Kinshu Gupta

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Education

Quinnipiac University — Hamden, CT
M.S. in Computer Science, B.S. in Computer Science, B.S. in Data Science (GPA: 3.99) — *Aug 2021 – May 2025*

Work Experience

NextGen Research Lab, NASA Space Grant — Fort Worth, TX
Graduate Research Assistant, Machine Learning — *Aug 2024 – Nov 2024*

- Developing deep learning models for massive MIMO channel estimation using ray-tracing based signal propagation datasets, optimizing physical layer security for next-generation space communication networks

DraftKings — Boston, MA
Software Engineering Intern, Finance & Currency — *Jun 2024 – Aug 2024*

- Slashed incident response latency from 3+ min to 2 sec by developing a caching module for reporting engine ServiceStack microservice to minimize Snowflake query queue congestion
- Eliminated Kafka transaction consumer memory leak by implementing skip-and-advance mechanism with dead letter queue integration, resulting in 26% reduction in Kubernetes compute costs from optimized pod autoscaling
- Optimized transaction ledger logging by refining event omission logic to cut $12,000+/year in Datadog expenses

International Game Technology — Providence, RI
Software Architecture Intern — *Jun 2023 – Aug 2023*

- Boosted casino player engagement by developing player session event stream processor using Drools rule engine to provide real-time intelligent offering feedback for bonus rewards structure
- Leveraged Markov modeling to simulate player behavior in 50,000+ electronic gaming machines, building multithreaded game session producers to load test transaction processor scalability with RabbitMQ integration

QU Institutional Research & Strategy — Hamden, CT
Research Assistant — *Sep 2022 – May 2024*

- Co-author of longitudinal cohort study to build predictive causal models analyzing the impact of students' psychoeducational variables on quantitative aptitude and rhetorical competency (pending publication)
- Presented findings at the Northeastern Section Conference of the Mathematical Association of America
- Integrated multi-decade, cross-university longitudinal study data from 25,000+ students using NumPy, Pandas, TensorFlow, and Hugging Face Sentence Transformer models for Natural Language Processing

Research & Projects

Explainable Deep Neural Network Prostate MRI Cancer Classification | *XAI in Medicine Research*

- Developed input gradient visualization techniques for fine-tuned VGG-16 Convolutional Neural Network, comparing efficacy with established XAI methods for computer vision including perturbation, class activation & saliency maps
- Chosen to present findings at 2024 ASEE Northeast Conference out of 800+ applicants (pending publication)

IMC Prosperity 2024 Trading Challenge | *Top 3% out of 10,000+ teams internationally*

- Uncovered cross-asset/market and ETF arbitrage through EDA using regression based time-series models
- Developed pairs trading, market-making, