Blockchain Applications A Hands On Approach Full Online

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Blockchain Babel - Igor Pejic 2019-03-03
Blockchain is the technology behind bitcoin and other crypto-currencies. According to Santander, it could save financial institutions $15-20bn a year from 2022 onward. Most experts see an unprecedented potential, but many banks, payment processors and credit card companies fret that bitcoin entrepreneurs could cast a pall over their core business. Whatever the position of blockchain, many voices are shouting from different angles, creating a cacophony of confusion including tech-evangelists, anarcho-libertarians, and industry experts. But while everybody in IT and banking seems to have an opinion on the blockchain, there is little systematic research, no strategic analysis. Blockchain Babel is the ultimate guide to the most disruptive technology to have entered the finance industry in recent years. Blockchain Babel looks at blockchain alongside innovation diffusion, competitive dynamics and management strategy. Shortlisted as one of the three best business book proposals by McKinsey and the Financial Times for the Bracken Bower Prize in 2016, this is a must-read for business leaders and aspiring leaders wanting to grasp blockchain and put it into context and understand the practical implications it may have.

Advances in Blockchain Technology for Cyber Physical Systems - Yassine Maleh 2022-04-01
The Cyber-Physical System (CPS) relates to many other popularized technologies such as Internet of Things (IoT, IIoT), Machine-to-Machine (M2M), Industry 4.0, which describe a vision of connected creations that deeply unite the physical and information domains. As a revolutionary technology, Blockchain (BC) provides a practical solution to enable a secure and decentralized public ledger that a huge plethora of exciting new technology applications in several areas, such as the Internet of Things (IoT), Cyber-Physical Systems, Manufacturing, Supply-Chain, etc. Blockchain technology has infiltrated all areas of our lives, from manufacturing to healthcare and beyond. In this context, this book helps discover the various potential applications that could be fruitful for cyber-physical system applications. It provides a sampling of recent advances and ideas on research progress and the practical usage of blockchain technologies in addressing cyber-physical systems challenges and issues. It provides a sampling of recent advances and views on research progress and the practical usage of blockchain technologies in addressing cyber-physical systems challenges and issues.

Research Anthology on Blockchain Technology in Business, Healthcare, Education, and Government - Management Association, Information Resources 2020-09-30
Even though blockchain technology was originally created as a ledger system for bitcoin to operate on, using it for areas other than cryptocurrency has become increasingly popular as of late. The transparency and security provided by blockchain technology is challenging innovation in a variety of businesses and is being applied in fields that include accounting and finance, supply chain management, and education. With the ability to perform such tasks as tracking fraud and securing the distribution of medical records, this technology is key to the advancement of many industries. The Research Anthology on Blockchain Technology in Business, Healthcare, Education, and Government is a vital reference source that examines the latest scholarly material on trends, techniques, and uses of blockchain technology applications in a variety of industries, and how this technology can further transparency and security. Highlighting a range of topics such as cryptography, smart contracts, and decentralized blockchain, this multi-volume book is ideally designed for academics, researchers, industry leaders, managers, healthcare professionals, IT consultants, engineers, programmers, practitioners, government officials, policymakers, and students.

Applications of Blockchain and Big IoT Systems - Arun Solanki

2022-08-29
This new volume explores a plethora of blockchain-based solutions for big data and IoT applications, looking at advances in real-world applications in several sectors, including higher education, cybersecurity, agriculture, business and management, healthcare and biomedical science, construction and project management, smart city development, and others. Chapters explore emerging technology to combat the ever-increasing threat of security to computer systems and offer new architectural solutions for problems encountered in data management and security. The chapters help to provide a high level of understanding of various blockchain algorithms along with the necessary tools and techniques. The novel architectural solutions in the deployment of blockchain presented here are the core of the book.

Blockchain and Applications - Javier Prieto 2019-06-25
This book gathers the refereed proceedings of the 1st International Congress on Blockchain and Applications 2019, BLOCKCHAIN'19, held in Ávila, Spain, in June 2019. Among the scientific community, blockchain and artificial intelligence are broadly considered to offer a promising combination that could transform the production and manufacturing industry, media, finance, insurance, e-government, etc. Nevertheless, there is no generally accepted approach, nor established best practices, for combining blockchain and artificial intelligence. The 21 papers presented here were carefully reviewed and selected from over 40 submissions. They highlight the latest advances in blockchain, artificial intelligence and their application domains, exploring innovative ideas, guidelines, theories, models, technologies, and tools, and identifying critical issues and challenges that researchers and practitioners will face in the near future. We wish to thank the sponsors: IEEE Systems Man and Cybernetics Society, Spain Section Chapter, and the IEEE Spain Section (Technical Co-Sponsor), IBM, Indra, Viewnext, Global Exchange, AEPIA, APPIA and AIR institute.

Blockchain By Example - Bellaj Badr 2018-11-30
Implement decentralized blockchain applications to build scalable Dapps Key FeaturesUnderstand the blockchain ecosystem and its terminologiesImplement smart contracts, wallets, and consensus protocolsDesign and develop decentralized applications using Bitcoin, Ethereum, and HyperledgerBook Description The Blockchain is a revolution promising a new world without middlemen. Technically, it is an immutable and tamper-proof distributed ledger of all transactions across a peer-to-peer network. With this book, you will get to grips with the blockchain ecosystem to build real-world projects. This book will walk you through the process of building multiple blockchain projects with different complexity levels and hurdles. Each project will teach you just enough about the field's leading technologies, Bitcoin, Ethereum, Quorum, and Hyperledger in order to be productive from the outset. As you make your way through the chapters, you will cover the major challenges that are associated with blockchain ecosystems such as scalability, integration, and distributed file management. In the concluding chapters, you'll learn to build blockchain projects for business, run your ICO, and even create your own cryptocurrency. Blockchain by Example also covers a range of projects such as Bitcoin payment systems, supply chains on Hyperledger, and developing a Tontine Bank Every is using Ethereum. By the end of this book, you will not only be able to tackle common issues in the blockchain ecosystem, but also design and build reliable and scalable distributed systems. What you will learnGrasp decentralized technology fundamentals to master blockchain principlesBuild blockchain projects on Bitcoin, Ethereum, and HyperledgerCreate your currency and a payment application using BitcoinImplement decentralized apps and supply chain systems using HyperledgerWrite smart contracts, run your ICO, and build a Tontine decentralized app using EthereumImplement distributed file

management with blockchainIntegrate blockchain into existing systems in your organizationWho this book is for If you are keen on learning how to build your own blockchain decentralized applications from scratch, then this book is for you. It explains all the basic concepts required to develop intermediate projects and will teach you to implement the building blocks of a blockchain ecosystem.

Security and Trust Issues in Internet of Things - Sudhir Kumar Sharma 2020-12-03
The purpose of this edited book is to present and showcase the basic fundamentals, applications, and integration of both IoT and Blockchain. The trend of applying Blockchain to IoT is rapidly growing because it helps to overcome various challenges faced by IoT, from smart manufacturing to unmanned aerial vehicles. Thise book aims to showcase the basics of both IoT and Blockchain as well as the integration and challenges for existing practitioners. Thise book initiates conversations among technologists, engineers, scientists, and clinicians to synergize their efforts in producing low-cost, high-performance, highly efficient, deployable IoT systems. Thise book is theory-based and is useful for engineers from various disciplines, including industrial engineering, computer science, electronics, telecommunications, electrical, agricultural, and cybersecurity, along with researchers, professionals, and students.

Blockchain for Smart Cities - Saravanan Krishnan 2021-08-25
Focusing on different tools, platforms, and techniques, Blockchain and the Smart City: Infrastructure and Implementation uses case studies from around the world to examine blockchain deployment in diverse smart city applications. The book begins by examining the fundamental theories and concepts of blockchain. It looks at key smart cities' domains such as banking, insurance, healthcare, and supply chain management. It examines Using case studies for each domain, the book looks at payment mechanisms, fog/edge computing, green computing, and algorithms and consensus mechanisms for smart cities implementation. It looks at tools such as Hyperledger, Etherium, Corda, IBM Blockchain, Hydrachain, as well as policies and regulatory standards, applications, solutions, and methodologies. While exploring future blockchain ecosystems for smart and sustainable city life, the book concludes with the research challenges and opportunities academics, researchers, and companies in implementing blockchain applications. Independently organized chapters for greater readability, adaptability, and flexibility Examines numerous issues from multiple perspectives and academic and industry experts Explores both advances and challenges of cutting-edge technologies Coverage of security, trust, and privacy issues in smart cities

The Political Economy and Feasibility of Bitcoin and Cryptocurrencies - Pack, Spencer J. 2022-05-13
Entrepreneurship and Economic Development addresses the importance of business creation, which is endemic in subsistence indigenous cultures, widespread in developing economies, and a critical feature of adaptation in the most advanced economies. The author offers systematic comparisons of six stages of economic development which provide information about the adjustments in the economic and social context affecting participation in business creation, the sectors where activities occur, and the nature of the contributions to economic growth and adaptation.

Hands-On Blockchain for Python Developers - Arjuna Sky Kok 2019-02-14
Implement real-world decentralized applications using Python, Vyper, Populus, and Ethereum Key FeaturesStay up-to-date with everything you need to know about the blockchain ecosystemImplement smart contracts, wallets, and decentralized applications(DApps) using Python librariesGet deeper insights into storing content in a distributed storage platformBook Description Blockchain is seen as the main technological solution that works as a public ledger for all cryptocurrency transactions. This book serves as a practical guide to developing a full-fledged decentralized application with Python to interact with the various building blocks of blockchain applications. Hands-On Blockchain for Python Developers starts by demonstrating how blockchain technology and cryptocurrency hashing works. You will understand the fundamentals and benefits of smart contracts such as censorship resistance and transaction accuracy. As you steadily progress, you'll go on to build smart contracts using Vyper, which has a similar syntax to Python. This experience will further help you unravel the other benefits of smart contracts, including reliable storage and backup, and efficiency. You'll also use web3.py to interact with smart contracts and leverage the power of both the web3.py and Populus framework to build decentralized applications that offer security and seamless integration with

cryptocurrencies. As you explore later chapters, you'll learn how to create your own token on top of Ethereum and build a cryptocurrency wallet graphical user interface (GUI) that can handle Ethereum and Ethereum Request for Comments (ERC-20) tokens using the PySide2 library. This will enable users to seamlessly store, send, and receive digital money. Toward the end, you'll implement InterPlanetary File System (IPFS) technology in your decentralized application to provide a peer-to-peer filesystem that can store and expose media. By the end of this book, you'll be well-versed in blockchain programming and be able to build end-to-end decentralized applications on a range of domains using Python. What you will learnUnderstand blockchain technology and what makes it an immutable databaseUse the features of web3.py API to interact with the smart contractCreate your own cryptocurrency and token in Ethereum using VyperUse IPFS features to store content on the decentralized storage platformImplement a Twitter-like decentralized application with a desktop frontendBuild decentralized applications in the shape of console, web, and desktop applicationsWho this book is for If you are a Python developer who wants to enter the world of blockchain, Hands-On Blockchain for Python Developers is for you. The book will be your go-to guide to becoming well-versed with the blockchain ecosystem and building your own decentralized applications using Python and library support.

Handbook of Research on Blockchain Technology - Saravanan Krishnan 2020-02-04
Handbook of Research on Blockchain Technology presents the latest information on the adaptation and implementation of Blockchain technologies in real world business, scientific, healthcare and biomedical applications. The book's editors present the rapid advancements in existing business models by applying Blockchain techniques. Novel architectural solutions in the deployment of Blockchain comprise the core aspects of this book. Several use cases with IoT, biomedical engineering, and smart cities are also incorporated. As Blockchain is a relatively new technology that exploits decentralized networks and is used in many sectors for reliable, cost-effective and rapid business transactions, this book is a welcomed addition on existing knowledge. Financial services, retail, insurance, logistics, supply chain, public sectors and biomedical industries are now investing in Blockchain research and technologies for their business growth. Blockchain prevents double spending in financial transactions without the need of a trusted authority or central server. It is a decentralized ledger platform that facilitates verifiable transactions between parties in a secure and smart way. Presents the evolution of blockchain, from fundamental theories, to present forms Explains the concepts of blockchain related to cloud/edge computing, smart healthcare, smart cities and Internet of Things (IoT) Provides complete coverage of the various tools, platforms and techniques used in blockchain Explores smart contract tools and consensus algorithms Covers a variety of applications with real world case studies in areas such as biomedical engineering, supply chain management, and tracking of goods and delivery

Data Engineering and Communication Technology - K. Srujan Raju 2020-01-08
This book includes selected papers presented at the 3rd International Conference on Data Engineering and Communication Technology (ICDECT-2K19), held at Stanley College of Engineering and Technology for Women, Hyderabad, from 15 to 16 March 2019. It features advanced, multidisciplinary research towards the design of smart computing, information systems, and electronic systems. It also focuses on various innovation paradigms in system knowledge, intelligence, and sustainability which can be applied to provide viable solutions to diverse problems related to society, the environment, and industry.

Blockchain Technology: Applications and Challenges - Sandeep Kumar Panda 2021-04-30
This book discusses the various open issues of blockchain technology, such as the efficiency of blockchain in different domains of digital cryptocurrency, smart contracts, smart education system, smart cities, cloud identity and access, safeguard to cybersecurity and health care. For the first time in human history, people across the world can trust each other and transact over a large peer-to-peer networks without any central authority. This proves that, trust can be built not only by centralized institution but also by protocols and cryptographic mechanisms. The potential and collaboration between organizations and individuals within peer networks make it possible to potentially move to a global collaborative network without centralization. Blockchain is a complex social, economic and technological phenomenon. This questions what the established terminologies of the modern world like currency,

trust, economics and exchange would mean. To make any sense, one needs to realize how much insightful and potential it is in the context and the way it is technically developed. Due to rapid changes in accessing the documents through online transactions and transferring the currency online, many previously used methods are proving insufficient and not secure to solve the problem which arises in the safe and hassle-free transaction. Nowadays, the world changes rapidly, and a transition flow is also seen in Business Process Management (BPM). The traditional Business Process Management holds good establishment last one to two decades, but, the internal workflow confined in a single organization. They do not manage the workflow process and information across organizations. If they do so, again fall in the same trap as the control transfers to the third party that is centralized server and it leads to tampering the data, and single point of failure. To address these issues, this book highlights a number of unique problems and effective solutions that reflects the state-of-the art in blockchain Technology. This book explores new experiments and yields promising solutions to the current challenges of blockchain technology. This book is intended for the researchers, academicians, faculties, scientists, blockchain specialists, business management and software industry professionals who will find it beneficial for their research work and set new ideas in the field of blockchain. This book caters research work in many fields of blockchain engineering, and it provides an in-depth knowledge of the fields covered.

Blockchain Technology Applications in Businesses and Organizations - De Giovanni, Pietro 2021-12-17
Blockchain technology has the ability to disrupt industries and transform business models since all intermediaries and stakeholders can now interact with little friction and at a fraction of the current transaction costs. Using blockchain technology, firms can undergo new applications and processes by pursuing transparency and control, low bureaucracy, trustless relationships, high standards of responsibility, and sustainability. As a result, business and organizations can successfully implement blockchain to grant transparency to consumers and end-users; remove challenges linked to pollution, frauds, human rights, abuse, and other inefficiencies; as well as guaranteed traceability of goods and services by univocally identifying the provenance inputs' quantity and quality along with their treatment and origin. Blockchain Technology Applications in Businesses and Organizations reveals the true advantages that blockchain entails for firms by creating transparent and digital transactions, resolves conflicts and exceptions, and provides incentive-based mechanisms and smart contracts. This book seeks to create a clear understanding of blockchain's applications such that business leaders can see and evaluate its real advantages. Blockchain is then analyzed not from the typical perspective of financial tools using cryptocurrencies and bitcoins but from the perspective of the business advantages for business and organizations. Specifically, the book highlights the advantages of blockchain across different segments and industries by analyzing specific aspects like procurement, manufacturing, contracts, inventory, logistics, operations, sustainability, technology, and innovation. It is an essential reference source for managers, executives, IT specialists, students, operations managers, supply chain managers, project managers, technology managers, academicians, and researchers.

