

Preface

Welcome to the world of *Algorithmic Approaches to Financial Technology: Forecasting, Trading, and Optimization*. In this captivating journey through the intersection of finance and technology, we invite you to explore the cutting-edge developments and transformative potential of algorithmic solutions in the financial sector.

Algorithmic Approaches to Financial Technology: Forecasting, Trading, and Optimization takes a comprehensive approach, spotlighting the fusion of artificial intelligence (AI) and algorithms in financial operations. The chapters explore the expansive landscape of algorithmic applications, from scrutinizing market trends to managing risks. The emphasis extends to AI-driven personnel selection, implementing trusted financial services, crafting recommendation systems for financial platforms, and critical fraud detection.

This book serves as a vital resource for researchers, students, and practitioners. Its core strength lies in discussing AI-based algorithms as a catalyst for evolving market trends. It provides algorithmic solutions for stock markets, portfolio optimization, and robust financial fraud detection mechanisms. The text also casts a forward-looking gaze on the industry, predicting future trends while spotlighting the genetic algorithms in high-frequency trading, predictive analysis, and forecasting.

The chapters in this book encompass a diverse array of topics, each offering a unique perspective on how algorithms are shaping the financial landscape. From the intricacies of cryptocurrency volatility modeling to the profound impact of disruptive technologies on computational finance, our authors delve deep into the heart of these critical subjects.

Chapter 1, “Investigation of the Time Pattern of Bit Green Crypto: An ARMA Modeling Approach to Unravel Volatility,” sets the stage by applying ARMA modeling to unravel the mysteries of cryptocurrency volatility. It offers a glimpse into the dynamic world of digital assets and the tools used to understand their fluctuations.

Chapter 2, “Algorithmic FinTech: Pioneering the Financial Landscape of Tomorrow,” explores the role of algorithmic solutions in charting the course for the future of finance. It showcases the innovative strategies that are reshaping the financial industry and propelling it into uncharted territory.

Chapter 3, “Disruptive Technologies in Computational Finance,” delves into the disruptive technologies that are revolutionizing computational finance. From blockchain to AI, this chapter dissects the forces reshaping the way we approach financial operations and investments.

Chapter 4, “Challenges and Opportunities of Machine Learning in the Financial Sector,” provides a comprehensive overview of the challenges and opportunities associated with machine learning in finance. It uncovers how AI-powered algorithms are optimizing decision-making and risk management.

Chapter 5, “Sustainability-Driven Finance: Reshaping the Financial World,” takes us on a journey into the realm of sustainable finance. It explores how algorithms are being harnessed to drive positive environmental and social change while delivering financial returns.

Chapter 6, “Masters of the Market: Unleashing Algorithmic Wizardry in Finance,” invites readers to witness the wizardry of algorithms in action. It showcases how algorithmic trading is reshaping the dynamics of financial markets, providing traders with unparalleled advantages.

Chapter 7, “The Impact of Corruption on Economic Growth in Tunisia: An Application of ARDL Approach,” expands our horizons beyond traditional finance to examine the socio-economic impact of corruption, utilizing advanced econometric techniques.

Chapter 8, “A Study on Rural BPL Households’ Perception Towards Financial Inclusion Schemes,” delves into financial inclusion and the role of algorithms in reaching marginalized populations, contributing to economic empowerment.

Chapter 9, “Contribution of Disruptive Technologies in Computational Finance,” revisits the theme of disruptive technologies, shedding light on their ongoing and future contributions to the field of computational finance.

Chapter 10, “Organizational Citizenship Behavior and Employee Retention,” measures organizational citizenship to retain bank employees. The banking sector is a crucial growth driver in our service-based economy. Young bankers work in a proper environment, so they can handle their obligations and responsibilities successfully.

Chapter 11, “User Experience and Interaction in Information Applications Advanced Human-Machine Interfaces,” aims to explore the advancements and potential of human-machine interfaces (HMIs) in improving user experience and interaction in information applications. With the proliferation of digital technologies and the increasing reliance on information systems, the design and usability of interfaces play a critical role in enhancing user engagement and effectiveness.

Chapter 12, “Assessing the Impact of Quality and Internal Control on Academic Institutions’ Performance: A Case of Study of HIBAG,” assesses the relationship of both quality and internal control on academic institutions’ performance by using a case of study of the Higher Institute of Business Administration of Gafsa (HIBAG).

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As you embark on this intellectual journey, we hope that you will find inspiration, insight, and a deeper understanding of how algorithms are revolutionizing the financial world. Whether you are a student eager to explore the frontiers of finance or a seasoned professional seeking to stay ahead of the curve, this book promises a rich tapestry of knowledge and innovation.

We extend our gratitude to the authors whose expertise and dedication have made this book a reality. Their contributions offer a panoramic view of the evolving landscape of financial technology, and we are privileged to share their insights with you.

So, without further ado, let us embark on this voyage into the fascinating realm of Algorithmic Approaches to Financial Technology: Forecasting, Trading, and Optimization. May your journey be both enlightening and rewarding as we navigate the ever-changing tides of financial technology together.

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