understanding bitcoin cryptography engineering and economics the wiley finance series

#bitcoin #cryptography #bitcoin economics #blockchain engineering #cryptocurrency finance

Dive deep into understanding Bitcoin, exploring its foundational cryptography, the engineering principles behind its operation, and the profound economic implications it presents. This comprehensive guide covers both the technical mechanics and the financial impact of digital currency.

Understanding Bitcoin

Discover Bitcoin, the cryptocurrency that has the finance world buzzing Bitcoin is arguably one of the biggest developments in finance since the advent of fiat currency. With Understanding Bitcoin, expert author Pedro Franco provides finance professionals with a complete technical guide and resource to the cryptography, engineering and economic development of Bitcoin and other cryptocurrencies. This comprehensive, yet accessible work fully explores the supporting economic realities and technological advances of Bitcoin, and presents positive and negative arguments from various economic schools.

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governments, and their supply is managed by central banks. To fully understand this revolutionary technology, Understanding Bitcoin is a uniquely complete, reader-friendly guide.

Cryptographic Primitives in Blockchain Technology

Cryptographic Primitives in Blockchain Technology provides an introduction to the mathematical and cryptographic concepts behind blockchain technologies and shows how they are applied in blockchain-based systems.

Management model for social and environmental impact in logistics through blockchain technologies

In the context of the advancing digitalization of logistics processes, blockchain technologies are gaining in importance. Within the scope of sustainable logistics networks, they contribute to cross-stakeholder transparency and support the tracking and verification of products and processes to improve social and environmental parameters. The goal of this work is to develop a holistic management model to help users understand blockchain technologies in the context of their logistics network and to assess the mindful adoption of these technologies to specific problems. In addition, the model should enable the conclusion of expected impacts on participating actors within the logistics network with regard to social and environmental sustainability and, in a further step, provide a holistic approach to the implementation of blockchain technologies. Methodologically, a systematic literature analysis, two workshops and a case study exploration will be conducted for this purpose. Within the systematic literature analysis, 285 articles are evaluated and 53 relevant articles are synthesized. Based on the Nominal Group Technique, a first workshop with 30 experts from manufacturing companies, logistics service providers, technology companies and universities will be conducted and supplemented by a subsequent survey. In a second workshop, three use cases of blockchain technologies are analyzed with 24 experts in open and moderated group discussions. Finally, three exemplary case studies and eight expert interviews are conducted and systematically evaluated with respect to cross-case findings. The result of this thesis is a four-phase management model that guides users through the process of evaluating and implementing blockchain technologies in the context of sustainable logistics. While the first phase assesses requirements of the logistics network for general applicability of blockchain technologies, the second phase includes a model for the mindful adoption of blockchain technologies. Based on this, phase three provides a sustainability impact model to explain social and environmental impacts of individual actors involved in the logistics network. The fourth phase ultimately represents the implementation of blockchain technologies in logistics and is based on five management areas in which specific design recommendations, methods and tools are provided to enable a successful implementation. Finally, the thesis provides an outlook on a future vision and shows which changes in logistics networks can be expected due to blockchain technologies. Im Rahmen der voranschreitenden Digitalisierung von Logistikprozessen gewinnen Blockchain-Technologien zunehmend an Bedeutung. Sie leisten im Kontext nachhaltiger Logistiknetzwerke einen Beitrag zur akteursübergreifenden Transparenz und unterstützen die Nachverfolgung und Verifizierung von Produkten und Prozessen zur Verbesserung sozialer und ökologischer Parameter. Ziel dieser Arbeit ist es, ein ganzheitliches Management Modell zu entwickeln, das Anwender dabei unterstützt, Blockchain-Technologien im Kontext ihres Logistiknetzwerks zu verstehen und die achtsame Anwendbarkeit dieser Technologien für spezifische Problemstellungen zu prüfen. Zudem soll das Modell eine Ableitung der zu erwartenden Effekte auf beteiligte Akteure innerhalb des Logistiknetzwerkes hinsichtlich der sozialen und ökologischen Nachhaltigkeit ermöglichen und in einem weiteren Schritt einen ganzheitlichen Ansatz zur Implementierung von Blockchain-Technologien bereitstellen. Methodisch werden dafür eine systematische Literaturanalyse, zwei Workshops sowie eine Fallstudienuntersuchung durchgeführt. Im Rahmen der systematischen Literaturanalyse werden 285 Artikel ausgewertet und 53 relevante Artikel synthetisiert. Basierend auf der Nominal Group Technique wird ein erster Workshop mit 30 Experten von Fertigungsunternehmen, Logistikdienstleistern, Technologieunternehmen und Hochschulen durchgeführt und durch eine anschließende Befragung ergänzt. Im Rahmen eines zweiten Workshops werden drei Anwendungsfälle von Blockchain-Technologien mit 24 Experten in offenen und moderierten Gruppendiskussionen analysiert. Abschließend werden drei exemplarische Fallstudien sowie acht Experteninterviews durchgeführt und systematisch hinsichtlich fall-übergreifender Erkenntnisse ausgewertet. Das Ergebnis dieser Arbeit ist ein vierphasiges Management Modell, dass den Anwender durch den Prozess der Bewertung und Implementierung von Blockchain-Technologien im Kontext nachhaltiger Logistik führt. Während in der ersten Phase Anforderungen des Logistiknetzwerks auf generelle Eignung für Blockchain-Technologien geprüft werden, umfasst die zweite Phase ein Modell für die achtsame Adoption. Darauf aufbauend wird in Phase drei ein Modell zur Erklärung sozialer und

