## E Book Blockchain For Dummies

Whether you are looking to invest in bitcoin and other cryptocurrencies or understand why it will have a massive impact on your life in the near future, this book will clear out everything you need to know about what makes this technology what it is: Develop a solid understanding of cryptocurrencies and become an investor or use it for your own business Master the concept of blockchain and understand how this groundbreaking technology is changing the world Learn about cryptocurrency exchanges, markets, and trading techniques to earn a profit in every market condition Discover the secrets behind the concepts and building blocks of cryptocurrencies to realize their true potential #9733,#9733, Buy the paperback today and get the eBook FREE #9733,#9733, US only- This book will explain the basics of Blockchain Technology and Cryptocurrency in an easy to understand format. No technical jargon is used, and no previous experience is required. Inside you will find clear and concise guidance on exactly how to buy, store, invest and trade with Bitcoin. You will also be gently guided through everything that you should know so that you can enter the intricate world of cryptocurrency with confidence. Inside you will learn: What is Blockchain and how can I get started with it What problems does the Blockchain solve? What started the Blockchain Revolution Blockchain pros and cons Blockchain main application scenarios Blockchain myths debunked Powerful crypto trading and investment secrets Ethereum and Ripple explained The truth about Smart Contracts Insider Mining strategies Altcoins and how they can be used Exactly how you can find, buy, store, trade and accept Bitcoin How Bitcoin can benefit you and your business You will also discover: The best, most secure wallets and where to find them How you can easily spot and avoid thefts and scams Valuable hints, tips and tricks to help you get started And much more. Click on the book to see the chapters. You will be impressed. Although still in its infancy, Blockchain and Bitcoin have already started a multi-billion-dollar global economy which is available to anyone who has the knowledge and desire to get involved. Don't get left behind. Bitcoin and Blockchain Basics has all the information that you need to get started today. Money back guarantee. You can read this eBook on your tablet, kindle, iPad, phone or desktop. Related Blockchain Basics The Blockchain The Block chain Law and blockchain technology explained blockchain explained block chain blockchain investing blockchain loyalty blockchain revolution the contract distributed ledger node blockchain for business blockchain and the law blockchain for dummies blockchain for beginners blockchains technology bitcoin management zcash smart contracts ripple decentralized fiat money the internet of things cryptocurrency satoshi nakamotoblockchain for babies the internet of things cryptography the blockchain revolution ico crypto hyperledger basics the blockchain revolution money laundering blockchain investing blockchain loyalty blockchain for business blockchain economydistributed ledger blockchain security the truth machine dash blockchain blueprint for a new economy world economy blockchain use case digital transactions legal bitcoin white paper icon iota trading investment metadata waves hardwarebitcoin guide how blockchain works economics transaction processing peer to peer blockchain supply chain nodebitcoin mining neo definitive guide protocol technology law and law tech nakamoto definitive management blockchain foodmining blockchain code smart contracts related blockchain investing explained blockchain law bit ethereum blockchain for babies bitcoin block chain cryptocurrency things decentralized blockchain supply chain blockchain programming distributed ledger crypto paperback currency money the +at + guide internet blockchain loyalty 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.

The story of the idealists, technologists, and opportunists fighting to bring cryptocurrency to the masses. In their short history, Bitcoin and other cryptocurrencies have gone through booms, busts, and internecine wars, recently reaching a market valuation of more than \$2 trillion. The central promise of crypto endures—vast fortunes made from decentralized networks not controlled by any single entity and not yet regulated by many governments. The recent growth of crypto would have been all but impossible if not for a brilliant young man named Vitalik Buterin and his creation: Ethereum. In this book, Laura Shin takes readers inside the founding of this novel cryptocurrency network, which enabled users to launch their own new coins, thus creating a new crypto fever. She introduces readers to larger-than-life characters like Buterin, the Web3 wunderkind; his short-lived CEO, Charles Hoskinson; and Joe Lubin, a former Goldman Sachs VP who became one of crypto's most well-known billionaires. Sparks fly as these outsized personalities fight for their piece of a seemingly limitless new business opportunity. This fascinating book shows the crypto market for what it really is: a deeply personal struggle to influence the coming revolution in money, culture, and power.

Bitcoin for Beginners & Dummies
Mastering Blockchain
Blockchain for Beginners
Blockchain Beginners Bible
The Cryptopians
The Present and Future of Blockchain and Cryptocurrencies

Learn the skills to get in on the crypto craze The world of cryptocurrency includes some of the coolest technologies and most lucrative investments available today. And you can jump right into the middle of the action with Cryptocurrency All-in-One For Dummies, a collection of simple and straightforward resources that will get you up to speed on cryptocurrency investing and mining, blockchain, Bitcoin, and Ethereum. Stop scouring a million different places on the web and settle in with this one-stop compilation of up-to-date and reliable info on what's been called the "21st century gold rush." So, whether you're just looking for some fundamental knowledge about how cryptocurrency works, or you're ready to put some money into the markets, you'll find what you need in one of the five specially curated resources included in this book. Cryptocurrency All-in-One For Dummies will help you: Gain an understanding of how cryptocurrency works and the blockchain technologies that power cryptocurrency Find out if you're ready to invest in the cryptocurrency market and how to make smart decisions with your cash Build a cryptocurrency mining rig out of optimized and specifically chosen computing hardware Dive into the details of leading cryptocurrencies like Bitcoin and Ethereum Perfect for anyone curious and excited about the potential that's been unlocked by the latest in cryptocurrency tech, this book will give you the foundation you need to become a savvy cryptocurrency consumer, investor, or miner before you know it. If you're interested in what the future of government, finance and banking will look like, keep reading... If you're looking for a blockchain book that isn't just a two-hour Bitcoin hype, then you've come to the right place Blockchain has been called the biggest technological innovation since the world wide web.

Dive into a secure future Professionals look to Ethereum as a blockchain-based platform to develop safe applications and conduct secure transactions. It takes a knowledgeable guiding hand to understand how Ethereum works and what it does — and Ethereum For Dummies provides that guidance. Written by one of the leading voices in the blockchain community and best selling author of Blockchain For Dummies, this book demystifies the workings of Ethereum and shows how it can enhance security, transactions, and investments. As an emerging application of blockchain technology, Ethereum attracts a wide swath of professionals ranging from financial pros who see it as a way to enhance their business, security analysts who want to conduct secure transactions, programmers who build apps that employ the Ethereum blockchain, or investors interested in cashing in on the rise of cryptocurrency. Ethereum For Dummies offers a starting point to all members of this audience as it provides easy-to-understand explanation of the tools and techniques of using Ethereum. Understand the fundamentals of Ethereum Build smart contracts Create decentralized applications Examine public and private chains If you need to get a grip on one of the biggest applications of blockchain technology, this book makes it easier.

Blockchain technology has come a long way since the initial vision published by Satoshi Nakamoto in 2008. Big buzz words like "bitcoin," "blockchain," and "cryptocurrency" are everywhere. Companies and governments have started to use blockchain technology in earnest and will increasingly do so for the foreseeable future. This book takes an in-depth look at blockchain technology and how users can take advantage of its potential. Since its initial conception, blockchain has encompassed both a social promise and new technology. Originally proposed as a solution for Bitcoin's cryptocurrency record-keeping system, blockchains are now used to store the records of all types of applications. Core services we all depend on like the transfer of money, voting, land records, IP rights, and identity all rely on intermediaries. Blockchain software has begun taking the place of these antiquated systems. The software becomes the trusted record-keeping system, and the rules programed into the software become the intermediaries. This book explains the fundamentals of blockchain technology and assumes that the reader has little to no knowledge of the subject. Topics are explained as simply as possible, while not obscuring details that may affect the reader. It also gives the reader insight into the critical differences in blockchain software and will provide them with a basic understanding of how and why these

systems work. After reading this book, the reader will be able to speak with confidence on the topic, know key differences in technology. The reader will also have critical insight into blockchain software's inherent limitations and shortcomings. This book is also the definitive guide to the Blockchain Technology Foundation (BTF) exam from EXIN. It will prepare the reader for the test, and each chapter ends with review questions for extra guidance in preparing for the exam.

Automate the Boring Stuff with Python, 2nd Edition

Building a High Quality Marketplace for Crypto Data

A Non-Technical Introduction for Beginners on Blockchain Technology, Cryptocurrency, Bitcoin, Altcoins, Ethereum, Ripple, Investing, Mining, Wallets and Smart Contracts

Discover How Blockchain Could Enrich Your Life, Your Business & Your Cryptocurrency Wallet

Cryptography For Dummies

Idealism, Greed, Lies, and the Making of the First Big Cryptocurrency Craze

Learn how to use Solidity and the Ethereum project - second only to Bitcoin in market capitalization. Blockchain protocols are taking the world by storm, and the Ethereum project, with its Turing-complete scripting language Solidity, has rapidly become a front-runner. This book presents the blockchain phenomenon in context; then situates Ethereum in a world pioneered by Bitcoin. See why professionals and non-professionals alike are honing their skills in smart contract patterns and distributed application development. You'll review the fundamentals of programming and networking, alongside its introduction to the new discipline of crypto-economics. You'll then deploy smart contracts of your own, and learn how they can serve as a back-end for JavaScript and HTML applications on the Web. Many Solidity tutorials out there today have the same flaw: they are written for "advanced" JavaScript developers who want to transfer their skills to a blockchain environment. Introducing Ethereum and Solidity is accessible to technology professionals and enthusiasts of all levels. You'll find exciting sample code that can move forward real world assets in both the academic and the corporate arenas. Find out now why this book is a powerful gateway for creative technologists of all types, from concept to deployment. What You'll Learn See how Ethereum (and other cryptocurrencies) work Compare distributed apps (dapps) to web apps Write Ethereum smart contracts in Solidity Connect Ethereum smart contracts to your HTML/CSS/JavaScript web applications Deploy your own dapp, coin, and blockchain Work with basic and intermediate smart contracts Who This Book Is For Anyone who is curious about Ethereum or has some familiarity with computer science Product managers, CTOs, and experienced JavaScript programmers Experts will find the advanced sample projects in this book rewarding because of the power of Solidity

This open access book contributes to the creation of a cyber ecosystem supported by blockchain technology in which technology and people can coexist in harmony. Blockchains have shown that trusted records, or ledgers, of permanent data can be stored on the Internet in a decentralized manner. The decentralization of the recording process is expected to significantly economize the cost of transactions. Creating a ledger on data, a blockchain makes it possible to designate the owner of each piece of data, to trade data pieces, and to market them. This book examines the formation of markets for various types of data from the theory of market quality proposed and developed by M. Yano. Blockchains are expected to give data itself the status of a new production factor. Bringing ownership of data to the hands of data producers, blockchains can reduce the possibility of information leakage, enhance the sharing and use of IoT data, and prevent data monopoly and misuse. The industry will have a bright future as soon as better technology is developed and when a healthy infrastructure is created to support the blockchain market.

Take advantage of price swings in strongly trending securities and pump up your portfolio! Want to know the strategies of successful swing trading? This friendly guide covers the ins and outs of this risky but profitable investing approach, explaining all the basics in plain English. You'll see how to use the two investment approaches - technical and fundamental analysis - to indentify promising securities instrongly trending markets. In addition, this guide covers how to calculate investment returns and, most important, how to manageyour portfolio's risk. Learn from a highly experienced trader, analyst, and portfoliomanager - the author shares his insider knowledge Understand often overlooked topics such as money management, journal keeping, and strategy planning - key areas that will largely determine your success Focus on the fundamentals - often overlooked by swing traders, fundamental analysis can increase your chance of success Determine your entry and exit points with technical analysis - read charts, apply indicators, and compare markets Evaluate companies with fundamental analysis - grasp the basics of financial statements and the criteria to screen for undervalued or overvalued stocks Develop and implement your trading plan - outline what youtrade and how often, decide your risk tolerance, and calculate yourperformance Open the book and find: The differences among swing trading, day trading, and buy-and-hold investing The pros and cons of technical and fundamental analysis A step-by-step anatomy of a trade A wealth of charts and screenshots Real-world examples of swing trading successes The 10 deadly sins of swing trading - avoid at all costs! Sample trading plans Useful resources for navigating data

An introduction to cryptocurrencies and blockchain technology; a guide for practitioners and students. Bitcoin and blockchain enable the ownership of virtual property without the need for a central authority. Additionally, Bitcoin and other cryptocurrencies make up an entirely new class of assets that have the potential for

fundamental change in the current financial system. This book offers an introduction to cryptocurrencies and blockchain technology from the perspective of monetary economics.

Blockchain

**Blockchain in Action** 

**Cryptocurrencies and Blockchains** 

Bitcoin and Cryptocurrency Technologies, Mining, Investing and Trading

The Ultimate Guide to the World of Cryptocurrency and How I Became a Crypto Millionaire in 6 Months

## **Cryptocurrency Mining For Dummies**

There's a lot more to the blockchain than mining Bitcoin. This secure system for registering and verifying ownership and identity is perfect for supply chain logistics, health records, and other sensitive data management tasks. Blockchain in Action unlocks the full potential of this revolutionary technology, showing you how to build your own decentralized apps for secure applications including digital democracy, private auctions, and electronic record management. Summary There's a lot more to the blockchain than mining Bitcoin. This secure system for registering and verifying ownership and identity is perfect for supply chain logistics, health records, and other sensitive data management tasks. Blockchain in Action unlocks the full potential of this revolutionary technology, showing you how to build your own decentralized apps for secure applications including digital democracy, private auctions, and electronic record management. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Blockchain is more than just the tech behind Bitcoin—much more! Combining impenetrable security, decentralized transactions, and independently verifiable supply chains, blockchain applications have transformed currency, digital identity, and logistics. Platforms such as Ethereum and Hyperledger make it easy to get started by using familiar programming languages. About the book Blockchain in Action teaches you how to design and build blockchain-based decentralized apps, and is written in a clear, jargon-free style. First, you'll get an overview of how blockchain works. Next, you'll code your first smart contract using Ethereum and Solidity, adding a web interface, trust validation, and other features until your app is ready for deployment. The only thing you need to get started is standard hardware and open source software. What's inside Blockchain compared with other distributed systems Development in Solidity Identity, privacy, and security On-chain and off-chain data and operations About the reader For programmers who know JavaScript. About the author Bina Ramamurthy has thirty years of experience teaching distributed systems, data science, peer-to-peer networking, and blockchain. Table of Contents PART 1 -GETTING STARTED WITH BLOCKCHAIN PROGRAMMING 1 Blockchain basics 2 Smart contracts 3 Techniques for trust and integrity 4 From smart contracts to Dapps PART 2 -TECHNIQUES FOR END-TO-END DAPP DEVELOPMENT 5 Security and privacy 6 On-chain and off-chain data 7 Web3 and a channel Dapp 8 Going public with Infura PART 3 - A ROADMAP AND THE ROAD AHEAD 9 Tokenization of assets 10 Testing smart contracts 11 A roadmap to Dapp development 12 Blockchain: The Road ahead Find out what Blockchain is, how it works, and what it can do for you Blockchain is the technology behind Bitcoin, the revolutionary 'virtual currency' that's changing the way people do business. While Bitcoin has enjoyed some well-deserved hype, Blockchain may be Bitcoin's most vital legacy. Blockchain For Dummies is the ideal starting place for business pros looking to gain a better understanding of what Blockchain is, how it can improve the integrity of their data, and how it can work to fundamentally change their business and enhance their data security. Blockchain For Dummies covers the essential things you need to know about this exciting technology's promise of revolutionizing financial transactions, data security, and information integrity. The book covers the technologies behind Blockchain, introduces a variety of existing Blockchain solutions, and even walks you through creating a small but working Blockchain-based application. Blockchain holds the promise to revolutionize a wide variety of businesses. Get in the know about Blockchain now with Blockchain For Dummies and be ready to make the changes to business that your colleagues and competitors will later wish they'd done. Discover ten ways Blockchain can change business Find out how to apply a Blockchain solution See how to make data more secure Learn how to work with vendors Filled with vital information and tips on how this paradigm-changing technology can transform your business for the better, this book will not only show you Blockchain's full potential, but your own as well!

Get digital with your brand today! Digital Marketing for Dummies has the tools you need to step into the digital world and bring your marketing process up to date. In this book, you'll discover how digital tools can expand your brand's reach and help you acquire new customers. Digital marketing is all about increasing audience engagement, and the proven strategy and tactics in this guide can get your audience up and moving! You'll learn how to identify the digital markets and media that work best for your business—no wasting your time or money! Discover how much internet traffic is really worth to you and manage your online leads to convert web visitors into paying clients. From anonymous digital prospect to loyal customer—this book will take you through the whole process! Learn targeted digital strategies for increasing brand awareness Determine the best-fit online markets for your unique brand Access downloadable tools to put ideas into action Meet your business goals with proven digital tactics Digital marketing is the wave of the business future, and you can get digital with the updated tips and techniques inside this book!

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)
Learn Bitcoin and Blockchain
Blockchain Bubble Or Revolution
NFTs For Dummies
Building Smart Contracts and DApps
Mastering Ethereum
Blockchain and Crypto Currency

Find out the essentials of cryptocurrency mining The cryptocurrency phenomenon has sparked a new opportunity mine for virtual gold, kind of like the prospectors of a couple centuries back. This time around, you need some tech know-how to get into the cryptocurrency mining game. This book shares the insight of two cryptocurrency insiders as they break down the necessary hardware, software, and strategies to mine Bitcoin, Ethereum, Monero, LiteCoin, and Dash. They also provide insight on how to stay ahead of the curve to maximize your return on investment. Get the tech tools and know-how to start mining Pick the best cryptocurrency to return your investment Apply a sound strategy to stay ahead of the game Find cryptocurrency value at the source From the basics of cryptocurrency and blockchain to selecting the best currency to mine, this easy-to-access book makes it easy to get started today!

The second edition of this best-selling Python book (over 500,000 copies sold!) uses Python 3 to teach even the technically uninclined how to write programs that do in minutes what would take hours to do by hand. There is no prior programming experience required and the book is loved by liberal arts majors and geeks alike. If you've ever spent hours renaming files or updating hundreds of spreadsheet cells, you know how tedious tasks like these can be. But what if you could have your computer do them for you? In this fully revised second edition of the best-selling classic Automate the Boring Stuff with Python, you'll learn how to use Python to write programs that do in minutes what would take you hours to do by hand--no prior programming experience required. You'll learn the basics of Python and explore Python's rich library of modules for performing specific tasks, like scraping data off websites, reading PDF and Word documents, and automating clicking and typing tasks. The second edition of this international fan favorite includes a brand-new chapter on input validation, as well as tutorials on automating Gmail and Google Sheets, plus tips on automatically updating CSV files. You'll learn how to create programs that effortlessly perform useful feats of automation to: • Search for text in a file or across multiple files • Create, update, move, and rename files and folders • Search the Web and download online content • Update and format data in Excel spreadsheets of any size • Split, merge, watermark, and encrypt PDFs • Send email responses and text notifications • Fill out online forms Step-by-step instructions walk you through each program, and updated practice projects at the end of each chapter challenge you to improve those programs and use your newfound skills to automate similar tasks. Don't spend your time doing work a well-trained monkey could do. Even if you've never written a line of code, you can make your computer do the grunt work. Learn how in Automate the Boring Stuff with Python, 2nd Edition.

Some experts say that cryptocurrencies and blockchains are just a scam; others say they're "the most important invention since the internet." It's hard to tell who's right. Authored by Product Managers from Google, Microsoft, and Facebook, Bubble or Revolution cuts through the hype to offer a balanced, comprehensive, and accessible analysis of blockchains and cryptocurrencies. You'll learn the core concepts of these technologies and understand their strengths and weaknesses from real-world case studies; dive deep into their technical, economic, political, and legal complexities; and gain insights about their future from exclusive interviews with dozens of tech industry leaders. No coding or math needed! Are cryptocurrencies and blockchains a bubble or a revolution? We'll help you decide for yourself. What's inside: Bitcoin and the blockchain How Bitcoin and blockchains work from a technical perspective with no assumed technical knowledge Satoshi Nakamoto and the history of Bitcoin, the original blockchain A thorough overview of crucial crypto concepts (eg. blocks, keys, mining, nodes, etc.) Frameworks for understanding when it actually makes sense to use blockchain Major application scenarios for blockchain and cryptocurrencies and where it'll fall flat Public blockchains and altcoins Emerging trends in blockchain technology What you should know before buying any cryptocurrency An overview of Etherum and smart contracts An overview of the strengths and weaknesses of the top altcoins and stable coins, including Monero (XMR), Tether (USDT), and Bitcoin Cash (BCH) Alternatives to blockchain and cryptocurrencies New kinds of decentralized ledger technology (dlt) The economics of both traditional payment methods and cryptocurrencies Cryptocurrency security best practices and major breach case studies Private blockchains How blockchain, cryptocurrencies, and traditional banking and finance will interact with one another in the future Public blockchains vs private blockchains Limitations and shortcomings of public blockchains and cryptocurrencies The role of blockchain in the strategy of top tech companies like Facebook and Microsoft Case studies of how non-tech companies are effectively utilizing blockchain (eg. Walmart using it to prevent foodborne illness) Business blockchain case studies ranging from gaming (e.g. Xbox) to cloud services (e.g. Microsoft Azure's blockchain-as-a-service and Amazon's AWS offering) Blockchain's use for big data, internet of things (IoT), and machine learning (ML) Cryptocurrency regulation and policy ICOs vs STOs vs IPOs ICOs' status as securities The SEC's STO rules and Reg A+/CF/D/S KYC and AML laws The debate over whether cryptocurrencies are securities The official stance of various countries on crypto An overview of crypto policy and regulatory hurdles The role of crypto in emerging markets and China Digital democracy and voting on the blockchain The future of decentralized technology If, how, and when the tokenization of national currencies will play out Facebook and WhatsApp's upcoming cryptocurrencies Currency tokenization and China's efforts to tokenize the yuan Blockchain, IoT, and the tangle Cryptocurrencies vs. fiat vs. the gold standard Predictions about the future of money, business, and currency Why blockchains would do better on Mars than Earth

The Bitcoin mania continues to sweep the world like never seen before. The soaring value of cryptocurrencies provides a massive incentive for individuals, dummies and businesses to join the party. Those who cashed in during the meteoric rise of digital currencies, like bitcoin, know just how much difference the right investment decisions can make. However, it is never too late for anyone to make a killing with cryptocurrency, bitcoin inclusive. There are many reasons why people are adopting digital currencies in droves besides the profit potential. First, cryptocurrencies, like Bitcoin, are incredibly secure. Technology aficionados and enthusiasts worldwide would agree that the blockchain, the ledger which underpins cryptocurrencies is hugely secure, especially for digital currencies like bitcoin. The blockchain has been carefully built to make it hard for robbers to

change or tamper with data. Second, your transactions cannot be traced back to you unless you publicize your wallet address. Third, there is no paperwork involved, unlike what is obtainable with traditional bank accounts. You can start trading cryptocurrencies without providing proof of address, ID card, or passport. However, the opposite may hold if you intend to trade large sums. But if you are trading small amounts, all you will be needing is your wallet and address. Fourth, as cryptocurrencies are highly anonymous, you do not have to worry about identity theft when dealing in them. Besides, cryptocurrency transactions are completed within few minutes, unlike traditional debt settlement systems which always take time. Now that you have an idea on how cryptocurrencies can benefit you, this eBook aims to provide even more information to help you grow digital currency literacy and critical thinking further.

**Blockchain By Example** 

The Truth About Crypto

A developer's guide to creating decentralized applications using Bitcoin, Ethereum, and Hyperledger

**Blockchain For Dummies** 

Understanding blockchain and Bitcoin architecture to build decentralized applications

Bitcoin, Blockchain, and Cryptoassets

This comprehensive, hands-on guide is the go-to source for everything you need to confidently navigate the ever-changing scene of this booming industry. FinTech For Dummies will shed light on this rapidly changing landscape making it an invaluable source of information for anybody working in or interested in this space. This book provides insights, knowledge and guidance from industry experts Steve O'Hanlon and Susanne Chishti on the following: Gaining insight fastest growing market segment of the financial markets Learning the core decision making to effect a growth plan Securing knowledge of the fastest growing fintech companies in the world Navigating the fintech world The ingredients into building a FinTech company

From their shadowy origins in Bitcoin to their use by multinational corporations, cryptocurrencies and blockchains are remaking the rules of digital media and society. Meanwhile, regulators, governments, and the public are trying to make sense of it all. In this accessible book, Quinn DuPont guides readers through the changing face of money to show how blockchain technology underpins new forms of value exchange and social coordination. He introduces cryptocurrency and blockchain technology to readers in terms of their developers and users, investment opportunities and risks, changes to politics and law, social and industrial applications - and what this all means for the new economy. The author argues throughout that, rather than being a technical innovation, cryptocurrencies and blockchains are social technologies enabling developers and users to engage in unprecedented experiments with social and political levers. Cryptocurrencies and Blockchains dispenses with hype and offers sober reflection on this crucial and timely topic. It is essential reading for students and scholars of culture, politics, media, and the economy, as well as anyone who wants to understand, take part in, or change the future of work and society.

Get ahead of the curve—learn about big data on the blockchain Blockchain came to prominence as the disruptive technology that made cryptocurrencies work. Now, data pros are using blockchain technology for faster real-time analysis, better data security, and more accurate predictions. Blockchain Data Analytics For Dummies is your quick-start guide to harnessing the potential of blockchain. Inside this book, technologists, executives, and data managers will find information and inspiration to adopt blockchain as a big data tool. Blockchain expert Michael G. Solomon shares his insight on what the blockchain is and how this new tech is poised to disrupt data. Set your organization on the cutting edge of analytics, before your competitors get there! Learn how blockchain technologies work and how they can integrate with big data Discover the power and potential of blockchain analytics Establish data models and quickly mine for insights and results Create data visualizations from blockchain analysis Discover how blockchains are disrupting the data world with this exciting title in the trusted For Dummies line!

Ethereum represents the gateway to a worldwide, decentralized computing paradigm. This platform enables you to run decentralized applications (DApps) and smart contracts that have no central points of failure or control, integrate with a payment network, and operate on an open blockchain. With this practical guide, Andreas M. Antonopoulos and Gavin Wood provide everything you need to know about building smart contracts and DApps on Ethereum and other virtual-machine blockchains. Discover why IBM, Microsoft, NASDAO, and hundreds of other organizations are experimenting with Ethereum. This essential guide shows you how to develop the skills necessary to be an innovator in this growing and exciting new industry. Run an Ethereum client, create and transmit basic transactions, and program smart contracts Learn the essentials of public key cryptography, hashes, and digital signatures Understand how "wallets" hold digital keys that control funds and smart contracts Interact with Ethereum clients programmatically using JavaScript libraries and Remote Procedure Call interfaces Learn security best practices, design patterns, and antipatterns with real-world examples Create tokens that represent assets, shares, votes, or access control rights Build decentralized applications using multiple peer-to-peer (P2P) components **Ethereum For Dummies** 

Cryptocurrency

**Digital Marketing For Dummies** 

**Starting an Online Business All-in-One For Dummies** 

**Swing Trading For Dummies** 

The Beginners Guide to Understanding the Technology Behind Bitcoin & Cryptocurrency

Start a successful online business-and be your own boss! Being an online entrepreneur means more than just building a website-and this book breaks down everything you need to know to be successful. Inside, you'll get plain-English explanations and easy-tofollow instruction on online business basics, legal and accounting issues, website design, Internet security, boosting sales, ecommerce, and so much more. While the ideas and concepts behind starting an online business are tried and true, the tools available to entrepreneurs change and evolve quickly-and often. Starting an Online Business All-in-One For Dummies gets you up to

speed on the best new tools, resources, and communities, and shows you how to best leverage them to up your chances of success. Discover your niche and create a business plan Design your website and storefront Increase your reach and market with social media Choose the best web host for your needs If you're a budding entrepreneur with dreams of running your own online business, this book has everything you need to get started and grow your company to extraordinary heights!

The ultimate guide to the world of cryptocurrencies! While the cryptocurrency market is known for its volatility—and this volatility is often linked to the ever-changing regulatory environment of the industry—the entire cryptocurrency market is expected to reach a total value of \$1 trillion this year. If you want to get in on the action, this book shows you how. Cryptocurrency Investing For Dummies offers trusted guidance on how to make money trading and investing in the top 200 digital currencies, no matter what the market sentiment. You'll find out how to navigate the new digital finance landscape and choose the right cryptocurrency for different situations with the help of real—world examples that show you how to maximize your cryptocurrency wallet. Understand how the cryptocurrency market works Find best practices for choosing the right cryptocurrency Explore new financial opportunities Choose the right platforms to make the best investments This book explores the hot topics and market moving events affecting cryptocurrency prices and shows you how to develop the smartest investment strategies based on your unique risk tolerance.