Information For Efficient Decision Making: Big Data, Blockchain And Relevance - Kashi R Balachandran 2020-11-19
Can there be reliable information that is also relevant to decision making? Information for Efficient Decision Making: Big Data, Blockchain and Relevance focuses on the consolidation of information to facilitate making decisions in firms, in order to make their operations efficient to reduce their costs and consequently, increase their profitability. The advent of blockchain has generated great interest as an alternative to centralized organizations, where the data is gathered through a centralized ledger keeping of activities of the firm. The decentralized ledger keeping is one of the main features of blockchain that has given rise to many issues of technology, development, implementation, privacy, acceptance, evaluation and so on. Blockchain concept is a follow-up to big data environment facilitated by enormous progress in computer hardware, storage capacities and technological prowess. This has resulted in the rapid acquiring of data not considered possible earlier. With shrewd modeling analytics and algorithms, the applications have grown to significant levels. This handbook discusses the progress in data collection, pros and cons of collecting information on decentralized publicly available ledgers and several applications.
Cloud Computing: A Hands-On Approach - Arshdeep Bahga 2013-12-09
About the Book Recent industry surveys expect the cloud computing

services market to be in excess of $20 billion and cloud computing jobs to be in excess of 10 million worldwide in 2014 alone. In addition, since a majority of existing information technology (IT) jobs is focused on maintaining legacy in-house systems, the demand for these kinds of jobs is likely to drop rapidly if cloud computing continues to take hold of the industry. However, there are very few educational options available in the area of cloud computing beyond vendor-specific training by cloud providers themselves. Cloud computing courses have not found their way (yet) into mainstream college curricula. This book is written as a textbook on cloud computing for educational programs at colleges. It can also be used by cloud service providers who may be interested in offering a broader perspective of cloud computing to accompany their own customer and employee training programs. The typical reader is expected to have completed a couple of courses in programming using traditional high-level languages at the college-level, and is either a senior or a beginning graduate student in one of the science, technology, engineering or mathematics (STEM) fields. We have tried to write a comprehensive book that transfers knowledge through an immersive "hands-on approach", where the reader is provided the necessary guidance and knowledge to develop working code for real-world cloud applications. Additional support is available at the book's website: www.cloudcomputingbook.info Organization The book is organized into three main parts. Part I covers technologies that form the foundations of cloud computing. These include topics such as virtualization, load balancing, scalability & elasticity, deployment, and replication. Part II introduces the reader to the design & programming aspects of cloud computing. Case studies on design and implementation of several cloud applications in the areas such as image processing, live streaming and social networks analytics are provided. Part III introduces the reader to specialized aspects of cloud computing including cloud application benchmarking, cloud security, multimedia applications and big data analytics. Case studies in areas such as IT, healthcare, transportation, networking and education are provided.
Blockchain - Melanie Swan 2015-01-24
Bitcoin is starting to come into its own as a digital currency, but the blockchain technology behind it could prove to be much more significant. This book takes you beyond the currency ("Blockchain 1.0") and smart contracts ("Blockchain 2.0") to demonstrate how the blockchain is in position to become the fifth disruptive computing paradigm after mainframes, PCs, the Internet, and mobile/social networking. Author Melanie Swan, Founder of the Institute for Blockchain Studies, explains that the blockchain is essentially a public ledger with potential as a worldwide, decentralized record for the registration, inventory, and transfer of all assets—not just finances, but property and intangible assets such as votes, software, health data, and ideas. Topics include: Concepts, features, and functionality of Bitcoin and the blockchain Using the blockchain for automated tracking of all digital endeavors Enabling censorship?resistant organizational models Creating a decentralized digital repository to verify identity Possibility of cheaper, more efficient services traditionally provided by nations Blockchain for science: making better use of the data-mining network Personal health record storage, including access to one's own genomic data Open access academic publishing on the blockchain This book is part of an ongoing O'Reilly series. Mastering Bitcoin: Unlocking Digital Crypto-Currencies introduces Bitcoin and describes the technology behind Bitcoin and the blockchain. Blockchain: Blueprint for a New Economy considers theoretical, philosophical, and societal impact of cryptocurrencies and blockchain technologies.
Intelligent and Fuzzy Techniques: Smart and Innovative Solutions - Cengiz Kahraman 2020-07-10
This book gathers the most recent developments in fuzzy & intelligence systems and real complex systems presented at INFUS 2020, held in Istanbul on July 21–23, 2020. The INFUS conferences are a well-established international research forum to advance the foundations and applications of intelligent and fuzzy systems, computational intelligence, and soft computing, highlighting studies on fuzzy & intelligence systems and real complex systems at universities and international research institutions. Covering a range of topics, including the theory and applications of fuzzy set extensions such as intuitionistic fuzzy sets, hesitant fuzzy sets, spherical fuzzy sets, and fuzzy decision-making; machine learning; risk assessment; heuristics; and clustering, the book is a valuable resource for academics, M.Sc. and Ph.D. students, as well as managers and engineers in industry and the service sectors.
Information Security Education. Education in Proactive Information Security - Lynette Drevin 2019-06-18

This book constitutes the refereed proceedings of the 11th IFIP WG 11.8 World Conference on Information Security Education, WISE 12, held in Lisbon, Portugal, in June 2019. The 12 revised full papers presented were carefully reviewed and selected from 26 submissions. The papers are organized in the following topical sections: innovation in curricula; training; applications and cryptography; and organizational aspects.

17th International Conference on Information Technology–New Generations (ITNG 2020) - Shahram Latifi 2020-05-11
This volume presents the 17th International Conference on Information Technology—New Generations (ITNG), and chronicles an annual event on state of the art technologies for digital information and communications. The application of advanced information technology to such domains as astronomy, biology, education, geosciences, security, and healthcare are among the themes explored by the ITNG proceedings. Visionary ideas, theoretical and experimental results, as well as prototypes, designs, and tools that help information flow to end users are of special interest. Specific topics include Machine Learning, Robotics, High Performance Computing, and Innovative Methods of Computing. The conference features keynote speakers; a best student contribution award, poster award, and service award; a technical open panel, and workshops/exhibits from industry, government, and academia.