ökologischer Effekte einzelner beteiligter Akteure des Logistiknetzwerks bereitgestellt. Die vierte Phase repräsentiert letztlich die Implementierung von Blockchain-Technologien in der Logistik und basiert auf fünf Managementbereichen, in denen gezielt Handlungsempfehlungen, Methoden und Werkzeuge bereitgestellt werden, um eine erfolgreiche Umsetzung zu ermöglichen. Abschließend gibt die Arbeit einen Ausblick auf eine zukünftige Vision und zeigt auf, welche Veränderungen in Logistiknetzwerken durch Blockchain-Technologien zu erwarten sind.

Cryptocurrencies and Blockchain Technology Applications

As we enter the Industrial Revolution 4.0, demands for an increasing degree of trust and privacy protection continue to be voiced. The development of blockchain technology is very important because it can help frictionless and transparent financial transactions and improve the business experience, which in turn has far-reaching effects for economic, psychological, educational and organizational improvements in the way we work, teach, learn and care for ourselves and each other. Blockchain is an eccentric technology, but at the same time, the least understood and most disruptive technology of the day. This book covers the latest technologies of cryptocurrencies and blockchain technology and their applications. This book discusses the blockchain and cryptocurrencies related issues and also explains how to provide the security differently through an algorithm, framework, approaches, techniques and mechanisms. A comprehensive understanding of what blockchain is and how it works, as well as insights into how it will affect the future of your organization and industry as a whole and how to integrate blockchain technology into your business strategy. In addition, the book explores the blockchain and its with other technologies like Internet of Things, big data and artificial intelligence, etc.

Artificial Intelligence in Industry 4.0

This book is intended to help management and other interested parties such as engineers, to understand the state of the art when it comes to the intersection between AI and Industry 4.0 and get them to realise the huge possibilities which can be unleashed by the intersection of these two fields. We have heard a lot about Industry 4.0, but most of the time, it focuses mainly on automation. In this book, the authors are going a step further by exploring advanced applications of Artificial Intelligence (AI) techniques, ranging from the use of deep learning algorithms in order to make predictions, up to an implementation of a full-blown Digital Triplet system. The scope of the book is to showcase what is currently brewing in the labs with the hope of migrating these technologies towards the factory floors. Chairpersons and CEOs must read these papers if they want to stay at the forefront of the game, ahead of their competition, while also saving huge sums of money in the process.

Handbook of Research on Smart Technology Applications in the Tourism Industry

In today’s modernized society, certain technologies have become more applicable within many professional fields and are much easier to implement. This includes the tourism industry, where smart technology has provided a range of new marketing possibilities including more effective sales tactics and delivering a more personalized customer experience. As the scope of business analytics continues to expand, professionals need research on the various applications of smart technology within the field of tourism. The Handbook of Research on Smart Technology Applications in the Tourism Industry is an essential reference source that discusses the use of intelligent systems in tourism as well as their influence on consumer relationships. Featuring research on topics such as digital advertising, wearable technology, and consumer behavior, this book is ideally designed for travel agents, tour developers, restaurateurs, hotel managers, tour directors, airlines, marketers, researchers, managers, hospitality professionals, policymakers, business strategists, researchers, academicians, and students seeking coverage on the use of smart technologies in tourism.