Unravel the mysteries of blockchains Blockchain technologies are disrupting some of the world's biggest industries. Blockchain For Dummies provides a fast way to catch up with the essentials of this quickly evolving tech. Written by an author involved in founding and analyzing blockchain solutions, this book serves to help those who need to understand what a blockchain can do (and can't do). This revised edition walks you through how a blockchainsecurely records data across independent networks. It offers a tour of some of the world's best-known blockchains, including those that power Bitcoin and other cryptocurrencies. It also provides a glance at how blockchain solutions are affecting the worlds of finance, supply chain management, insurance, and governments. Get a clear picture of what a blockchain can do Learn how blockchains rule cryptocurrency and smart contracts Discover current blockchains and how each of them work Test blockchain apps Blockchain has become the critical buzzword in the world of financial technology and transaction security - and now you can make sense of it with the help of this essential guide. Summary If you think Bitcoin is just an alternative currency for geeks, it's time to think again. Grokking Bitcoin opens up this powerful distributed ledger system, exploring the technology that enables applications both for Bitcoin-based financial transactions and using the blockchain for registering physical property ownership. With this fully illustrated, easy-to-read quide, you'll finally understand how Bitcoin works, how you can use it, and why you can trust the blockchain. Foreword by David A. Harding, Contributor to Bitcoin documentation. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Inflation, depressed economies, debased currencies ... these are just a few of the problems centralized banking has caused throughout history. Bitcoin, a digital currency created with the ambition to shift control away from change-prone governments, has the potential to bring an end to those problems once and for all. It's time to find out how it can help you. About the Book Grokking Bitcoin explains why Bitcoin's supporters trust it so deeply, and why you can too. This approachable book will introduce you to Bitcoin's groundbreaking technology, which is the key to this world-changing system. This illustrated, easy-to-read guide prepares you for a new way of thinking with easy-to-follow diagrams and exercises. You'll discover how Bitcoin mining works, how to accept Bitcoin, how to participate in the Bitcoin network, and how to set up a digital wallet. What's inside Bitcoin transactions The blockchain Bitcoin mining Bitcoin wallets About the Reader Intended for anyone interested in learning about Bitcoin technology. While a basic understanding of technical concepts is beneficial, no programming skills are necessary. About the Author Kalle Rosenbaum is a computer scientist, an avid Bitcoin supporter, and the founder of Propeller, a Bitcoin consultancy. Table of Contents Introduction to Bitcoin Cryptographic hash functions and digital signatures Addresses Wallets Transactions The blockchain Proof of work Peer-to-peer network Transactions revisited Segregated witness Bitcoin upgrades

Practical Programming for Total Beginners
Mastering Bitcoin for Dummies

Blockchain Data Analytics For Dummies

A Practical, Easy-to-Understand Guide to Bitcoin, Blockchain, NFTs, and Other Digital Assets

FinTech For Dummies

Introduction to Blockchain Technology

A straightforward, practical guide to the newest frontier in investment strategy—crypto—from #1 New York Times bestselling author and personal finance expert Ric Edelman. Blockchain and bitcoin are here to stay—and as the Bank of England stated, this new technology could "transform the global financial system." No wonder PWC says blockchain technology will add \$2 trillion to the world 's \$80 trillion economy by 2030. Indeed, blockchain technology and the digital assets it makes possible are revolutionary, the most profound innovation for commerce since the invention of the internet. And yet, the average investor—and the investment advisors who manage two-thirds of all their money—aren 't aware of all this, or of the incredible investment opportunities now available. Fortunately, Ric Edelman, one of the most influential experts in the financial field, shows investors how they can engage and thrive in today 's new investment marketplace. Featuring the prophetic insights you 'd expect from one of most acclaimed financial advisors, The Truth About Crypto is fun to read and easy to understand—and most importantly gives readers the sound, practical advice we all need to succeed with this new asset class. Best of all, Edelman shows how blockchain works, the difference between digital currency and digital assets, and a comprehensive look at every aspect of the field. This book is a must-read guide if you want to achieve investment success today.

Do you want to completely change your life in 6 months? This book will show you what you have to do but more important how you can do it and how I (An ex-army) became a Crypto Millionaire in 6 months If you don't know much about Cryptocurrency, don't worry. We all start with nothing. For those who do commit to learning the art of cryptocurrency trading, you will never look at or enjoy the life same way ever again. The purpose of this book is to provide a full perspective of cryptocurrency trading, including how to make money investing in cryptocurrencies and how to know more about the cryptocurrency world. So, how can you make insane money with cryptocurrencies? One word: Altcoins. Altcoins stand for 'alternative coins', or in simple terms, the cryptocurrency that's NOT Bitcoin. There's Bitcoin and then there's 'everything else'. 'Everything else' is what altcoins are. Invest in altcoins, the right ones, and you can make insane amounts of money and fast. So, we will discuss all these in detail inside the book including my own story about how I became a crypto millionaire in 6 months and will show you how you can do it as well. In this book you will learn: Introducing Cryptocurrency The Most Common Cryptocurrencies How I Became a Crypto Millionaire in 6 Months Understanding Blockchain Technology How Does Cryptocurrency Work? Investment Mining Cryptocurrency Exchanges How to Store and Secure Cryptocurrency 6 Mistakes to Avoid While Trading Cryptocurrency The Pros and Cons of Cryptocurrency Smart Contracts How Cryptocurrency Can and Will Disrupt the Financial System Ways to Make Money with Cryptocurrency The Future of Cryptocurrency And Much, Much More! "Cryptocurrency is such a powerful concept that it can almost overturn governments" - Charles Lee, The creator of Litecoin "So my view's quite clear. I believe cryptocurrencies, bitcoin is the first example, I believe they're going to change the world." - Richard Brown, Executive Architect at IBM Final Words: Even if you think you know everything discussed here, gi

Get up and running with the fundamentals of Bitcoin and blockchain Key Features Learn quick, effective, and easy ways to master blockchain and Bitcoin Understand the impact of decentralization and discover ways to tackle it Explore the future of Bitcoin and blockchain and implement them in a business network Book Description Blockchain is a distributed database that enables permanent, transparent, and secure storage of data. Blockchain technology uses cryptography to keep data secure. Learn Bitcoin and Blockchain is the perfect entry point to the world of decentralized databases. This book will take you on a journey through the blockchain database, followed by advanced implementations of the blockchain concept. You will learn about Bitcoin basics and their technical operations. As you make your way through the book, you will gain insight into this leading technology and its implementation in the real world. You will also cover the technical foundation of blockchain and understand the fundamentals of cryptography and how they keep data secure. In the concluding chapters, you 'll get to grips with the mechanisms behind cryptocurrencies. By the end of this book, you will have learned about decentralized digital money, advanced blockchain concepts, and Bitcoin and blockchain security. What you will learn Understand the concept of decentralization, its impact, its relationship with blockchain technology and its pros and cons Learn blockchain and Bitcoin architectures and security Explore Bitcoin and blockchain security Implement blockchain technology and its features commercially Understand why consensus protocols are critical in blockchain Get a grip on the future of blockchain Who this book is for Learn Bitcoin and Blockchain is required.