Building Blockchain Apps - Michael Juntao Yuan 2019-11-29
A Developer's Guide to Blockchain Programming Fundamentals Blockchain development is entering a period of explosive growth, as real applications gain traction throughout multiple industries and cryptocurrencies earn greater acceptance throughout the financial sector. Blockchain represents one of the most promising opportunities for developers to advance and succeed. Building Blockchain Apps is an accessible guide to today's most advanced and robust blockchain programming models and architectures. Building on his pioneering experience, Michael Juntao Yuan covers a wide range of blockchain application development paradigms. The book starts with a concise introduction to blockchain and smart contract technologies. It then guides you through application development on Ethereum-compatible smart contract platforms. Ethereum is the largest and most robust blockchain ecosystem in the world. Coverage includes Ethereum topics such as tools, application frameworks, internal data structures, external data interfaces, and future roadmap An introduction to new blockchain data protocol based on ElasticSearch, which provides insights into the current state of smart contracts and enables new application designs How to build an application-specific smart contract protocol by modifying and customizing the open source Ethereum Virtual Machine and its programming language tools How to extend and support language features that are most suitable for particular kinds of smart contracts (e.g., smart contracts for e-commerce marketplaces) with the open source Lity project How to customize and change the blockchain consensus layer beneath the application layer via the popular Tendermint and Cosmos SDK frameworks A survey of cryptocurrency and financial topics from the developers' point of view, providing an analytical framework for valuating cryptocurrencies and explaining the roles of crypto exchanges Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Blockchain Technology for Business Processes - Katarina Adam 2022-09-18
Blockchain technology beyond cryptocurrencies: Discover the many possible uses for your company In this practice-oriented book, the basics of blockchain technology are presented and the reader learns where and how this technology can be usefully applied in business processes. First, the general characteristics of blockchain technology are described; then an actual use case is developed and presented via various steps. This includes a stakeholder analysis as well as a review of the envisaged case by means of the so-called Blockchain Decision Path. In addition, the core concepts, important tools such as the morphological box and non-fungible tokens (NFT) as well as the roles to be filled according to the technology are presented. This book is suitable for managers, directors, developers, strategists and business consultants as well as for students. From the contents · Blockchain types, protocols and consensus models · Methods of process analysis: decision path and utility analysis · Development of an individualised blockchain model · Future analyses of blockchain technology With the help of this book, the reader is able to take his or her own necessary steps, filter out the appropriate business process and create the roadmap for a first prototype. The author explains this with practical examples to enable non-developers to access this knowledge.

Hands-On Smart Contract Development with Hyperledger Fabric V2 - Matt Zand 2021-09-09
Blockchain technology continues to disrupt a wide variety of organizations, from small businesses to the Fortune 500. Today hundreds of blockchain networks are in production, including many built with Hyperledger Fabric. This practical guide shows developers how the latest version of this blockchain infrastructure provides an ideal foundation for developing enterprise blockchain applications or solutions. Authors Matt Zand, Xun Wu, and Mark Anthony Morris demonstrate how the versatile design of Hyperledger Fabric 2.0 satisfies a broad range of industry use cases. Developers with or without previous Hyperledger experience will discover why no other distributed ledger technology framework enjoys such wide adoption by cloud service providers such as Amazon, Alibaba, IBM, Google, and Oracle. Walk through the architecture and components of Hyperledger Fabric 2.0 Migrate your current Hyperledger Fabric projects to version 2.0 Develop blockchain applications on the Hyperledger platform with Node.js Deploy and integrate Hyperledger on Amazon Managed Blockchain, IBM Cloud, and Oracle Cloud Develop blockchain applications with Hyperledger Aries, Avalon, Besu, and Grid Build end-to-end blockchain supply chain applications with Hyperledger

Blockchain Basics - Daniel Drescher 2017-03-14
In 25 concise steps, you will learn the basics of blockchain technology. No mathematical formulas, program code, or computer science jargon are used. No previous knowledge in computer science, mathematics, programming, or cryptography is required. Terminology is explained through pictures, analogies, and metaphors. This book bridges the gap that exists between purely technical books about the blockchain and purely business-focused books. It does so by explaining both the technical concepts that make up the blockchain and their role in business-relevant applications. What You'll Learn What the blockchain is Why it is needed and what problem it solves Why there is so much excitement about the blockchain and its potential Major components and their purpose How various components of the blockchain work and interact Limitations, why they exist, and what has been done to overcome them Major application scenarios Who This Book Is For Everyone who wants to get a general idea of what blockchain technology is, how it works, and how it will potentially change the financial system as we know it

Blockchain - Harvard Business Review 2019
Can blockchain solve your biggest business problem? While news outlets are transfixed with Bitcoin's latest swings, your most forward-looking competitors are tuning out the noise and quietly making key bets on blockchain. They're effortlessly tracking every last link in their supply chains. They're making bureaucratic paper trails obsolete while keeping their customers' data safer. And they're imagining new ways to use this next foundational technology to sustain their competitive advantage. What should you be doing right now to ensure that your business is poised for success? These articles by blockchain experts and consultants will help you understand today's most essential thinking on what blockchain is capable of now, how to adopt it in your organization, and how the technology is likely to be used in the near future and beyond. Blockchain: The Insights You Need from Harvard Business Review will help you spearhead important conversations, get going on the right blockchain initiatives in your company, and capitalize on the opportunity of the coming blockchain wave. Catch up on current topics and deepen your understanding of them with the Insights You Need series from Harvard Business Review. Featuring some of HBR's best and most recent thinking, Insights You Need titles are both a primer on today's most pressing issues and an extension of the conversation, with interesting research, interviews, case studies, and practical ideas to help you explore how a particular issue will impact your company and what it will mean for you and your business.

