AUROKRISHNAA R L

New York, USA +1 (716) 465-8491 aurokrishnaa2000@gmail.com Aurokrishnaa Personal Website

RESEARCH INTERESTS

Interested in asset pricing, derivatives and risk management, with a focus on quantitative modeling of financial markets. My work explores fixed income analytics, volatility dynamics, and econometric methods for portfolio optimization and risk attribution. I also apply machine learning and natural language processing to empirical finance, studying disclosures, earnings calls and market microstructure. Additional interests include sustainable and ESG finance, global capital flows, and the role of corporate decision-making and market efficiency in shaping long term financial stability.

EDUCATION

Master of Science in Finance : Quantitative Mathematics

University at Buffalo, SUNY *Jan 2024 – June 2025 | GPA: 3.8*

Relevant Coursework: Quantitative Methods in Finance, Financial Modeling, Portfolio Theory & Strategy, Security Trading, Financial Derivatives, Fixed Income Securities, Complex Financial Instruments, Supervised Research – **Fixed Income (Capstone)**, FinTech Lab, Multinational Banking/Finance.

Master of Business Administration : (Finance Major, HR Minor)

Anna University. *2020 – 2022 | GPA: 3.7*

Relevant Coursework: Financial Management, Security Analysis & Portfolio Management, International Trade Finance, Strategic Management, Data Analysis & Business Modelling, Business Research Methods, Applied Operations Research, Statistics for Management.

Master of Commerce : Finance & Accounting (Correspondence Program)

Annamalai University. *2020 – 2022 | GPA: 3.7*

Relevant Coursework: Company Law, Project Finance, Direct Taxes, Advanced Corporate Accounting, Advanced Cost Accounting, Business Environment, Principles of Marketing, Business Communication, Investment Management, E-Commerce.

Bachelor of Commerce : (Finance Major, Accounting Minor)

University of Madras. *2017 – 2020 | GPA: 3.8*

Relevant Coursework: Financial Accounting, Corporate Accounting, Cost & Management Accounting, Practical Auditing, Business Taxation, Banking & Financial Services, Business Economics, Indian Economy: Problems & Policies.

ACADEMIC RESEARCH & PROJECTS:

Portfolio & Risk Management

Portfolio Optimization & Monte Carlo Simulation | University at Buffalo - *(UB Endowment Project, Python)*

- Constructed multi-asset allocation strategies using mean-variance optimization and Monte Carlo simulations. Generated the efficient frontier and improved projected returns by ~15% under Mercer's risk–return assumptions.

Interest Rate Risk & Income Simulation | University at Buffalo - *(Python, Basel III Scenarios)*

- Developed stress-test models for Net Interest Income (NII) under parallel and non-parallel yield curve shifts. Simulated Basel III liquidity and capital adequacy scenarios to assess earnings sensitivity.

Derivatives & Fixed Income

Fixed Income Portfolio Hedging | University at Buffalo - *(LSEG Yield Book & Excel)*

- Designed and tested bond portfolio hedging strategies, including duration-matching and swap-based hedges. Evaluated exposures under shifting yield curves while ensuring GAAP and Basel III compliance.
- Performed scenario-based stress tests on portfolio duration gaps, providing insights into risk attribution and hedge effectiveness under varying interest rate environments.

Derivatives Pricing & Risk Analysis | University at Buffalo - *(Python & Excel)*

- Modeled derivative instruments using Black-Scholes-Merton, binomial lattices, and Monte Carlo methods. Analyzed volatility smiles and calculated Greeks for hedging and sensitivity analysis.

AUROKRISHNAA R L

New York, USA +1 (716) 465-8491 aurokrishnaa2000@gmail.com Aurokrishnaa Personal Website

ACADEMIC RESEARCH & PROJECTS:

VIX Replication & Volatility Modeling | University at Buffalo - ***(R & Excel)***

- Replicated the CBOE VIX index using S&P 500 options data. Modeled implied volatility dynamics and tested hedging performance under market stress scenarios.

Bond Analytics & Portfolio Optimization | University at Buffalo - ***(FI, LSEG Yield Book, Excel)***

- Performed bond-level risk analytics and portfolio aggregation using Yield Book Excel tools. Evaluated duration, convexity, OAS, spreads, & yield measures across multiple bonds. Built custom rate-shock scenarios and assessed portfolio sensitivity, risk attribution, and hedging insights.

Applied Finance Projects & Tools

Black Scholes Option Pricing Dashboard | Independent - ***(Streamlit, Python)***

- Constructed multi-asset allocation strategies using mean-variance optimization and Monte Carlo simulations. Generated the efficient frontier and improved projected returns by ~15% under Mercer's risk–return assumptions.

Algorithmic Trading Automation | University at Buffalo - ***(Python, IBridgePy with Interactive Brokers)***

- Developed stress-test models for Net Interest Income (NII) under parallel and non-parallel yield curve shifts. Simulated Basel III liquidity and capital adequacy scenarios to assess earnings sensitivity.

Credit Risk Intelligence Application | Independent - ***(Python, Streamlit, Pandas, NumPy)***

- Developed stress-test models for Net Interest Income (NII) under parallel and non-parallel yield curve shifts. Simulated Basel III liquidity and capital adequacy scenarios to assess earnings sensitivity.

TEACHING EXPERIENCE

Graduate Teaching Assistant - MGF 635: Financial Derivatives

University at Buffalo, School of Management ***2024-2025***

- Supported instruction in derivatives pricing, volatility modeling, and risk-neutral valuation.
- Led review sessions and live problem-solving workshops for 50+ MS Finance students.
- Designed solution sets and grading rubrics to ensure fairness and efficiency in evaluation.
- Assisted with lecture preparation and reinforced curriculum alignment with program standards.
- Provided one-on-one guidance to students, improving comprehension of complex quantitative models.
- Coordinated with faculty to integrate case studies and real-market examples into coursework.