The future will be increasingly distributed. As the publicity surrounding Bitcoin and blockchain has shown, distributed technology and business models are gaining popularity. Yet the disruptive potential of this technology is often obscured by hype and misconception. This detailed guide distills the complex, fast moving ideas behind blockchain into an easily digestible reference manual, showing what's really going on under the hood. Finance and technology pros will learn how a blockchain works as they explore the evolution and current state of the technology, including the functions of cryptocurrencies and smart contracts. This book is for anyone evaluating whether to invest time in the cryptocurrency and blockchain industry. Go beyond buzzwords and see what the technology really has to offer. Learn why Bitcoin was fundamentally important in blockchain's birth Learn how Ethereum has created a fertile ground for new innovations like Decentralized Finance (DeFi), Non-Fungible Tokens (NFTs) and Flash Loans Discover the secrets behind cryptocurrency prices and different forces that affect the highly volatile cryptocurrency markets Learn how cryptocurrencies are used by criminals to carry out nefarious activities Discover how enterprise and governments are leveraging the blockchain including Facebook Understand the challenges of scaling and forking a blockchain Learn how different blockchains work Learn the language of blockchain as industry terms are explained

Cryptocurrency & Blockchain

Beginners Bible - How You Can Make Money Trading and Investing in Cryptocurrency like Bitcoin, Ethereum and altcoins

Bitcoin and Cryptocurrency Technologies

Grokking Bitcoin

Introducing Ethereum and Solidity

Cryptocurrency Investing For Dummies

SPECIAL DISCOUNT PRICING: \$9.90! Regularly priced: \$12.99 \$14.99. Get this Amazing #1 Amazon Top Release - Great Deal! Bitcoin is not just a new word in the Internet age or

technological and financial progress, it's a start of a new era on the Earth! Even 10 years ago we even couldn't imagine dreaming about digital money - you can't physically touch them but you can own and spend them. Today this is a reality! Bitcoin revolution covered the whole world like a huge wave, more and more people interested in this "Digital Gold". Over the past few years, Bitcoin has grown from something known only to a select few tech nerds into a revolutionary currency that has rapidly changed the way that we think about the concept of money. You no doubt see Bitcoin payments accepted in all kinds of places now, but, if you can believe it, it used to be a fairly complicated procedure for finding places that let you pay in Bitcoin. Anyway, to run the world you need to know everything. We can't guarantee that you will know EVERYTHING from this book, but we can guarantee you will have the notion of a new currency - Bitcoin. What is it? Where did it come from? How do you use it? Is it really just fake internet money created by drug dealers? That is precisely what we will be answering in this book. We'll cover everything you need to know in order to get started with Bitcoin: understanding the Blockchain and Bitcoin transactions where to keep your Bitcoin (how to choose a secure wallet) buying Bitcoin investing in Bitcoin how to start accepting and using Bitcoin as a part of your business principles of Bitcoin mining the security of Bitcoin etc. Also, the author will share with you interesting facts about Bitcoin and will give you professional tips on the start of your way in Bitcoin family! Ready to take on the Bitcoin world yet? I hope so. I'd like to be the first to officially welcome you to the world of Bitcoin! Discover how you can make money from cryptocurrency - even if you're a complete novice Between 2010 and 2017 the price of Bitcoin rose from \$0.07 to over \$4,000 - An increase of 5,714,190%! That's the equivalent of buying 1 share of Apple stock today and that very same share being worth an astonishing \$9.1 million in just 7 short years. But the Bitcoin ship has sailed right? Aren't the best days of cryptocurrency over? Think again. In fact, there is no better time than now to get involved in the cryptocurrency market This year, those who bought Ethereum in January saw the price rise from \$8.06 to a peak of \$356 - an increase of a whopping 4316% Or what about Litecoin, which rose 1788% from \$4.33 to \$81.78 in 2017? In the same time frame, the SNP 500 rose a mere 10.25% - and that was a good year for the market Gold only rose 10.16% in the same time period. This may sound like hype, except these are real numbers. Real millionaires have been created in the past 5 years thanks to Bitcoin and other cryptocurrencies. And now you can invest and profit from these unbelievable wealth growers. This book will show you a step by step process how you can buy, sell and profit from cryptocurrency - even if you don't know the difference between a Bitcoin and a Blockchain It's that easy. This isn't 2012 when buying cryptocurrency involved jumping over multiple hurdles just to get a piece of the pie. It's never been so simple to be a part of the cryptocurrency market. Cryptocurrency Beginners Bible teaches you: The fundamentals behind the technology that backs up cryptocurrency - Page 24 How you can buy Bitcoin, Ethereum and other cryptocurrencies in less than 15 minutes - Page 37 An analysis of the strengths and weaknesses of 13 different cryptocurrencies -Page 42 How to safely store your new crypto assets - Page 86 Where to get your information regarding cryptocurrency if you want to avoid pitfalls - Page 96 A real life, money saving case study of what NOT to do when buying an altcoin - Page 107 But aren't cryptocurrencies risky? Like any investment, they carry certain risks. That's why we've created this book to help you stay informed and armed with the best knowledge possible - broken down into easy, digestible language. Reduce your risk and learn the safest way to buy, store and profit from cryptocurrency. See how you can benefit from this incredible opportunity...all for the price of your daily coffee Order now to begin making money today! P.S. Remember, cryptocurrency is the number one investment in terms of returns over the past 7 years - download Cryptocurrency Beginners Bible to discover how you can be a part of the world's fastest growing market