The Bitcoin Standard

A comprehensive and authoritative exploration of Bitcoin and its place in monetary history When a pseudonymous programmer introduced "a new electronic cash system that’s fully peer-to-peer, with no trusted third party" to a small online mailing list in 2008, very few people paid attention. Ten years later, and against all odds, this upstart autonomous decentralized software offers an unstoppable and globally accessible hard money alternative to modern central banks. The Bitcoin Standard analyzes the historical context to the rise of Bitcoin, the economic properties that have allowed it to grow quickly, and its likely economic, political, and social implications. While Bitcoin is an invention of the digital age, the problem it purports to solve is as old as human society itself: transferring value across time

and space. Author Saifedean Ammous takes the reader on an engaging journey through the history of technologies performing the functions of money, from primitive systems of trading limestones and seashells, to metals, coins, the gold standard, and modern government debt. Exploring what gave these technologies their monetary role, and how most lost it, provides the reader with a good idea of what makes for sound money, and sets the stage for an economic discussion of its consequences for individual and societal future-orientation, capital accumulation, trade, peace, culture, and art. Compellingly, Ammous shows that it is no coincidence that the loftiest achievements of humanity have come in societies enjoying the benefits of sound monetary regimes, nor is it coincidental that monetary collapse has usually accompanied civilizational collapse. With this background in place, the book moves on to explain the operation of Bitcoin in a functional and intuitive way. Bitcoin is a decentralized, distributed piece of software that converts electricity and processing power into indisputably accurate records, thus allowing its users to utilize the Internet to perform the traditional functions of money without having to rely on, or trust, any authorities or infrastructure in the physical world. Bitcoin is thus best understood as the first successfully implemented form of digital cash and digital hard money. With an automated and perfectly predictable monetary policy, and the ability to perform final settlement of large sums across the world in a matter of minutes, Bitcoin’s real competitive edge might just be as a store of value and network for the final settlement of large payments a digital form of gold with a built-in settlement infrastructure. Ammous’ firm grasp of the technological possibilities as well as the historical realities of monetary evolution provides for a fascinating exploration of the ramifications of voluntary free market money. As it challenges the most sacred of government monopolies, Bitcoin shifts the pendulum of sovereignty away from governments in favor of individuals, offering us the tantalizing possibility of a world where money is fully extricated from politics and unrestrained by borders. The final chapter of the book explores some of the most common questions surrounding Bitcoin: Is Bitcoin mining a waste of energy? Is Bitcoin for criminals? Who controls Bitcoin, and can they change it if they please? How can Bitcoin be killed? And what to make of all the thousands of Bitcoin knockoffs, and the many supposed applications of Bitcoin's 'block chain technology'? The Bitcoin Standard is the essential resource for a clear understanding of the rise of the Internet’s decentralized, apolitical, free-market alternative to national central banks.

Bitcoin and Cryptocurrency Technologies

An authoritative introduction to the exciting new technologies of digital money Bitcoin and Cryptocurrency Technologies provides a comprehensive introduction to the revolutionary yet often misunderstood new technologies of digital currency. Whether you are a student, software developer, tech entrepreneur, or researcher in computer science, this authoritative and self-contained book tells you everything you need to know about the new global money for the Internet age. How do Bitcoin and its block chain actually work? How secure are your bitcoins? How anonymous are their users? Can cryptocurrencies be regulated? These are some of the many questions this book answers. It begins by tracing the history and development of Bitcoin and cryptocurrencies, and then gives the conceptual and practical foundations you need to engineer secure software that interacts with the Bitcoin network as well as to integrate ideas from Bitcoin into your own projects. Topics include decentralization, mining, the politics of Bitcoin, altcoins and the cryptocurrency ecosystem, the future of Bitcoin, and more. An essential introduction to the new technologies of digital currency Covers the history and mechanics of Bitcoin and the block chain, security, decentralization, anonymity, politics and regulation, altcoins, and much more Features an accompanying website that includes instructional videos for each chapter, homework problems, programming assignments, and lecture slides Also suitable for use with the authors' Coursera online course Electronic solutions manual (available only to professors)

The Bitcoin Big Bang

Get a handle on the digital currency revolution, and learn how to get on board The Bitcoin Big Bang is a guide to navigating the uncharted territory of digital currency. Written by CNBC contributor Brian Kelly, this book goes beyond Bitcoin 101 to explain how this transformative technology is about to change the world. Digital currency is thrown into perspective against the history of payment systems and its own evolution, as readers are invited to explore the ways in which this technology is already changing the way business gets done. Readers gain insight into the mechanisms behind Bitcoin, and an expert perspective on digital currency's effect on the future of money and the economic implications of the Bitcoin revolution. In the same way that e-mail changed the way we transfer information, the decentralized Bitcoin network is about to revolutionize the business world, the legal profession, and even the role of the government. The Bitcoin Big Bang dives head first into this paradigm shift, allowing

readers to: Explore the origins of digital currency Learn the history and evolution of payment systems Discover how the Bitcoin network is facilitating free and instant transfer of value Understand the mining of Bitcoin, and how to invest The digital currency revolution has implications that spread far beyond the finance industry. Anyone who exchanges payment for goods and services is on the cusp of the next big push in societal evolution, and only an understanding of the technology and a clear knowledge of the systems and behaviors at play can fully prepare us for the changes to come. The Bitcoin Big Bang is the go-to guide, helping those who use money use it better.

