Distributed Caching In Small Cell Networks Accueil

LTE network capabilities are enhanced with small cell deployment, with optimization and with new 3GPP features. LTE networks are getting high loaded which calls for more advanced optimization. Small cells have been discussed in the communications industry for many years, but their true deployment is happening now. New 3GPP features in Release 12 and 13 further push LTE network performance. This timely book addresses R&D and standardization activities on LTE small cells and network optimization, focusing on 3GPP evolution to Release 13. It covers LTE small cells from specification to products and field results; Latest 3GPP evolution to Release 13; and LTE optimization and learnings from the field.

Distributed MIMO and cell-free mobile communication are emerging technologies of wireless communication. This book introduces the fundamental theory, key technology and the prototype system of distributed MIMO and cellular free mobile communication system, including the unified system model, capacity and spectral efficiency analysis under imperfect channel information, cell edge effect, optimal power allocation and energy efficiency optimization, cache optimization, low complexity wireless transmission technology and new network assisted full duplex technology. In addition, the implementation of software and hardware and test results of distributed MIMO and cell free system based on cloud architecture are introduced in detail.This book will benefit senior undergraduates, postgraduates, scholars and engineers who are engaged in wireless mobile communication research. It can also be used as a reference book for postgraduates and researchers in the field of electronic and information engineering.

As technology advances, the emergence of 5G has become an essential discussion moving forward as its applications and benefits are expected to enhance many areas of life. The introduction of 5G technology to society will improve communication speed, the efficiency of information transfer, and end-user experience to name only a few of many future improvements. These new opportunities offered by 5G networks will spread across industry, government, business, and personal user experiences leading to widespread innovation and technological advancement. What stands at the very core of 5G becoming an integral part of society is the very fact that it is expected to enrich society in a multifaceted way, enhancing connectivity and efficiency in just about every sector including healthcare, agriculture, business, and more. Therefore, it has been a critical topic of research to explore the implications of this technology, how it functions, what industries it will impact, and the challenges and solutions of its implementation into modern society. Research Anthology on Developing and Optimizing 5G Networks and the Impact on Society is a critical reference source that analyzes the use of 5G technology from the standpoint of its design and technological development to its applications in a multitude of industries. This overall view of the aspects of 5G networks creates a comprehensive book for all stages of the implementation of 5G, from early conception to application in various sectors. Topics highlighted include smart cities, wireless and mobile networks, radio access technology, internet of things, and more. This all-encompassing book is ideal for network experts, IT specialists, technologists, academicians, researchers, and students.

Discover what lies beyond the bleeding-edge of autonomous airborne networks with this authoritative new resource Autonomous Airborne Wireless Networks delivers an insightful exploration of recent advances in the theory and practice of using airborne wireless networks to provide emergency communications, coverage and capacity expansion, information dissemination, and more. The distinguished engineers and editors have selected resources that cover the fundamentals of airborne networks, including channel models, recent regulation developments, self-organized networking, AI-enabled flying networks, and notable applications in a variety of industries. The book evaluates advances in the cutting-edge of unmanned aerial vehicle wireless network technology while offering readers new ideas on how airborne wireless networks can support various applications expected of future networks. The rapidly developing field is examined from a fresh perspective, one not just concerned with ideas of control, trajectory optimization, and navigation. Autonomous Airborne Wireless Networks considers several potential use cases for the technology and demonstrates how it can be integrated with concepts from self-organized network technology and artificial intelligence to deliver results in those cases. Readers will also enjoy: A thorough discussion of distributed drone base station positioning for emergency cellular networks using reinforcement learning (AI-enabled trajectory optimization) An exploration of unmanned aerial vehicle-to-wearables (UAV2W) indoor radio propagation channel measurements and modelling An up-to-date treatment of energy minimization in UAV trajectory design for delay tolerant emergency communication Examinations of cache-enabled UAVs, 3D MIMO for airborne networks, and airborne networks for Internet of Things communications Perfect for telecom engineers and industry professionals working on identifying practical and efficient concepts tailored to overcome challenges facing unmanned aerial vehicles providing wireless communications, Autonomous Airborne Wireless Networks also has a place on the bookshelves of stakeholders, regulators, and research agencies working on the latest developments in UAV communications.