Cryptography is the most effective way to achieve data securityand is essential to e-commerce activities such as online shopping, stock trading, and banking This invaluable introduction to the basics of encryption coverseverything from the terminology used in the field to specific technologies to the pros and cons of different implementations Discusses specific technologies that incorporate cryptographyin their design, such as authentication methods, wirelessencryption, e-commerce, and smart cards Based entirely on real-world issues and situations, thematerial provides instructions for already available technologies that readers can put to work immediately Expert author Chey Cobb is retired from the NRO, where she held Top Secret security clearance, instructed employees of the CIA NSA on computer security and helped develop the computersecurity policies used by all U.S. intelligence agencies

Get a grip on NFTs and learn how to get in the game It's not often that a brand-new investment comes along that revolutionizes how we buy and sell digital assets. But that's what non-fungible tokens (NFTs) did. Built on blockchain tech, NFTs are shaking up the world of digital commodity investing. And you can get your slice of the pie before everyone jumps into the arena. In NFTs For Dummies, you'll find straightforward answers to critical aspects of the NFT phenomenon. You'll learn exactly what non-fungible tokens really are, how you can find them, and even how to create your own valuable NFTs. You'll also discover: How to find reliable and safe NFT marketplaces where you can be sure you're dealing with reputable buyers and sellers A peek behind the NFT curtain to see how NFTs work and what, exactly, you own when you buy or make an NFT Discussions of the kinds of digital properties that can be converted into an NFT Perfect for anyone who wants to learn about the market for buying, selling, and creating crypto collectibles, NFTs For Dummies is the only resource you'll need to get a handle on this cutting-edge tech and start making it work for you.

Bitcoin Trading for Beginners, Dummies & Idiots

**Bitcoin For Dummies** 

Foundations of Cryptocurrency and Blockchain Programming for Beginners The Complete Step by Step Guide to Understanding Blockchain Technology Bitcoin and Blockchain Basics

## A Comprehensive Introduction

The only guide you need to understand mechanics behind blockchain technology Today only, get this Amazon bestseller for just \$15.38. Regularly priced at \$17.38! What the book can offer... This book will help you better understand blockchain, a new computer technology that is changing everything from how financial transactions are made to financial systems themselves. Unlike many other new technologies that emerge on the market, blockchain does not build on pre-existing technology. It actually created an entirely new model for how computer programs can run: in a decentralized, peer-to-peer, open-source manner that is not only virtually impenetrable but also does not require trusted mediaries to authorize transactions. Blockchain's origins go back to the early 1990s, the time when the Internet was beginning to become more accessible to the public. The full concept was laid out in 2008 with Satoshi Nakamoto's white paper on his proposed cryptocurrency, Bitcoin. He developed the blockchain could be used

for programs other than Bitcoin. They went on to develop powerful networks such as Ethereum and Blockstack, while other programmers began to experiment with other practical applications that blockchain had. The potential of blockchain is enormous. It enables highly secure transactions that cannot be tampered with. One feature of blockchain, the smart contract, even ensures that all parties involved in a contract carry out their prescribed duties - without the need for any trusted third party or middleman! Thus, there is no need for haggling, disputing claims, or going back and forth on each party's responsibility. Adoption of this technology by insurance, financial, and other institutions carries the potential to save on administrative costs. Blockchain smart contracts could even be used in elections by enabling voters to cast their votes from home and automatically tally them in such a way that the final numbers are indisputable; this has the potential to eliminate voter fraud, reverse low-voter turnout, and the margin of error in counting votes. Even so, the potential that blockchain technology has is only beginning to be recognized. In this book, you will find accurate, detailed information that will help you understand what blockchain is, how it is currently being used, and how you can use it. Here Is A Preview Of What You'll Learn... The history of blockchain technology Other technologies spawned from blockchain The mechanics behind how blockchain works Applications for blockchain Limitations and challenges of blockchain How to profit from blockchain How to build a mining rig Much, much more! Get your copy today! Take action today and buy this book for a limited time discount of only \$15.38 Scroll up and click the buy button now!

"Learn to understand the ins and outs of the Bitcoin market, set up your Bitcoin wallet and get started, [and] protect yourself against fraud and theft"--Cover.

\*\*\*GET THE KINDLE VERSION FREE WHEN YOU PURCHASE THE PAPERBACK!\*\*\*"What the Internet did for communications, Blockchain will do for trusted transactions".- Ginni Rometty, IBM CEO Cryptocurrency and it's disruptive architecture, Blockchain, is now making the biggest revolution in the Finance sector for the last 100 years. There is a lot of hype surrounding the concept of the blockchain, but what does this term actually mean? What is blockchain technology? Why does it matter? These questions are not always answered with due diligence in the sea of headlines that deal with digital currencies using blockchains. As a result, many people are left with an incomplete understanding of this transformative new technology and its massive implications for the future. The goal of this book is not to plumb the depths of the mathematical wizardry used to code blockchain-based applications, but rather to serve as an introduction to the broader architecture and conceptual background behind blockchain technology. We will take a practical approach, examining how Blockchains are used in the real world. In this short, concise guide you will learn: A Brief History of Blockchain Technology Blockchain Basics: Managing Digital Transactions What is a Distributed Ledger? Blockchain Beyond Bitcoin Implications Of Blockchain: Big Data, Privacy & Personal Data Profiting from Blockchain Technologies Limitations & Challenges of Blockchain The Future of Blockchain For Centuries, people have relied on corrupt Centralized Institutions like banks and Governments to serve as intermediaries when it comes to storing and transacting financial assets. This is ALL About To Change... Make sure you take action and join the Financial Revolution by reading this book!

Cryptocurrency All-in-One For Dummies

The many faces of blockchain technology in the 21st century