Big Data Science & Analytics - Arshdeep Bahga 2016-04-15
Big data is defined as collections of datasets whose volume, velocity or variety is so large that it is difficult to store, manage, process and analyze the data using traditional databases and data processing tools. We have written this textbook to meet this need at colleges and universities, and also for big data service providers.

Blockchain and Deep Learning - Khaled R. Ahmed 2022-03-25
This book introduces to blockchain and deep learning and explores and illustrates the current and new trends that integrate them. The pace and speeds for connectivity are certain on the ascend. Blockchain and deep learning are twin technologies that are integral to integrity and relevance of network contents. Since they are data-driven technologies,

rapidly growing interests exist to incorporate them in efficient and secure data sharing and analysis applications. Blockchain and deep learning are sentinel contemporary research technologies. This book provides a comprehensive reference for blockchain and deep learning by covering all important topics. It identifies the bedrock principles and forward projecting methodologies that illuminate the trajectory of developments for the decades ahead.

Blockchain as both ICT and institutional technology - Marcel Kleber 2019-10-31
Master's Thesis from the year 2019 in the subject Economics - Monetary theory and policy, grade: 2,0, University of Potsdam, language: English, abstract: This thesis explores and analyses the technical and economic factors that determine the potential of blockchain technology for economy and society and their interactions. At the technical level, blockchain technology is portrayed as a combination of different base technologies. It enables new, potentially disruptive applications by providing an efficient technical solution for the fundamental double-spending problem. Based on these findings, blockchain technology is analyzed regarding a new Techno-economic paradigm. However, this does not (yet) appear to be the case, at least from an isolated perspective. From an institutional economics perspective, blockchain technology proves to be a rule-based system and thus a basis for alternative institutions. On the one hand, these enable new forms of economic interaction and coordination and, on the other hand, these are subject to novel governance mechanisms. It turns out that these decentralized blockchain-based forms can lead to higher efficiency in systems that have been dependent on traditional intermediaries up to now due to lower transaction costs. In contrast, there emerge new intermediaries within the blockchain ecosystem, which reminds of traditional schemes.

Sustainable and Energy Efficient Computing Paradigms for Society - Mohd Abdul Ahad 2020-08-31
This book provides insights into recent trends and innovation of technologies aiming to provide sustainable and energy efficient computing. The authors discuss approaches to provide solutions to real life societal issues and problems using sustainable and energy efficient computing approaches. The book gathers research and state of the art reviews on solutions for societal benefits by using sustainable approaches of computing. The book also intends to provide use-cases for certain real life societal problems. The book can be used by researchers of similar areas, technologists, environmentalists, educationists, research scholars and UG/PG Students as well.

Hands-On Cybersecurity with Blockchain - Rajneesh Gupta 2018-06-28
Develop blockchain application with step-by-step instructions, working example and helpful recommendations Key Features Understanding the blockchain technology from the cybersecurity perspective Developing cyber security solutions with Ethereum blockchain technology Understanding real-world deployment of blockchain based applications Book Description Blockchain technology is being welcomed as one of the most revolutionary and impactful innovations of today. Blockchain technology was first identified in the world's most popular digital currency, Bitcoin, but has now changed the outlook of several organizations and empowered them to use it even for storage and transfer of value. This book will start by introducing you to the common cyberthreat landscape and common attacks such as malware, phishing, insider threats, and DDoS. The next set of chapters will help you to understand the workings of Blockchain technology, Ethereum and Hyperledger architecture and how they fit into the cybersecurity ecosystem. These chapters will also help you to write your first distributed application on Ethereum Blockchain and the Hyperledger Fabric framework. Later, you will learn about the security triad and its adaptation with Blockchain. The last set of chapters will take you through the core concepts of cybersecurity, such as DDoS protection, PKI-based identity, 2FA, and DNS security. You will learn how Blockchain plays a crucial role in transforming cybersecurity solutions. Toward the end of the book, you will also encounter some real-world deployment examples of Blockchain in security cases, and also understand the short-term challenges and future of cybersecurity with Blockchain. What you will learn Understand the cyberthreat landscape Learn about Ethereum and Hyperledger Blockchain Program Blockchain solutions Build Blockchain-based apps for 2FA, and DDoS protection Develop Blockchain-based PKI solutions and apps for storing DNS entries Challenges and the future of cybersecurity and Blockchain Who this book is for The book is targeted towards security professionals, or any

stakeholder dealing with cybersecurity who wants to understand the next-level of securing infrastructure using Blockchain. Basic understanding of Blockchain can be an added advantage.