Mastering Bitcoin

Join the technological revolution that's taking the financial world by storm. Mastering Bitcoin is your guide through the seemingly complex world of bitcoin, providing the knowledge you need to participate in the internet of money. Whether you're building the next killer app, investing in a startup, or simply curious about the technology, this revised and expanded second edition provides essential detail to get you started. Bitcoin, the first successful decentralized digital currency, is still in its early stages and yet it's already spawned a multi-billion-dollar global economy open to anyone with the knowledge and passion to participate. Mastering Bitcoin provides the knowledge. You simply supply the passion. The second edition includes: A broad introduction of bitcoin and its underlying blockchain—ideal for non-technical users, investors, and business executives An explanation of the technical foundations of bitcoin and cryptographic currencies for developers, engineers, and software and systems architects Details of the bitcoin decentralized network, peer-to-peer architecture, transaction lifecycle, and security principles New developments such as Segregated Witness, Payment Channels, and Lightning Network A deep dive into blockchain applications, including how to combine the building blocks offered by this platform into higher-level applications User stories, analogies, examples, and code snippets illustrating key technical concepts

The Philosophy of Money and Finance

The Philosophy of Money and Finance presents sixteen original essays providing a comprehensive introduction to questions concerning the nature of money and monetary value, the epistemology of markets, and the ethics of financial systems.

Mainstreaming Cryptocurrency and the Future of Digital Finance

Money is no longer limited to physical currency or credit and debit cards; however, cryptocurrencies are emerging due to recent technological advancements. Financial markets have been revolutionized as a result of innovative technological trends. It seems that there is no way to evade embracing new trends in the financial markets; without them, we will be destined to fail. Mainstreaming Cryptocurrency and the Future of Digital Finance provides an overview of the advantages and disadvantages of current cryptocurrency-based payment methods aiming to leverage technology to create better financial services in different businesses. The book also discusses fintech, the cryptocurrency market, trading tips and techniques, brokers and how they work, digital wallets, analytical tools to pick cryptocurrencies, and risk management methods to leverage a secure investment in cryptocurrencies. Covering key topics such as digital money, trading, and financial technologies, this premier reference source is ideal for managers, business owners, industry professionals, researchers, academicians, scholars, instructors, and students.

Financial Cryptography and Data Security

This book constitutes the thoroughly refereed post-conference proceedings of the 20th International Conference on Financial Cryptography and Data Security, FC 2016, held in Christ church, Barbados, in February 2016. The 27 revised full papers and 9 short papers were carefully selected and reviewed from 137 full papers submissions. The papers are grouped in the following topical sections: fraud and deception; payments, auctions, and e-voting; multiparty computation; mobile malware; social interaction and policy; cryptanalysis; surveillance and anonymity; Web security and data privacy; Bitcoin mining; cryptographic protocols; payment use and abuse.

ECAI 2016

Artificial Intelligence continues to be one of the most exciting and fast-developing fields of computer science. This book presents the 177 long papers and 123 short papers accepted for ECAI 2016, the

latest edition of the biennial European Conference on Artificial Intelligence, Europe’s premier venue for presenting scientific results in AI. The conference was held in The Hague, the Netherlands, from August 29 to September 2, 2016. ECAI 2016 also incorporated the conference on Prestigious Applications of Intelligent Systems (PAIS) 2016, and the Starting AI Researcher Symposium (STAIRS). The papers from PAIS are included in this volume; the papers from STAIRS are published in a separate volume in the Frontiers in Artificial Intelligence and Applications (FAIA) series. Organized by the European Association for Artificial Intelligence (EurAI) and the Benelux Association for Artificial Intelligence (BNVKI), the ECAI conference provides an opportunity for researchers to present and hear about the very best research in contemporary AI. This proceedings will be of interest to all those seeking an overview of the very latest innovations and developments in this field.

