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                       Blockchain
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   Nota di contenuto   Chapter 1 Overview of blockchain and smart contract -- Chapter 2 On-chain and Off-Chain Blockchain Data Collection -- Chapter 3 Analysis and Mining of Blockchain Transaction Network -- Chapter 4 Intelligence Driven Optimization of Smart Contracts -- Chapter 5 Misbehavior Detection on Blockchain Data -- Chapter 6 Market Analysis of Blockchain-based Cryptocurrencies -- Chapter 7 Open research problems.

   Sommario/riassunto   This book focuses on using artificial intelligence (AI) to improve blockchain ecosystems. Gathering the latest advances resulting from AI in blockchain data analytics, it also presents big data research on blockchain systems. Despite blockchain's merits of decentralisation, immutability, non-repudiation and traceability, the development of blockchain technology has faced a number of challenges, such as the difficulty of data analytics on encrypted blockchain data, poor scalability, software vulnerabilities, and the scarcity of appropriate incentive mechanisms. Combining AI with blockchain has the potential

to overcome the limitations, and machine learning-based approaches may help to analyse blockchain data and to identify misbehaviours in blockchain. In addition, deep reinforcement learning methods can be used to improve the reliability of blockchain systems. This book focuses in the use of AI to improve blockchain systems and promote blockchain intelligence. It describes data extraction, exploration and analytics on representative blockchain systems such as Bitcoin and Ethereum. It also includes data analytics on smart contracts, misbehaviour detection on blockchain data, and market analysis of blockchain-based cryptocurrencies. As such, this book provides researchers and practitioners alike with valuable insights into big data analysis of blockchain data, AI-enabled blockchain systems, and applications driven by blockchain intelligence.