Hands-On Blockchain with Hyperledger - Nitin Gaur 2018-06-21
Leverage the power of Hyperledger Fabric to develop Blockchain-based distributed ledgers with ease Key Features Write your own chaincode/smart contracts using Golang on hyperledger network Build and deploy decentralized applications (DApps) Dive into real world blockchain challenges such as integration and scalability Book Description Blockchain and Hyperledger technologies are hot topics today. Hyperledger Fabric and Hyperledger Composer are open source projects that help organizations create private, permissioned blockchain networks. These find application in finance, banking, supply chain, and IoT among several other sectors. This book will be an easy reference to explore and build blockchain networks using Hyperledger technologies. The book starts by outlining the evolution of blockchain, including an overview of relevant blockchain technologies. You will learn how to configure Hyperledger Fabric and become familiar with its architectural components. Using these components, you will learn to build private blockchain networks, along with the applications that connect to them. Starting from principles first, you'll learn to design and launch a network, implement smart contracts in chaincode and much more. By the end of this book, you will be able to build and deploy your own decentralized applications, handling the key pain points encountered in the blockchain life cycle. What you will learn Discover why blockchain is a game changer in the technology landscape Set up blockchain networks using basic Hyperledger Fabric deployment Understand the considerations for creating decentralized applications Learn to integrate business networks with existing systems Write Smart Contracts quickly with Hyperledger Composer Design transaction model and chaincode with Golang Deploy Composer REST Gateway to access the Composer transactions Maintain, monitor, and govern your blockchain solutions Who this book is for The book benefits business leaders as it provides a comprehensive view on blockchain business models, governance structure, and business design considerations of blockchain solutions. Technology leaders stand to gain a lot from the detailed discussion around the technology landscape, technology design, and architecture considerations in the book. With model-driven application development, this guide will speed up understanding and concept development for blockchain application developers. The simple and well organized content will put novices at ease with blockchain concepts and constructs.

Architecting Enterprise Blockchain Solutions - Joseph Holbrook 2020-01-20
Demystify architecting complex blockchain applications in enterprise environments Architecting Enterprise Blockchain Solutions helps engineers and IT administrators understand how to architect complex blockchain applications in enterprise environments. The book takes a deep dive into the intricacies of supporting and securing blockchain technology, creating and implementing decentralized applications, and incorporating blockchain into an existing enterprise IT infrastructure. Blockchain is a technology that is experiencing massive growth in many facets of business and the enterprise. Most books around blockchain primarily deal with how blockchains are related to cryptocurrency or focus on pure blockchain development. This book teaches what blockchain technology is and offers insights into its current and future uses in high performance networks and complex ecosystems. • Provides a practical, hands-on approach • Demonstrates the power and flexibility of enterprise blockchains such as Hyperledger and R3 Corda • Explores how blockchain can be used to solve complex IT support and infrastructure problems • Offers numerous hands-on examples and diagrams Get ready to learn how to harness the power and flexibility of enterprise blockchains!

Convergence of Internet of Things and Blockchain Technologies - H L Gururaj 2021-08-31
This book presents chapters from diverse range of authors on different aspects of how Blockchain and IoT are converging and the impacts of these developments. The book provides an extensive cross-sectional and multi-disciplinary look into this trend and how it affects artificial intelligence, cyber-physical systems, and robotics with a look at applications in aerospace, agriculture, automotive, critical infrastructures, healthcare, manufacturing, retail, smart transport systems, smart cities, and smart healthcare. Cases include the impact of Blockchain for IoT Security; decentralized access control systems in IoT; Blockchain architecture for scalable access management in IoT; smart and sustainable IoT applications incorporating Blockchain, and more.

The book presents contributions from international academics, researchers, and practitioners from diverse perspectives. Presents how Blockchain and IoT are converging and the impacts of these developments on technology and its application; Discusses IoT and Blockchain from cross-sectional and multi-disciplinary perspectives; Includes contributions from researchers, academics, and professionals from around the world.

Blockchain Technology and Applications for Digital Marketing - Bansal, Rohit 2021-06-25
Blockchain is a digital, decentralized technology that is continually growing and making quite a mark in digital marketing. Blockchain has brought a drastic change to technology in the last few years, and it is referred to as distributed ledger technology (DLT), which makes the historical backdrop of any computerized resource unalterable and straightforward using decentralization and cryptographic hashing. Blockchain is transforming digital marketing by removing companies' abilities to pull data from customers without also offering to reimburse them for its value. Marketers can leverage the technology's positive attributes that customers are searching for in today's digital landscape, both in transparency and data protection. In terms of digital marketing, blockchain is one of the most important topics for its applications in the marketing field. Blockchain Technology and Applications for Digital Marketing provides insights on blockchain technology and its applications in digital marketing. This book grants a comprehensive understanding of how this technology is functioning within modern marketing and how it can influence the future of the digital marketing industry. The chapters cover the applications of blockchain, benefits and challenges, disruptive innovations in digital marketing, privacy and security concerns, and the recent trends of blockchain in digital marketing. It is ideally intended for marketers, advertisers, brand managers, executives, managers, IT specialists and consultants, researchers, businesses, practitioners, stakeholders, academicians, and students interested in blockchain technology and its role in digital marketing.

Blockchain Technology and Applications - Pethuru Raj 2020-09-16
Blockchain is emerging as a powerful technology, which has attracted the wider attention of all businesses across the globe. In addition to financial businesses, IT companies and business organizations are keenly analyzing and adapting this technology for improving business processes. Security is the primary enterprise application. There are other crucial applications that include creating decentralized applications and smart contracts, which are being touted as the key differentiator of this pioneering technology. The power of any technology lies in its ecosystem. Product and tool vendors are building and releasing a variety of versatile and robust toolsets and platforms in order to speed up and simplify blockchain application development, deployment and management. There are other infrastructure-related advancements in order to streamline blockchain adoption. Cloud computing, big data analytics, machine and deep learning algorithm, and connected and embedded devices all are driving blockchain application development and deployment. Blockchain Technology and Applications illustrates how blockchain is being sustained through a host of platforms, programming languages, and enabling tools. It examines: Data confidential, integrity, and authentication Distributed consensus protocols and algorithms Blockchain systems design criteria and systems interoperability and scalability Integration with other technologies including cloud and big data It also details how blockchain is being blended with cloud computing, big data analytics and IoT across all industry verticals. The book gives readers insight into how this path-breaking technology can be a value addition in several business domains ranging from healthcare, financial services, government, supply chain and retail.