Decentralized Finance

What Is Decentralized Finance Decentralized Finance is a blockchain-based form of finance that does not rely on central financial intermediaries such as brokerages, exchanges, or banks to offer traditional financial instruments, and instead utilizes smart contracts on blockchains, the most common being Ethereum. There are some major advantages of using DeFi, including cost, speed and security. Anyone with an internet connection has access to blockchains and cryptocurrencies. Users are able to make trades and move their assets whenever they want without having to wait on bank transfers or pay bank fees. Decentralized finance is quickly rising as a more secure, more transparent, and more efficient alternative to traditional financial services. By eliminating the need for centralized financial institutions, we create a more open and trustworthy financial system, and one that's far more accessible. Therefore, decentralized finance is a very near equivalent of an apocalyptic event for the traditional financial institutions. How You Will Benefit (I) Insights, and validations about the following topics: Chapter 1: Decentralized Finance Chapter 2: Blockchain Chapter 3: Smart Contract Chapter 4: Cryptocurrency Chapter 5: Virtual Currency Chapter 6: Central Bank Digital Currency Chapter 7: E-Democracy Chapter 8: Ethereum Chapter 9: Bitcoin Chapter 10: Diem (digital Currency) (II) Answering the public top questions about decentralized finance. (III) Real world examples for the usage of decentralized finance in many fields. (IV) 17 appendices to explain, briefly, 266 emerging technology in each industry to have 360-degree full understanding of decentralized finance' technologies. Who This Book Is For Professionals, undergraduate and graduate students, enthusiasts, hobbyists, and those who want to go beyond basic knowledge or information for any kind of decentralized finance.

The Future of Finance

This book, written jointly by an engineer and artificial intelligence expert along with a lawyer and banker, is a glimpse on what the future of the financial services will look like and the impact it will have on society. The first half of the book provides a detailed yet easy to understand educational and technical overview of FinTech, artificial intelligence and cryptocurrencies including the existing industry pain points and the new technological enablers. The second half provides a practical, concise and engaging overview of their latest trends and their impact on the future of the financial services industry including numerous use cases and practical examples. The book is a must read for any professional currently working in finance, any student studying the topic or anyone curious on how the future of finance will look like.

Digital Business and Electronic Commerce

This textbook introduces readers to digital business from a management standpoint. It provides an overview of the foundations of digital business with basics, activities and success factors, and an analytical view on user behavior. Dedicated chapters on mobile and social media present fundamental aspects, discuss applications and address key success factors. The Internet of Things (IoT) is subsequently introduced in the context of big data, cloud computing and connecting technologies, with a focus on industry 4.0, smart business services, smart homes and digital consumer applications, as well as artificial intelligence. The book then turns to digital business models in the B2C (business-to-consumer) and B2B (business-to-business) sectors. Building on the business model concepts, the book addresses digital business strategy, discussing the strategic digital business environment and digital business value activity systems (dVASs), as well as strategy development in the context of digital business. Special chapters explore the implications of strategy for digital marketing and digital procurement. Lastly, the book discusses the fundamentals of digital business technologies and security, and provides an outline of digital business implementation. A comprehensive case study on Google/Alphabet,

explaining Google's organizational history, its integrated business model and its market environment, rounds out the book.

Halal Cryptocurrency Management

The growth of Islamic finance today is significant, making it timely to meet the market demand across the world and particularly for Muslim countries by producing a cryptocurrency model under the Shari'ah ethical principles. This book addresses core components of cryptocurrency within the Maqasid al-Shari'ah in enabling students, academics, users, traders, issuers, promoters, facilitators, managers, regulators, decision makers, blockchain technology providers, financial authorities, and other relevant professionals to understand Shari'ah cryptocurrency and its practical mechanisms. Among the issues covered are corporate understanding, global phenomena and world view, the Shari'ah model, SWOT analysis, innovation, conventional practices and the Halaldichotomy, regulatory standards, blockchain and its technological paradigm, practicality, establishment, and operational mechanisms, Zakat and Waqf through cryptocurrency, risk factors, and takaful solution. This book establishes a Halal alternative model of cryptocurrency management within the Maqasid al-Shari'ah to meet the contemporary global market demand.

Handbook of Research on Smart Technology Models for Business and Industry

Advances in machine learning techniques and ever-increasing computing power has helped create a new generation of hardware and software technologies with practical applications for nearly every industry. As the progress has, in turn, excited the interest of venture investors, technology firms, and a growing number of clients, implementing intelligent automation in both physical and information systems has become a must in business. Handbook of Research on Smart Technology Models for Business and Industry is an essential reference source that discusses relevant abstract frameworks and the latest experimental research findings in theory, mathematical models, software applications, and prototypes in the area of smart technologies. Featuring research on topics such as digital security, renewable energy, and intelligence management, this book is ideally designed for machine learning specialists, industrial experts, data scientists, researchers, academicians, students, and business professionals seeking coverage on current smart technology models.

Provable Security

This book constitutes the refereed proceedings of the 11th International Conference on Provable Security, ProvSec 2017, held in Xi'an, China, in October 2017. The 24 full papers and 5 short papers presented were carefully reviewed and selected from 76 submissions. The papers are grouped in topical sections on secure cloud storage and computing; digital signature and authentication; authenticated encryption and key exchange; security models; lattice and post-quantum cryptography; public key encryption and signcryption; proxy re-encryption and functional encryption; protocols.

The Book of Crypto

This book provides a thorough overview of Bitcoin, cryptocurrencies, and digital assets and their impact on the future of money and finance. It provides a 360-degree practical, concise, and engaging overview of all the topics that one interested about digital assets needs to know including how Bitcoin and Ethereum work, an overview of the most important digital assets in the market, and deep dives into the various types of digital assets including cryptocurrencies, stable coins, CBDCs, utility tokens, security tokens, NFTs, and many others. The book also covers all the essentials including DeFi, crypto mining, crypto regulations, crypto investors, crypto exchanges, and other ecosystem players as well as some of the latest global crypto trends from Web 3.0 and the Metaverse to DAOs and quantum computing. Written by a leading industry expert and thought leader who advises some of the leading organisations in the digital assets space globally, this book is ideal for anyone looking to acquire a solid foundational knowledge base of this fast-growing field and understand its potential impact on the future of money.

Food Science and Technology

Food Science and Technology: Fundamentals and Innovation presents the aspects of microbiology, chemistry, nutrition, and process engineering required for the successful selection, preservation, processing, packaging, and distribution of quality food. It is a valuable resource for researchers and

students in food science & technology and food industry professionals and entrepreneurs. There are two new chapters in the 2nd Ed. COVID-19 and food supply chain as well as climate-smart food science.

Security Issues and Privacy Concerns in Industry 4.0 Applications

SECURITY ISSUES AND PRIVACY CONCERNS IN INDUSTRY 4.0 APPLICATIONS Written and edited by a team of international experts, this is the most comprehensive and up-to-date coverage of the security and privacy issues surrounding Industry 4.0 applications, a must-have for any library. The scope of Security Issues and Privacy Concerns in Industry 4.0 Applications is to envision the need for security in Industry 4.0 applications and the research opportunities for the future. This book discusses the security issues in Industry 4.0 applications for research development. It will also enable the reader to develop solutions for the security threats and attacks that prevail in the industry. The chapters will be framed on par with advancements in the industry in the area of Industry 4.0 with its applications in additive manufacturing, cloud computing, IoT (Internet of Things), and many others. This book helps a researcher and an industrial specialist to reflect on the latest trends and the need for technological change in Industry 4.0. Smart water management using IoT, cloud security issues with network forensics, regional language recognition for industry 4.0, IoT-based health care management systems, artificial intelligence for fake profile detection, and packet drop detection in agriculture-based IoT are covered in this outstanding new volume. Leading innovations such as smart drone for railway track cleaning, everyday life-supporting blockchain and big data, effective prediction using machine learning, classification of dog breed based on CNN, load balancing using the SPE approach and cyber culture impact on media consumers are also addressed. Whether a reference for the veteran engineer or an introduction to the technologies covered in the book for the student, this is a must-have for any library.

International Joint Conference: 12th International Conference on Computational Intelligence in Security for Information Systems (CISIS 2019) and 10th International Conference on EUropean Transnational Education (ICEUTE 2019)

This volume presents papers presented at CISIS 2019 and ICEUTE 2019, held in the beautiful and historic city of Seville (Spain) in May 2019. The 12th CISIS 2019 conference offered a meeting opportunity for academic and industry-related researchers form the various communities of computational intelligence, information security and data mining, and the need for intelligent, flexible behaviour by large, complex systems, especially in mission-critical domains, was the catalyst and the aggregation stimulus for the event. The book covers current topics such as cryptographic and data analytics solutions to fulfil least minimum privilege and endorse least minimum effort in information systems. The book also includes 15 papers from the 10th ICEUTE 2019, covering topics like new approaches to assess competencies and innovation in computer science education.

Fintech Regulation in China

Provides a systematic and contextualized account of China's Fintech regulation.

Digital Finance

Praise for Digital Finance "Digital Finance was helpful in articulating questions the reader potentially didn't know they needed to ask. Hines explains complex terms in a way that is digestible for anyone with a basic business background. The conceptual explanations were also concise and intentional, covering just what I wanted to know to have a solid understanding of a tokenized ecosystem and why there may be advantages found in decentralized finance vs. traditional lending." —Kathryn Carlisle, Senior Managing Director, Blockchain Center for Excellence, University of Arkansas "Baxter does a terrific job explaining the revolutionary technologies that are affecting the financial industry and shows just how transformational those will be in the coming wave of digital finance. This book is a must for those who want a better understanding of how blockchain is going to improve the financial industry." —Jake Ryan, author, Crypto Asset Investing in the Age of Autonomy; CIO, Tradecraft Capital "Digital Finance provides a comprehensive review of the security token marketplace and provides a powerful vision of what to expect in the coming years as blockchain transforms finance. The chapter on DeFi points to a massive emerging market as the transaction efficiency of security tokens meets the scale and transparency of DeFi self-processing assets—the true antidote to prevent a repeat of the 2008 Global Financial Crisis. This book is perfect for the blockchain novice or expert with straightforward examples to support a thorough analysis of the rapidly evolving digital finance market." —Dan Doney,

