

MD MAHMUDUL HASAN

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PROFESSIONAL SUMMARY

Quantitative Analyst and Data Engineer with 6+ years' experience automating financial data pipelines and developing risk analytics systems. Designed PCA-based risk dashboards and Python ETL processes to accelerate data delivery and improve reporting reliability. MQIM capstone focused on intraday SPY volatility forecasting using hybrid GARCH-LSTM models, integrating machine learning with time-series econometrics. Skilled in Python, R, SQL, and Power BI; seeking roles in Quantitative Analysis, Risk Analytics, or Data Engineering.

CORE SKILLS

Python | R | SQL | Power BI | Tableau | TensorFlow/Keras

ARIMA | GARCH/EGARCH | PCA | VaR/ES | Monte Carlo | Backtesting | Optimization

ETL Automation | Data Pipeline Design | REST APIs | Task Scheduling | Data Validation & Auditing

PostgreSQL | MySQL | SQLite | API Integration | Excel/Power Query Automation

Stakeholder Communication | Mentoring | Process Documentation

Tools & Version Control: Git, GitHub, JIRA, Visual Studio Code, PyCharm, Power Query

Quantitative Methods: Time-Series Modeling, Forecast Evaluation (RMSE, MAPE, Christoffersen, Diebold–Mariano), PCA/FA, Hypothesis Testing, Regression, Risk Decomposition, Monte Carlo Simulation.

PROFESSIONAL EXPERIENCE

University of New Brunswick – Graduate Research Assistant (Quant / Risk Analytics) May 2025 – Aug 2025

- Built Python ETL pipelines ingesting multi-source financial data (VIX, returns) to support intraday volatility modeling.
- Designed SQL aggregation and validation scripts to ensure high data integrity and reproducibility.
- Developed Streamlit risk dashboards visualizing rolling variance, PCA factor exposures, and drawdowns.
- Conducted employer-data audits and implemented automated error checks to enhance reconciliation accuracy.

Flyte Solutions Ltd. – Senior Web Developer & Project Manager (Data Integration / Reporting) Jan 2019 – Jul 2024

- Led cross-functional data integration projects for clients, automated workflows across SQL, Excel, and Power BI.
- Managed and optimized relational databases (50+ tables, 1M+ records) to improve reporting accuracy and consistency.
- Built interactive Power BI dashboards for operational and financial metrics, streamlining client reporting cycles.
- Mentored junior developers and analysts in data validation, documentation, and workflow standardization.

KEY PROJECTS & RESEARCH HIGHLIGHTS

- Capstone – Hybrid GARCH-LSTM Volatility Model*: Forecasted SPY ETF 15-minute volatility using a hybrid time-series and deep learning framework (Python, TensorFlow, VIX). Research Presentation: – UNB Research Colloquium (2025).
- Volatility Modeling Research – UNB (2025)*: Conducted empirical comparison of GARCH-family and deep learning models (GARCH, EGARCH, LSTM); analyzed forecast efficiency using Christoffersen and Diebold–Mariano tests.
- PCA Risk Dashboard (R)*: Modeled factor exposures across 49 industry portfolios; visualized total, factor, and specific risk decomposition.
- Automated Financial ETL (Python/SQL)*: Designed automated data ingestion pipeline for Bloomberg and Yahoo Finance APIs, improving refresh frequency and accuracy.
- RAG-LLM Reasoning App (LangChain)*: Built a retrieval-augmented generation tool enabling natural-language querying of financial research papers, websites.

EDUCATION & CERTIFICATIONS

Master of Quantitative Investment Management (MQIM) – University of New Brunswick, 2024–2025 | GPA 3.9/4.3

Selected Coursework: Financial Data Analysis, Quant Portfolio Investment Management, Financial and Portfolio Risk Management, Financial Derivatives, Big Data Systems, Fixed Income Securities and Interest Rate Derivatives (IRD).

MBA (Management Information Systems) – University of Dhaka, 2011–2014 | GPA 3.57/4.0

BSc (Mathematics) – Khulna University, 2006–2010 | GPA 3.05/4.0

Certifications: Bloomberg Market Concepts (2024) | FRM Part I Candidate (May 2026)

Authorized to work in Canada (PGWP) | WES ECA #4218669IMM

Technical Interests: Machine Learning in Finance, Model Risk Validation, Portfolio Optimization, Financial Data Automation.