The aim of the book is to provide latest research findings, innovative research results, methods and development techniques from both theoretical and practical perspectives related to the emerging areas of information networking and applications. Networks of today are going through a rapid evolution and there are many emerging areas of information networking and their applications. Heterogeneous networking supported by recent technological advances in low power wireless communications along with silicon integration of various functionalities such as sensing, communications, intelligence and actuations are emerging as a critically important disruptive computer class based on a new platform, networking structure and interface that enable novel, low cost and high volume applications. Several of such applications have been difficult to realize because of

many interconnections problems. To fulfill their large range of applications different kinds of networks need to collaborate and wired and next generation wireless systems should be integrated in order to develop high performance computing solutions to problems arising from the complexities of these networks. This book covers the theory, design and applications of computer networks, distributed computing and information systems.

This book presents the latest research findings, methods and development techniques related to Ubiquitous and Pervasive Computing (UPC) as well as challenges and solutions from both theoretical and practical perspectives with an emphasis on innovative, mobile and internet services. With the proliferation of wireless technologies and electronic devices, there is a rapidly growing interest in Ubiquitous and Pervasive Computing (UPC). UPC makes it possible to create a human-oriented computing environment where computer chips are embedded in everyday objects and interact with physical world. It also allows users to be online even while moving around, providing them with almost permanent access to their preferred services. Along with a great potential to revolutionize our lives, UPC also poses new research challenges.

Cloud computing has provided multiple advantages as well as challenges to software and infrastructure services. In order to be fully beneficial, these challenges facing cloud specific communication protocols must be addressed. Communication Infrastructures for Cloud Computing presents the issues and research directions for a broad range of cloud computing aspects of software, computing, and storage systems. This book will highlight a broad range of topics in communication infrastructures for cloud computing that will benefit researchers, academics, and practitioners in the active fields of engineering, computer science, and software.

In recent years, wireless networks have become more ubiquitous and integrated into everyday life. As such, it is increasingly imperative to research new methods to boost cost-effectiveness for spectrum and energy efficiency. Interference Mitigation and Energy Management in 5G Heterogeneous Cellular Networks is a pivotal reference source for the latest research on emerging network architectures and mitigation technology to enhance cellular network performance and dependency. Featuring extensive coverage across a range of relevant perspectives and topics, such as interference alignment, resource allocation, and high-speed mobile environments, this book is ideally designed for engineers, professionals, practitioners, upper-level students, and academics seeking current research on interference and energy management for 5G heterogeneous cellular networks.

This book first provides a comprehensive review of state-of-the-art IoT technologies and applications in different industrial sectors and public services. The authors give in-depth analyses of fog computing architecture and key technologies that fulfill the challenging requirements of enabling computing services anywhere along the cloud-to-thing continuum. Further, in order to make IoT systems more intelligent and more efficient, a fog-enabled service architecture is proposed to address the latency requirements, bandwidth limitations, and computing power issues in realistic cross-domain application scenarios with limited priori domain knowledge, i.e. physical laws, system statuses, operation principles and execution rules. Based on this fog-enabled architecture, a series of data-driven self-learning applications in different industrial sectors and public services are investigated and discussed, such as robot SLAM and formation control, wireless network self-optimization, intelligent transportation system, smart home and user behavior recognition. Finally, the advantages and future directions of fog-enabled intelligent IoT systems are summarized. Provides a comprehensive review of state-of-the-art IoT technologies and applications in different industrial sectors and public services Presents a fog-enabled service architecture with detailed technical approaches for realistic cross-domain application scenarios with limited prior domain knowledge Outlines a series of data-driven self-learning applications (with new algorithms) in different industrial sectors and public services

The book features research papers presented at the International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2018) held at the University of Engineering & Management, Kolkata, India, on February 23–25, 2018. It comprises high-quality research by academics and industrial experts in the field of computing and communication, including full-length papers, research-in-progress papers, case studies related to all the areas of data mining, machine learning, IoT and information security.