Chief Executive Officer, Securrency "Educate yourselves on the future of finance! Digital tokenization of securities is bringing in new investors and issuers, democratizing access to capital. Baxter's book is a must-read for anyone who wants to get ahead of the curve." —Spencer Dinwiddie, NBA All-Star; Founder, DREAM Fan Shares "Don't let complicated words like blockchain and tokens prevent you from learning about the future of finance. Capital markets are being transformed right before our eyes, and Baxter details exactly how that is happening on a molecular level." —Kyle Sonlin, host, The Security Token Show

Media Trust in a Digital World

This book examines the shifting role of media trust in a digital world, and critically analyzes how news and stories are created, distributed and consumed. Emphasis is placed on the current challenges and possible solutions to regain trust and restore credibility. The book reveals the role of trust in communication, in society and in media, and subsequently addresses media at the crossroads, as evinced by phenomena like gatekeepers, echo chambers and fake news. The following chapters explore truth and trust in journalism, the role of algorithms and robots in media, and the relation between social media and individual trust. The book then presents case studies highlighting how media creates trust in the contexts of: brands and businesses, politics and non-governmental organizations, science and education. In closing, it discusses the road ahead, with a focus on users, writers, platforms and communication in general, and on media competency, skills and education in particular.

Bitcoin and Beyond

Since the launch of Bitcoin in 2009 several hundred different ‘cryptocurrencies’ have been developed and become accepted for a wide variety of transactions in leading online commercial marketplaces and the ‘sharing economy’, as well as by more traditional retailers, manufacturers, and even by charities and political parties. Bitcoin and its competitors have also garnered attention for their wildly fluctuating values as well as implication in international money laundering, Ponzi schemes and online trade in illicit goods and services across borders. These and other controversies surrounding cryptocurrencies have induced varying governance responses by central banks, government ministries, international organizations, and industry regulators worldwide. Besides formal attempts to ban Bitcoin, there have been multifaceted efforts to incorporate elements of blockchains, the peer-to-peer technology underlying cryptocurrencies, in the wider exchange, recording, and broadcasting of digital transactions. Blockchains are being mobilized to support and extend an array of governance activities. The novelty and breadth of growing blockchain-based activities have fuelled both utopian promises and dystopian fears regarding applications of the emergent technology to Bitcoin and beyond. This volume brings scholars of anthropology, economics, Science and Technology Studies, and sociology together with GPE scholars in assessing the actual implications posed by Bitcoin and blockchains for contemporary global governance. Its interdisciplinary contributions provide academics, policymakers, industry practitioners and the general public with more nuanced understandings of technological change in the changing character of governance within and across the borders of nation-states.

Architecting Enterprise Blockchain Solutions

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!

Encyclopedia of Information Science and Technology, Fourth Edition

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research findings. With critical perspectives on the impact of information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library.

Blockchain Babel

WINNER: Independent Press Award 2020 - Technology Category 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.

Banking Beyond Banks and Money

Do you know how banking and money will look like in the new digital age? This book collects the voices of leading scholars, entrepreneurs, policy makers and consultants who, through their expertise and keen analytical skills, are best positioned to picture from various angles the ongoing technological revolution in banking and finance. You will learn how lending and borrowing can exist without banks; how new forms of money can compete to better serve different society needs; how new technologies are banking the unbanked communities in the poorest parts of the world, and how ideas and small projects can be financed by the crowds without the need to rely upon banks. You will learn how, in the new digital age, we will interact with new self-organised and autonomous companies that operate without any human involvement, based on a set of programmed and incorruptible rules. You will learn that new business models will emerge thanks to technology-enabled platforms, upon which one can build new forms of non-hierarchical cooperation between strangers. And you will also learn that new forms of risks and threats are emerging that will destabilise our systems and jeopardise the stability of our financial order.

Blockchain for Distributed Systems Security

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.

