HETUL PATEL

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SUMMARY

Quantitative Researcher in training with 2.5 years of experience building scalable data systems. Skilled in Python, C++, and statistical modeling; currently developing a trading simulator and finance-focused chatbot to apply probability, time-series, and machine learning methods to market problems.

EDUCATION

Auburn University at Montgomery (AUM) — Montgomery, AL.

Master of Science, Computer Science (In Progress) | Aug 2025 – Expected May 2027.

Focus: Algorithms, Probability & Statistics, Machine Learning, Financial Computing.

Auburn University at Montgomery (AUM) — Montgomery, AL

Bachelor of Science, Computer Science | Jan 2018 – Dec 2022.

EXPERIENCE

Takeo Tech LLC — Software Developer

Jan 2023 – Aug 2025 | New York, NY

- Designed scalable ETL pipelines (Python, Spark, AWS) to process high-volume, multi-source datasets with reliability and logging.
- Built analytics dashboards to track KPIs and identify performance trends (SQL, Flask, PostgreSQL).
- Implemented secure data handling with PII masking and role-based access.

PROJECTS

Finance Research Assistant (Chatbot) — Independent (Active Development) **|** github.com/Hetul803/finance-research-assistant

- Built a finance-focused Q&A assistant using RAG (Hugging Face Phi-3 + FAISS/Chroma) with embeddings tuned to reduce hallucinations.
- Implemented deterministic vs exploratory answering modes via temperature toggle; tracked prompt versions and evaluated outputs with exact-match and semantic similarity.
- Next steps: ingest SEC filings and financial reports for domain-specific retrieval; benchmark retrieval accuracy improvement over baseline RAG.

AUM Trading Simulator / Backtester — Independent (Active Development) | github.com/Hetul803/tradesim

- Developed a modular backtesting engine for SMA/EMA crossover and mean-reversion strategies on historical OHLCV datasets.

- Generated PnL, Sharpe ratio, max drawdown, hit rate, and equity-curve plots; models transaction costs via slippage/fees.
- Next steps: extend to backtesting on S&P 500 and crypto datasets, validate strategies with walk-forward analysis, and expand to risk-adjusted performance reporting.

SKILLS

Programming: Python (advanced), C++ (intermediate), SQL.

Quant/ML: Pandas, NumPy, StatsModels, scikit-learn, probability modeling.

Data Engineering: Spark, ETL, Time-Series Processing.

Cloud/DevOps: AWS (EC2, S3, RDS, Lambda), Docker, GitHub Actions (CI/CD).

Visualization: Plotly, Tableau, matplotlib.