This Springerbrief presents a deep reinforcement learning approach to wireless systems to improve system performance. Particularly, deep reinforcement learning approach is used in cache-enabled opportunistic interference alignment wireless networks and mobile social networks. Simulation results with different network parameters are presented to show the effectiveness of the proposed scheme. There is a phenomenal burst of research activities in artificial intelligence, deep reinforcement learning and wireless systems. Deep reinforcement learning has been successfully used to solve many practical problems. For example, Google DeepMind adopts this method on several artificial intelligent projects with big data (e.g., AlphaGo), and gets quite good results.. Graduate students in electrical and computer engineering, as well as computer science will find this brief useful as a study guide. Researchers, engineers, computer scientists, programmers, and policy makers will also find this brief to be a useful tool.

Offers comprehensive insight into the theory, models, and techniques of ultra-dense networks and applications in 5G and other emerging wireless networks The need for speed—and power—in wireless communications is growing exponentially. Data rates are projected to increase by a factor of ten every five years—and with the emerging Internet of Things (IoT) predicted to wirelessly connect trillions of devices across the globe, future mobile networks (5G) will grind to a halt unless more capacity is created. This book presents new research related to the theory and practice of all aspects of ultra-dense networks, covering recent advances in ultra-dense networks for 5G networks and beyond, including cognitive radio networks, massive multiple-input multiple-output (MIMO), device-to-device (D2D) communications, millimeter-wave communications, and energy harvesting communications. Clear and concise throughout, Ultra-Dense Networks for 5G and Beyond - Modelling, Analysis, and Applications offers a comprehensive coverage on such topics as network optimization; mobility, handoff control, and interference management; and load balancing schemes and energy saving techniques. It delves into the backhaul traffic aspects in ultra-dense networks and studies transceiver hardware impairments and power consumption models in ultra-dense networks. The book also examines new IoT, smart-grid, and smart-city applications, as well as novel modulation, coding, and waveform designs. One of the first books to focus solely on ultra-dense networks for 5G in a complete presentation Covers advanced architectures, self-organizing protocols, resource allocation, user-base station association, synchronization, and signaling Examines the current state of cell-free massive MIMO, distributed massive MIMO, and heterogeneous small cell architectures Offers network measurements, implementations, and demos Looks at wireless caching techniques, physical layer security, cognitive radio, energy harvesting, and D2D communications in ultra-dense networks Ultra-Dense Networks for 5G and Beyond - Modelling, Analysis, and Applications is an ideal reference for those who want to design high-speed, high-capacity communications in advanced networks, and will appeal to postgraduate students, researchers, and engineers in the field.

Modern, current, and future communications/processing aspects motivate basic information-theoretic research for a wide variety of systems for which we do not have the ultimate theoretical solutions (for example, a variety of problems in network information theory as the broadcast/interference and relay channels, which mostly remain unsolved in terms of determining capacity regions and the like).

Technologies such as 5/6G cellular communications, Internet of Things (IoT), and mobile edge networks, among others, not only require reliable rates of information measured by the relevant capacity and capacity regions, but are also subject to issues such as latency vs. reliability, availability of system state information, priority of information, secrecy demands, energy consumption per mobile equipment, sharing of communications resources (time/frequency/space), etc. This book, composed of a collection of papers that have appeared in the Special Issue of the Entropy journal dedicated to "Information Theory for Data Communications and Processing", reflects, in its eleven chapters, novel contributions based on the firm basic grounds of information theory. The book chapters address timely theoretical and practical aspects that constitute both interesting and relevant theoretical contributions, as well as direct implications for modern current and future communications systems.

Combines the hot topics of energy efficiency and next generation mobile networking, examining techniques and solutions Green communications is a very hot topic. Ever increasing mobile network bandwidth rates significantly impacts on operating costs due to aggregate network energy consumption. As such, design on 4G networks and beyond has increasingly started to focus on 'energy efficiency' or so-called 'green' networks. Many techniques and solutions have been proposed to enhance the energy efficiency of mobile networks, yet no book has provided an in-depth analysis of the energy consumption issues in mobile networks nor offers detailed theories, tools and solutions for solving the energy efficiency problems. This book presents the techniques and solutions for enhancing energy efficiency of future mobile networks, and consists of three major parts. The first part presents a general description of mobile network evolution in terms of both capacity and energy efficiency. The second part discusses the advanced techniques to green mobile networks. The third part discusses the solutions that enhance mobile network energy efficiency as well as providing future directions. Whilst the reader is expected to have basic knowledge of wireless communications, the authors present a brief introduction of the evolution of mobile networks, providing the knowledge base for understanding the content of the book. In addition, complicated network problems are illustrated using simple examples. This will help the reader to understand the concept and intuition of various techniques and solutions. Incorporates the latest research results from both academia and industry, providing an up-to-date overview of existing technologies and solutions on making mobile networks greener Consists of three sections with a gradually increasing technical depth on green mobile networks, providing the reader with a systematic view of the research area, and helping those with different technical backgrounds to better understand the content Covers existing enabling technologies for green mobile networking, including an innovative discussion of state-of-the-art solutions and algorithms

This book constitutes the proceedings of the 13th International Conference on Wireless Algorithms, Systems, and Applications, WASA 2018, held in Tianjin, China, in June 2018. The 59 full papers and 18 short papers presented in this book were carefully reviewed and selected from 197 submissions. The papers cover various topics such as cognitive radio networks; wireless sensor networks; cyber-physical systems; distributed and localized algorithm design and analysis; information and coding theory for wireless networks; localization; mobile cloud computing; topology control and coverage; security and privacy; underwater and underground networks; vehicular networks; internet of things; information processing and data management; programmable service interfaces; energy-efficient algorithms; system and protocol design; operating system and middle-ware support; and experimental test-beds, models and case studies.

This book studies the vulnerability of wireless communications under line-of-sight (LoS) and non-LoS correlated fading environments. The authors theoretically and practically provide physical layer security analyses for several technologies and networks such as Fifth-Generation (5G) networks, Internet of Things (IoT) applications, and Non-orthogonal multiple access (NOMA). The authors have provided these under various practical scenarios, and developed theoretical aspects to validate their proposed applications. Presents physical layer security (PLS) under correlated fading environments, 5G wireless networks, and NOMA networks; Provides end-to-end analyses, combination of channel correlation and outdated CSI and their effects on PL; Includes contributions of PLS research written by global experts in academia and industry.

This book constitutes the proceedings of the Third International Conference on 6G for Future Wireless Networks, 6GN 2020, held in Tianjin, China, in August 2020. The conference was held virtually due to the COVID-19 pandemic. The 45 full papers were selected from 109 submissions and present the state of the art and practical applications of 6G technologies. The papers are arranged thematically on network scheduling and optimization; wireless system and platform; intelligent applications; network performance evaluation; cyber security and privacy; technologies for private 5G/6G.

"The past few years witnessed a major revolution in the area of unmanned aerial vehicles (UAVs), commonly known as drones, due to significant technological advances across various drone-related fields ranging from embedded systems to autonomy, control, security, and communications. These unprecedented recent advances in UAV technology have made it possible to widely deploy drones across a plethora of application domains ranging from delivery of goods to surveillance, environmental monitoring, track control, remote sensing, and search and rescue. In fact, recent reports from the Federal Aviation Administration (FAA) anticipate that sales of UAVs may exceed 7 million in 2020 and many industries are currently investing in innovative drone-centric applications and research. To enable all such applications, it is imperative to address a plethora of research challenges pertaining to drone systems, ranging from navigation to autonomy, control, sensing, navigation, and communications. In particular, the deployment of UAVs in tomorrow's smart cities, is largely contingent upon equipping them with effective means for communications and networking. To this end, in this book, we provide a comprehensive treatment of the wireless communications and networking research challenges and opportunities associated with UAV technology. This treatment begins in this chapter which provides an introduction to UAV technology and an in-depth discussion on the wireless communication and networking challenges associated with the introduction of UAVs"--

The rapid proliferation of the Internet has been driving communication networks closer and closer to their limits, while available bandwidth is disappearing due to an ever-increasing network load. Over the past decade, optical fiber communication technology has increased per fiber data rate from 10 Tb/s to exceeding 10 Pb/s. The major explosion came after the maturity of coherent detection and advanced digital signal processing (DSP). DSP has played a critical role in accommodating channel impairments mitigation, enabling advanced modulation formats for spectral efficiency transmission and realizing flexible bandwidth. This book aims to explore novel, advanced DSP techniques to enable multi-Tb/s/channel optical transmission to address pressing bandwidth and power-efficiency demands. It provides state-of-the-art advances and future perspectives of DSP as well.