Finance 4.0 - Towards a Socio-Ecological Finance System

This Open Access book outlines ideas for a novel, scalable and, above all, sustainable financial system. We all know that today’s global markets are unsustainable and global governance is not effective enough. Given this situation, could one boost smart human coordination, sustainability and resilience by tweaking society at its core: the monetary system? A Computational Social Science team at ETH Zürich has indeed worked on a concept and little demonstrator for a new financial system, called “Finance 4.0” or just “FIN4”, which combines blockchain technology with the Internet of Things (“IoT”). What if communities could reward sustainable actions by issuing their own money (“tokens”)? Would people behave differently, when various externalities became visible and were actionable through cryptographic tokens? Could a novel, participatory, multi-dimensional financial system be created? Could it be run by the people for the people and lead to more societal resilience than today’s financial system (which is effectively one-dimensional due to its almost frictionless exchange)? How could one manage such a system in an ethical and democratic way? This book presents some early attempts in a nascent field, but provides a fresh view on what cryptoeconomic systems could do for us, for a circular economy, and for scalable, sustainable action.

Cryptography Apocalypse

Will your organization be protected the day a quantum computer breaks encryption on the internet? Computer encryption is vital for protecting users, data, and infrastructure in the digital age. Using traditional computing, even common desktop encryption could take decades for specialized ‘crackers’ to break and government and infrastructure-grade encryption would take billions of times longer. In light of these facts, it may seem that today’s computer cryptography is a rock-solid way to safeguard everything from online passwords to the backbone of the entire internet. Unfortunately, many current cryptographic methods will soon be obsolete. In 2016, the National Institute of Standards and Technology (NIST) predicted that quantum computers will soon be able to break the most popular forms of public key cryptography. The encryption technologies we rely on every day—HTTPS, TLS, WiFi protection, VPNs, cryptocurrencies, PKI, digital certificates, smartcards, and most two-factor authentication—will be virtually useless. . . unless you prepare. Cryptography Apocalypse is a crucial resource for every IT and InfoSec professional for preparing for the coming quantum-computing revolution. Post-quantum crypto algorithms are already a reality, but implementation will take significant time and computing power. This practical guide helps IT leaders and implementers make the appropriate decisions today to meet the challenges of tomorrow. This important book: Gives a simple quantum mechanics primer Explains how quantum computing will break current cryptography Offers practical advice for preparing for a post-quantum world Presents the latest information on new cryptographic methods Describes the appropriate steps leaders must take to implement existing solutions to guard against quantum-computer security threats Cryptography Apocalypse: Preparing for the Day When Quantum Computing Breaks Today's Crypto is a must-have guide for anyone in the InfoSec world who needs to know if their security is ready for the day crypto break and how to fix it.

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Blockchain for Business

The book focuses on the power of business blockchain. It gives an overview of blockchain in traditional business, marketing, accounting and business intelligence. The book provides a detailed working knowedge of blockchain, user cases of blockchain in business, cryptocurrency and Initial Coin Offering(ICO) along with the risks associated with them. The book also covers the detailed study of decentralization, mining, consensus, smart contracts, concepts and working of distributed ledgers and hyper ledgers as well as many other important concepts. It also details the security and privacy aspects of blockchain. The book is beneficial for readers who are preparing for their business careers, those who are working with small scale businesses and startups, and helpful for business executives, managers, entrepreneurs, bankers, government officials and legal professionals who are looking to blockchain for secure financial transactions. The book will also be beneficial for researchers and students who want to study the latest developments of blockchain.

THE NEW MILLIONAIRES SECRET--BITCOIN.

The business opportunity I am about to introduce to you is not a get-rich-quick scheme, but with hard work, honesty, and dedication, your financial breakthrough is guaranteed! In this e-book, I shall be opening your eyes to a super amazing platform and opportunity to make crazy money with Bitcoin. I am sure you can’t wait to hear it! Trust me, you will never be disappointed… PLEASE NOTE: This program has been in existence since November 2016, and I am still making very good money from it till today and will still continue because it is very genuine and legitimate. This will really change your life. 100% guaranteed, You may be thinking am just using this words to draw you closer in buying it, No, the choice is yours but I believe it is better to try and fail than for you not to try and regret it later.

Aprende a ser un criptoinversionista inteligente

Las criptomonedas han llegado para quedarse. Cuando consultas la sección de mercados de las principales publicaciones financieras, al lado de la cotización del Dow Jones o del oro, aparece el precio de bitcoin y otras criptomonedas. Está emergiendo una nueva clase de activos. Este libro es una guía para todos los que desean incorporar las criptomonedas a su portafolio de inversiones. Está basado en las preguntas que he recibido tanto de amigos como clientes desde que empecé a involucrarme en bitcoin y blockchain en 2014. La estructura del libro como respuestas a una serie de preguntas permite una lectura sencilla y práctica según el contenido que más interese al lector. Tanto los principiantes como los más experimentados en criptomonedas encontrarán reflexiones de interés para incorporar a su proceso de inversión.