented at INDIA-2012: International conference on Information system Design and Intelligent Applications held on January 5-7, 2012 in Vishakhapatnam, India. This conference was organized by Computer Society of India (CSI), Vishakhapatnam chapter well supported by Vishakhapatnam Steel, RINL, Govt of India. It contains 108 papers contributed by authors from six different countries across four continents. These

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research papers mainly focused on intelligent applications and various system design issues. The papers cover a wide range of topics of computer science and information technology discipline ranging from image processing, data base application, data mining, grid and cloud computing, bioinformatics among many others. The various intelligent tools like swarm intelligence, artificial intelligence, evolutionary algorithms, bio-inspired algorithms have been applied in different papers for solving various challenging IT related problems. This book emphasizes the increasingly important role that Computational Intelligence (CI) methods are playing in solving a myriad of entangled Wireless Sensor Networks (WSN) related problems. The book serves as a guide for surveying several state-of-the-art WSN scenarios in which CI approaches have been employed. The reader finds in this book how CI has contributed to solve a wide range of challenging problems, ranging from balancing the cost and accuracy of heterogeneous sensor deployments to recovering from real-time sensor failures to detecting attacks launched by malicious sensor nodes and enacting CI-based security schemes. Network managers, industry experts, academicians and practitioners alike (mostly in computer engineering, computer science or applied mathematics) benefit from the spectrum of successful applications reported in this book. Senior undergraduate or

graduate students may discover in this book some problems well suited for their own research endeavors.

This book provides IT professionals, educators, researchers, and students a compendium of knowledge on smart sensors and devices, types of sensors, data analysis and monitoring with the help of smart sensors, decision making, impact of machine learning algorithms, and artificial intelligence-related methodologies for data analysis and understanding of smart applications in networks. Smart sensor networks play an important role in the establishment of network devices which can easily interact with physical world through plethora of variety of sensors for collecting and monitoring the surrounding context and allowing environment information. Apart from military applications, smart sensor networks are used in many civilian applications nowadays and there is a need to manage high volume of demands in related applications. This book comprises of 9 chapters and presents a valuable insight on the original research and review articles on the latest achievements that contributes to the field of smart sensor networks and their usage in real-life applications like smart city, smart home, e-healthcare, smart social sensing networks, etc. Chapters illustrate technological advances and trends, examine research opportunities, highlight best practices and standards,

and discuss applications and adoption. Some chapters also provide holistic and multiple perspectives while examining the impact of smart sensor networks and the role of data analytics, data sharing, and its control along with future prospects. The key parameter that needs to be considered when planning the management of resources in futuristic wireless networks is a balanced approach to resource distribution. A balanced approach is necessary to provide an unbiased working environment for the distribution, sharing, allocation, and supply of resources among the devices of the wireless network. Equal resource distribution also maintains balance and stability between the operations of communication systems and thus improves the performance of wireless networks. *Managing Resources for Futuristic Wireless Networks* is a pivotal reference source that presents research related to the control and management of key parameters of bandwidth, spectrum sensing, channel selection, resource sharing, and task scheduling, which is necessary to ensure the efficient operation of wireless networks. Featuring topics that include vehicular ad-hoc networks, resource management, and the internet of things, this publication is ideal for professionals and researchers working in the field of networking, information and knowledge management, and communication sciences. Moreover, the book will

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provide insights and support executives concerned with the management of expertise, knowledge, information, and organizational development in different types of work communities and environments.

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