This book constitutes the refereed proceedings of the 13th CCF Conference on Computer Supported Cooperative Work and Social Computing, ChineseCSCW 2018, held in Guilin, China, in August 2018. The 33 revised full papers presented along with the 13 short papers were carefully reviewed and selected from 150 submissions. The papers of this volume are organized in topical sections on: collaborative models, approaches, algorithms, and systems, social computing, data analysis and machine learning for CSCW and social computing.

This book constitutes the thoroughly refereed post-conference proceedings of the 10th International Conference on Mobile Computing, Applications, and Services, MobiCASE 2019, held in Hangzhou, China, in June 2019. The 17 full papers were carefully reviewed and selected from 48 submissions. The papers are organized in topical sections on mobile application with data analysis, mobile application with AI, edge computing, energy optimization and application

The book constitutes the refereed proceedings of the 13th EAI International Conference on Communications and Networking, held in October 2018 in Chengdu, China. The 71 papers presented were carefully selected from 114 submissions. The papers are organized in topical sections on wireless communications and networking, next generation WLAN, big data networks, cloud communications and networking, ad hoc and sensor networks, satellite and space communications and networking, optical communications and networking, information and coding theory, multimedia communications and smart networking, green communications and computing, signal processing for communications, network and information security, machine-to-machine and IoT, communication QoS, reliability and modeling, cognitive radio and networks, smart internet of things modeling, pattern recognition and image signal processing, digital audio and video signal processing, antenna and microwave communications, radar imaging and target recognition, and video coding and image signal processing.

This book constitutes the refereed post-conference proceedings of the 10th International Conference on Mobile Networks and Management, MONAMI 2020, held in Chiba, Japan, in November 2020. The conference was held virtually due to the COVID-19 pandemic.The 19 full papers were carefully reviewed and selected from 41 submissions. The papers are divided into groups of content as follows: Application of artificial intelligence for smart city; Advanced technology in edge computing; Recent advances in mobile communications and computing; Emerging technologies and applications in mobile networks and management.

This book brings together a group of visionaries and technical experts from academia to industry to discuss the applications and technologies that will comprise the next set of cellular advancements (5G). In particular, the authors explore usages for future 5G communications, key metrics for these usages with their target requirements, and network architectures and enabling technologies to meet 5G requirements. The objective is to provide a comprehensive guide on the emerging trends in mobile applications, and the challenges of supporting such applications with 4G technologies.

Towards 5GApplications, Requirements and Candidate TechnologiesJohn Wiley & Sons

Written in a clear and concise manner, this book presents readers with an in-depth discussion of the 5G technologies that will help move society beyond its current capabilities. It perfectly illustrates how the technology itself will benefit both individual consumers and industry as the world heads towards a more connected state of being. Every technological application presented is modeled in a schematic diagram and is considered in depth through mathematical analysis and performance assessment. Furthermore, published simulation data and measurements are checked. Each chapter of 5G Physical Layer Technologies contains texts, mathematical analysis, and applications supported by figures, graphs, data tables, appendices, and a list of up to date references, along with an executive summary of the key issues. Topics covered include: the evolution of wireless communications; full duplex communications and full dimension MIMO technologies; network virtualization and wireless energy harvesting; Internet of Things and smart cities; and millimeter wave massive MIMO technology. Additional chapters look at millimeter wave propagation losses caused by atmospheric gases, rain, snow, building materials and vegetation; wireless channel modeling and array mutual coupling; massive array configurations and 3D channel modeling; massive MIMO channel estimation schemes and channel reciprocity; 3D beamforming technologies; and linear precoding strategies for multiuser massive MIMO systems. Other features include: In depth coverage of a hot topic soon to become the backbone of IoT connecting devices, machines, and vehicles Addresses the need for green communications for the 21st century Provides a comprehensive support for the advanced mathematics exploited in the book by including appendices and worked examples Contributions from the EU research programmes, the International telecommunications companies, and the International standards institutions (ITU; 3GPP; ETSI) are covered in depth Includes numerous tables and illustrations to aid the reader Fills the gap in the current literature where technologies are not explained in depth or omitted altogether 5G Physical Layer Technologies is an essential resource for undergraduate and postgraduate courses on wireless communications and technology. It is also an excellent source of information for design engineers, research and development engineers, the private-public research community, university research academics, undergraduate and postgraduate students, technical managers, service providers, and all professionals involved in the communications and technology industry.

