**Book Review**

# Applied Data Science in FinTech: Models, Tools, and Case Studies

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This book arrives at a pivotal moment in the evolution of financial technology. As generative artificial intelligence rapidly transforms predictive analytics and data management grows increasingly complex, this textbook delivers a timely, comprehensive bridge between theoretical data science and practical financial applications. Designed primarily for postgraduate students and advanced learners in FinTech, Business Analytics, and Data Science, the volume assumes a baseline programming competency and delivers an inquiry-driven, hands-on curriculum that prioritizes executable problem-solving over abstract theory.

The opening section establishes a rigorous foundation in data literacy, framing it as an indispensable competency for modern finance and banking professionals. The authors position algorithms as the operational core of any FinTech solution, moving beyond superficial definitions to explore their structural logic and real-world utility. A distinctive pedagogical feature is the introduction of pseudocoding, a methodological tool the authors systematically deploy throughout the text to streamline interactions with AI copilots and conversational agents. This forward-thinking approach naturally transitions into a substantive discussion of data governance, where critical themes such as AI ethics, data integrity, and cybersecurity are carefully contextualized for financial practitioners. Readers emerge from this section equipped with a structured framework for selecting appropriate data structures, predictive models, and database architectures, regardless of whether the underlying information is quantitative or qualitative, structured or unstructured.

Building upon this foundation, the second section examines the mathematical and theoretical underpinnings of machine learning and AI modeling frameworks. Guided by the Data-Driven Finance (DDF) concept, the authors walk readers through the model selection phase, introducing supervised and unsupervised learning algorithms tailored to banking and financial applications. A substantial portion of this segment is dedicated to blockchain technology and decentralized finance (DeFi). The text demystifies digital tokenization, clarifies the operational distinctions between centralized (CeFi) and decentralized finance, and provides practical, code-level demonstrations of smart contract development using Python scripting within Ethereum's Solidity environment. Crucially, the authors maintain academic rigor by presenting well-reasoned counterarguments that highlight the technological, scalability, and regulatory limitations of blockchain systems, ensuring readers develop a critically informed practitioner's mindset.

The final section synthesizes these theoretical and technical components through applied case studies, with a primary focus on AdviceTech. Readers are immersed in a realistic simulation in which they assume the role of a financial engineer at a cryptocurrency robo-advisory platform, tasked with designing a technology-driven solution grounded in modern portfolio theory. This exercise effectively operationalizes the DDF framework, enabling students to map complex data flows, construct interactive FinTech interface wireframes using the Streamlit library, and critically assess the boundaries and opportunities inherent in digital asset trading. By consistently integrating sample code, curated datasets, and step-by-step development illustrations, the book ensures that conceptual knowledge is continuously translated into deployable technical skills.

Ultimately, *Applied Data Science in FinTech* succeeds by explicitly rejecting a one-size-fits-all approach to financial predictive modeling. Instead, it empowers readers to strategically align tools and architectures with specific data characteristics and operational constraints. The inclusion of a meticulously classified, alphabetical index further enhances its utility as both a structured course textbook and a durable professional reference. For educators, researchers, and aspiring data scientists seeking to master the dynamic intersection of finance and technology, this volume offers a rigorous, accessible, and highly actionable roadmap.

This book has a detailed index that provides both an alphabetical and a classified approach to the readers.

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