Blockchain – ICBC 2019 - James Joshi 2019-06-18
This book constitutes the refereed proceedings of the Second International Conference on Blockchain, ICBC 2019, held as part of the Services Conference Federation, SCF 2019, in San Diego, CA, USA, in June 2019. The 13 full papers and 2 short papers presented were carefully reviewed and selected from 29 submissions. The papers cover a wide range of topics in blockchain technologies, platforms, solutions and business models such as new blockchain architecture, platform constructions, blockchain development and blockchain services technologies, as well as standards, and blockchain services innovation lifecycle including enterprise modeling, business consulting, solution creation, services orchestration, services optimization, services management, services marketing, business process integration and management.

Blockchain for Distributed Systems Security - Sachin S. Shetty 2019-03-05
AN ESSENTIAL GUIDE TO USING BLOCKCHAIN TO PROVIDE FLEXIBILITY, COST-SAVINGS, AND SECURITY TO DATA MANAGEMENT, DATA ANALYSIS, AND INFORMATION SHARING Blockchain for Distributed Systems Security contains a description of the properties that underpin the formal foundations of Blockchain technologies and explores the practical issues for deployment in cloud and Internet of Things (IoT) platforms. The authors—noted experts in the field—present security and privacy issues that must be addressed for Blockchain technologies to be adopted for civilian and military domains. The book covers a range of topics including data provenance in cloud storage, secure IoT models, auditing architecture, and empirical validation of permissioned Blockchain platforms. The book's security and privacy analysis helps with an understanding of the basics of Blockchain and it explores the quantifying impact of the new attack surfaces introduced by Blockchain technologies and platforms. In addition, the book contains relevant and current updates on the topic. This important resource: Provides an overview of Blockchain-based secure data management and storage for cloud and IoT Covers cutting-edge research findings on topics including invariant-based supply chain protection, information sharing framework, and trust worthy information federation Addresses security and privacy concerns in Blockchain in key areas, such as preventing digital currency miners from launching attacks against mining pools, empirical analysis of the attack surface of Blockchain, and more Written for researchers and experts in computer science and engineering, Blockchain for Distributed Systems Security contains the most recent information and academic research to provide an understanding of the application of Blockchain technology.

Advanced Intelligent Systems for Sustainable Development (AI2SD'2020) - Janusz Kacprzyk 2022
This book publishes the best papers accepted and presented at the 3rd edition of the International Conference on Advanced Intelligent Systems for Sustainable Development Applied to Agriculture, Energy, Health, Environment, Industry, Education, Economy, and Security (AI2SD2020). This conference is one of the biggest amalgamations of eminent researchers, students, and delegates from both academia and industry where the collaborators have an interactive access to emerging technology and approaches globally. In this book, readers find the latest ideas addressing technological issues relevant to all areas of the social and human sciences for sustainable development. Due to the nature of the conference with its focus on innovative ideas and developments, the book provides the ideal scientific and brings together very high-quality chapters written by eminent researchers from different disciplines, to discover the most recent developments in scientific research.

Blockchain Applications - Arshdeep Bahga 2017-01-31
We have written this textbook, as part of our expanding "A Hands-On Approach"(TM) series, to serve as a textbook for senior-level and graduate-level courses on financial and regulation technologies, business analytics, Internet of Things, and cryptocurrency.

Internet of Things: A Hands-On Approach - Arshdeep Bahga 2014-08-09
Internet of Things (IoT) refers to physical and virtual objects that have unique identities and are connected to the internet to facilitate intelligent applications that make energy, logistics, industrial control, retail, agriculture and many other domains "smarter". Internet of Things is a new revolution of the Internet that is rapidly gathering momentum driven by the advancements in sensor networks, mobile devices, wireless communications, networking and cloud technologies. Experts forecast that by the year 2020 there will be a total of 50 billion devices/things connected to the internet. This book is written as a textbook on Internet of Things for educational programs at colleges and universities, and also for IoT vendors and service providers who may be interested in offering a broader perspective of Internet of Things to accompany their own customer and developer training programs. The typical reader is expected to have completed a couple of courses in programming using traditional high-level languages at the college-level, and is either a senior or a beginning graduate student in one of the science, technology, engineering or mathematics (STEM) fields. Like our companion book on Cloud Computing, we have tried to write a comprehensive book that transfers knowledge through an immersive "hands on" approach, where the reader is provided the necessary guidance and knowledge to develop working code for real-world IoT applications. Additional support is available at the book's website: www.internet-of-things-book.com Organization The book is organized into 3 main parts, comprising of a

total of 11 chapters. Part I covers the building blocks of Internet of Things (IoTs) and their characteristics. A taxonomy of IoT systems is proposed comprising of various IoT levels with increasing levels of complexity. Domain specific Internet of Things and their real-world applications are described. A generic design methodology for IoT is proposed. An IoT system management approach using NETCONF-YANG is described. Part II introduces the reader to the programming aspects of Internet of Things with a view towards rapid prototyping of complex IoT applications. We chose Python as the primary programming language for this book, and an introduction to Python is also included within the text to bring readers to a common level of expertise. We describe packages, frameworks and cloud services including the WAMP-AutoBahn, Xively cloud and Amazon Web Services which can be used for developing IoT systems. We chose the Raspberry Pi device for the examples in this book. Reference architectures for different levels of IoT applications are examined in detail. Case studies with complete source code for various IoT domains including home automation, smart environment, smart cities, logistics, retail, smart energy, smart agriculture, industrial control and smart health, are described. Part III introduces the reader to advanced topics on IoT including IoT data analytics and Tools for IoT. Case studies on collecting and analyzing data generated by Internet of Things in the cloud are described.