This book provides a comprehensive guide to the emerging field of network slicing and its importance to bringing novel 5G applications into fruition. The authors discuss the current trends, novel enabling technologies, and current challenges imposed on the cellular networks. Resource management aspects of network slicing are also discussed by summarizing and comparing traditional game theoretic and optimization based solutions. Finally, the book presents some use cases of network slicing and applications for vertical industries. Topics include 5G deliverables, Radio Access Network (RAN) resources, and Core Network (CN) resources. Discusses the 5G network requirements and the challenges therein and how network slicing offers a solution Features the enabling technologies of future networks and how network slicing will play a role Presents the role of machine learning and data analytics for future cellular networks along with summarizing the machine learning approaches for 5G and beyond networks

This book constitutes the proceedings of the First International Conference on 5G for Future Wireless Networks, 5GWN 2017, held in Beijing, China, in April 2017. The 64 full papers were selected from 135 submissions and present the state of the art and practical applications of 5G technologies. The exponentially growing data traffic caused by the development of mobile Internet and smart phones requires powerful networks. The fifth generation (5G) techniques are promising to meet the requirements of this explosive data traffic in future mobile communications.

This three-volume set LNCS 10666, 10667, and 10668 constitutes the refereed conference proceedings of the 9thInternational Conference on Image and Graphics, ICIG 2017, held in Shanghai, China, in

September 2017. The 172 full papers were selected from 370 submissions and focus on advances of theory, techniques and algorithms as well as innovative technologies of image, video and graphics processing and fostering innovation, entrepreneurship, and networking.

This contributed volume offers a collection of papers presented at the 2016 Network Games, Control, and Optimization conference (NETGCOOP), held at the University of Avignon in France, November 23-25, 2016. These papers highlight the increasing importance of network control and optimization in many networking application domains, such as mobile and fixed access networks, computer networks, social networks, transportation networks, and, more recently, electricity grids and biological networks. Covering a wide variety of both theoretical and applied topics in the areas listed above, the authors explore several conceptual and algorithmic tools that are needed for efficient and robust control operation, performance optimization, and better understanding the relationships between entities that may be acting cooperatively or selfishly in uncertain and possibly adversarial environments. As such, this volume will be of interest to applied mathematicians, computer scientists, engineers, and researchers in other related fields.

A unified treatment of the latest game theoretic approaches for designing, modeling, and optimizing emerging wireless communication networks. Covering theory, analytical tools, and applications, it is ideal for researchers and graduate students in academia and industry designing efficient, scalable and robust protocols for future wireless networks.

This book constitutes the refereed post-conference proceedings of the 6st International Conference on IoT as a Service, IoTaaS 2020, which took place in Xi'an, China, in November 2020. Due to COVID-19 pandemic the conference was held virtually. The 69 revised full papers were carefully reviewed and selected from 136 submissions. The papers present two technical tracks and three workshops: The Second Workshop on Edge Intelligence and Computing for Iot Communications and Applications, the Workshop on Satellite Communication Networks for Internet of Things, the Workshop on Satellite Communications .

