RISHI BHATTACHARJEE

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Python · Machine Learning · LLMs & RAG · Payments & Fraud Analytics · Quant Risk

EDUCATION

University of Warwick, Warwick Business School 2025 – 2026

MSc Financial Technology | Overall mark: **74%** | **Top 10% of cohort** | **GRE: 338/340 (Verbal:170; Quant:168)**

- Dissertation: LLM-derived financial sentiment, abnormal returns and Black-Litterman portfolio construction.

Jain University

Bachelor's in Data Analytics and Finance | Ranked **1st in cohort in each of the final three semesters** (average CGPA 9.4/10)

EXPERIENCE

CommitBiz | *SEO Data Engineer| Remote- Dubai* Mar 2024 – Jun 2025

- Built Python and SQL ETL pipelines loading Google Search Console and GA4 data into PostgreSQL for 25 client sites (~40M rows), replacing manual exports and cutting weekly reporting from 12 hours to 1.
- Modelled traffic data with dbt and Looker Studio, flagging 1,800 pages with falling click-through rates; rewrites of the top 300 lifted organic clicks 18% over 3 months.
- Added automated data-quality tests (freshness, row counts, schema) with GitHub Actions alerts, cutting broken client reports from ~4 a month to 0.

Delrada Financials | *Financial Analyst Summer Intern | Bangalore* Jan 2023 – June 2023

- Built Excel DCF and trading-comparables models for 6 mid-cap companies, feeding two investment memos reviewed by the senior analyst.
- Automated monthly ratio reporting across 40 client portfolios in Python, cutting preparation from 2 days to 3 hours

TECHNICAL PROJECTS

Payment Orchestration & Acquirer Routing Analytics | *Python · Logistic Regression · Statistical Testing · Simulation*

- Analysed **331K+ payment attempts across 34 merchants and 4 acquiring banks** to determine how merchants should route and retry transactions to maximise acceptance.
- Modelled authorisation outcomes with logistic regression and significance tests on decline codes and retry behaviour, identifying statistically significant differences in acquirer routing performance.
- Simulated routing and retry strategies, converting findings into merchant-level orchestration rules and a dashboard design.

LLM Financial Sentiment & Black-Litterman Portfolio Research | *MSc Dissertation · FinBERT · LLMs · Econometrics* 2026

- Built a financial NLP pipeline scoring sentiment with FinBERT and LLMs and tested whether sentiment explains abnormal stock returns using panel econometrics and statistical inference.
- Translated sentiment signals into Black-Litterman views to construct portfolios, evaluating performance net of transaction costs and validating results with robustness tests.

FantasyCoach AI: Hybrid RAG System for Fantasy Premier League | *FastAPI · ChromaDB · Claude API · React* Apr 2026

- Engineered a hybrid retrieval pipeline (BM25 + dense embeddings, Reciprocal Rank Fusion, cross-encoder reranking, 8-type query routing) over an 852-chunk knowledge base from 3 live APIs, raising factual accuracy **from 62% to 89%** and cutting hallucinations **from 38% to 11%** on a 30-query adversarial benchmark.
- Built a verifier that checks every numeric claim against retrieved sources and regenerates weak answers (**RAGAS faithfulness 0.88**); a 6-configuration ablation isolated each component (reranker: +6 pp for 312 ms).
- Reconciled conflicting IDs across two data providers with weighted fuzzy matching (**99.6% match rate**); delivered a React/FastAPI app with streaming responses and an evaluation dashboard.

AI-Augmented Property Valuation Pipeline with RAG chatbot | *ChromaDB · Claude API · Flask* Mar 2026

- Built a 12-step agent-orchestrated pipeline producing comparable-market valuation reports with semantic retrieval, a **133-check automated validator** (126 passed), LLM hallucination self-audit and counterfactual pricing (−8% to +5.8%).

PROJECTS IN PROGRESS

- **StreamGuard: Real-Time Card-Fraud Scoring Service.** Kafka transaction stream, Redis velocity features and a LightGBM model served via FastAPI, with a PostgreSQL decision log, Docker, CI and latency/drift monitoring.
- **MuleNet: AML Money-Mule Network Detection.** Graph analytics (fan-in/fan-out, pass-through, community detection) on synthetic AML transactions, with explainable risk scores and an investigator workbench.
- **RiskLens: Market-Risk Engine.** VaR and Expected Shortfall via historical simulation, GARCH and Monte Carlo, with Kupiec/Christoffersen backtests and historical stress scenarios.

SKILLS & LEADERSHIP

- **Programming:** Python, SQL (PostgreSQL), TypeScript, Git, R
- **ML & AI:** LightGBM, scikit-learn, SHAP, LLMs, RAG, FinBERT, model monitoring
- **Data engineering:** Kafka, Redis, dbt, Docker, AWS (Fargate, S3), GitHub Actions
- **Finance:** panel econometrics, Black-Litterman, VaR/ES, DCF, payments, AML typologies
- **BI & product:** Power BI, Looker Studio, A/B testing, PostHog
- **Leadership:** Toastmasters International Mentor (Motivational Strategies Pathway), mentoring members in public speaking and leadership