High School Instructor - Financial Accounting (Grades 11 & 12)

Aurochild International Senior Secondary School (CBSE) ***2021-2023***

- Delivered structured lessons on accounting principles, financial reporting, and corporate transactions.
- Prepared and customized teaching materials, study guides, and problem sets tailored to student needs.
- Designed supplementary modules and exam-prep resources to reinforce classroom instruction.
- Mentored students pursuing commerce and finance tracks, offering academic and career guidance.
- Facilitated parent–student meetings and academic reviews to track progress and provide personalized feedback.
- Received consistently positive feedback for making technical accounting concepts accessible and engaging.

CERTIFICATIONS & PROFESSIONAL TRAINING

- Diploma in Goods & Services Tax (GST) — ***University of Madras (2020–2021)***
- Bloomberg : BMC, BFF, BQL, ESG — ***Bloomberg (2024, 2025)***
- Climate Change & Sustainable Investing Specialization — ***EDHEC Business School (4-course series, 2025)***
- Investment Management with Python and Machine Learning — ***EDHEC Business School (2024)***
- Python & Statistics for Financial Analysis — ***The Hong Kong University of Science and Technology (2025)***
- Econometrics: Methods and Applications — ***Erasmus University Rotterdam (2025)***

AUROKRISHNAA R L

New York, USA +1 (716) 465-8491 aurokrishnaa2000@gmail.com Aurokrishnaa Personal Website

RESEARCH PUBLICATIONS & PAPERS

"Temporal and Graph-Augmented Analysis of Financial Disclosures: Predicting Earnings Surprises and Short-Term Market Reactions from Language Signals" — *Working Paper, 2025*

Developing a novel framework that integrates temporal modeling and graph-based NLP architectures to analyze financial disclosures. The study investigates how management language and contextual linkages can predict earnings surprises and immediate post-announcement stock returns, offering new insights into the intersection of textual finance and market microstructure.

"The Black Scholes Merton Model Re-examined: Analytical Foundations, Computational Methods & Empirical Insights" *— Submitted to arXiv (Quantitative Finance — Pricing of Securities, q-fin.PR), Aug 2025*

Reexamines the Black–Scholes–Merton model through analytical derivations, computational methods, and empirical evidence. Highlights volatility smiles, calibration sensitivity, crisis-period deviations, and extensions such as stochastic volatility, jump-diffusion, and machine-learning–based hybrids.

"A Study on Financial Performance of Public and Private Sector Banks in India (2017–2021)" — *Master's Dissertation - MBA, Anna University, 2022*

Conducted a comparative study of public vs. private sector banks (SBI, PNB, Union Bank, Canara Bank, BoB vs. ICICI, HDFC, AXIS, IDBI, YES Bank) using financial statements and performance ratios. Applied descriptive statistics and independent t-tests to evaluate profitability, efficiency, and asset quality. Findings highlighted non-performing assets as a critical determinant of sector-wide performance, with policy implications for profitability, resilience, and banking reforms.

PROFESSIONAL EXPERIENCE

Finance Manager & Instructor | ***Aurochild International Senior Secondary School (CBSE)*** ***Jan 2020 – Dec 2023***

- Managed investment strategy, budgeting, and donor fund allocation for institutional finance.
- Conducted ROI reviews, compliance reporting, and project planning for grant-funded infrastructure.
- Led the accounting dept. (3 staff) and supported process automation across operations.
- Concurrently served as Instructor for Financial Accounting (Grades 11 & 12).

Human Resources Associate | ***The Residency Towers*** ***May 2021 – May 2022***

- Managed payroll, onboarding, and compliance for 300+ employees.
- Assisted in audit preparation, compensation strategy, and reporting.

Articled Assistant (CA Training) | ***Institute of Chartered Accountants of India*** ***Jan 2018 – Oct 2020***

- Supported audit & tax engagements for SMEs under licensed CAs.
- Performed reconciliations, GST filings, and statutory financial reporting.

TECHNICAL SKILLS

- **Programming & Quantitative Methods:** Python (NumPy, Pandas, scikit learn, Statsmodels), R, MATLAB (Basic), SQL, VBA
- **Econometrics & Statistical Analysis:** Regression, Time Series, Panel Data, Hypothesis Testing, t-tests, p-values, Descriptive Statistics, Statistical Inference, Monte Carlo Simulation, Forecasting Models
- **Machine Learning & AI Applications:** Natural Language Processing (LLMs, Sentiment Analysis), Supervised & Unsupervised Learning, Classification & Clustering, Predictive Modeling
- **Finance & Research Tools:** LSEG Yield Book, Bloomberg Terminal, WRDS, FMP API, SPSS, Excel (Solver, PivotTables, Financial Modeling)
- **Applications in Finance:** Asset Pricing, Derivatives Pricing (BSM, Binomial, Monte Carlo), Volatility Modeling, Risk Management, Portfolio Optimization, Fixed Income Analytics
- **Academic & Research Tools:** LaTeX/Overleaf, Zotero/Mendeley for citation management

AWARDS & ACHIEVEMENTS

- Maintained First Class with Distinction across all degrees: MS Finance (GPA 3.83), MBA (GPA 3.7), M.Com, and B.Com (GPA 3.8).
- Recognized as Top Contributor in alumni fundraising campaigns at University at Buffalo, generating $250K+ in donor contributions.
- Honored at Aurochild International School for pioneering financial literacy initiatives and innovative fundraising approaches.
- Published original research on the Black-Scholes-Merton Model (ResearchGate, 2024).