Fog is starting to shape the future of the balance of power in information technology The book examines how fog will change the information technology industry in the next decade. Along the cloud-to-things continuum, fog distributes the services of computation, communication, control, and storage closer to the edge, access, and users. As a computing and networking architecture, fog enables key applications in wireless 5G, the Internet of things (IoT), and big data. The authors cover the fundamental trade-offs to major applications of fog. The book chapters are designed to motivate a transition from the current cloud architectures to the fog (Chapter 1) and the necessary architectural components to support such a transition (Chapters 2–6). The rest of the chapters (Chapters 7–11) are dedicated to reviewing various 5G and IoT applications that will benefit from fog networking. This volume is edited by pioneers in fog and includes contributions by active researchers in the field. Covers fog technologies and describes the interaction between fog and cloud Presents a view of fog and IoT that combines the aspects of both industry and academia Discusses the various architectural and design challenges in coordinating the interactions between M2M, D2D, and fog technologies "Fog for 5G and IoT" serves as an introduction to the evolving fog architecture, compiling work from different areas that collectively form this paradigm

A comprehensive review to the theory, application and research of machine learning for future wireless communications In one single volume, Machine Learning for Future Wireless Communications provides a comprehensive and highly accessible treatment to the theory, applications and current research developments to the technology aspects related to machine learning for wireless communications and networks. The technology development of machine learning for wireless communications has grown explosively and is one of the biggest trends in related academic, research and industry communities. Deep neural networks-based machine learning technology is a promising tool to attack the big challenge in wireless communications and networks imposed by the increasing demands in terms of capacity, coverage, latency, efficiency flexibility, compatibility, quality of experience and silicon convergence. The author – a noted expert on the topic – covers a wide range of topics including system architecture and optimization, physical-layer and cross-layer processing, air interface and protocol design, beamforming and antenna configuration, network coding and slicing, cell acquisition and handover, scheduling and rate adaption, radio access control, smart proactive caching and adaptive resource allocations. Uniquely organized into three categories: Spectrum Intelligence, Transmission Intelligence and Network Intelligence, this important resource: Offers a comprehensive review of the theory, applications and current developments of machine learning for wireless communications and networks Covers a range of topics from architecture and optimization to adaptive resource allocations Reviews state-of-the-art machine learning based solutions for network coverage Includes an overview of the applications of machine learning algorithms in future wireless networks Explores flexible backhaul and front-haul, cross-layer optimization and coding, full-duplex radio, digital front-end (DFE) and radio-frequency (RF) processing Written for professional engineers, researchers, scientists, manufacturers, network operators, software developers and graduate students, Machine Learning for Future Wireless Communications presents in 21 chapters a comprehensive review of the topic authored by an expert in the field.

The two-volume set LNICST 236-237 constitutes the post-conference proceedings of the 12th EAI International Conference on Communications and Networking, ChinaCom 2017, held in Xi'an, China, in September 2017. The total of 112 contributions presented in these volumes are carefully reviewed and selected from 178 submissions. Aside from the technical paper sessions the book is organized in topical sections on wireless communications and networking, satellite and space communications and networking, big data network track, multimedia communications and smart networking, signal processing and communications, network and information security, advances and trends of V2X networks.

This proceedings constitutes the refereed proceedings of the 15th EAI International Conference on Communications and Networking, ChinaCom 2020, held in November 2020 in Shanghai, China. Due to COVID-19 pandemic the conference was held virtually. The 54 papers presented were carefully selected from 143 submissions. The papers are organized in topical sections on Transmission Optimization in Edge Computing; Performance and Scheduling Optimization in Edge Computing; Mobile Edge Network System;

Communication Routing and Control; Transmission and Load Balancing; Edge Computing and Distributed Machine Learning; Deep Learning.

This book features the major research advances on integrated networking, caching, and computing. Information-centric networking-based caching is one of the promising techniques for future networks. The cloud computing paradigm has been widely adopted to enable convenient, on-demand network access to a shared pool of configurable computing resources. In addition, fog/edge computing is proposed to deploy computing resources closer to end devices. From the perspective of applications, network, cache and compute are underlying enabling resources. How to manage, control and optimize these resources can have significant impacts on application performance.

This book constitutes the refereed post-conference proceedings of the 14th EAI International Conference on Quality, Reliability, Security and Robustness in Heterogeneous Networks, QShine 2018, held in Ho Chi Minh City, Vietnam, in December 2018. The 13 revised full papers were carefully reviewed and selected from 28 submissions. The papers are organized thematically in tracks, starting with security and privacy, telecommunication systems and networks, networks and applications.

??????5G???????????5G???????(MEC)??????????5G????????MEC???????????MEC?????????????MEC?????????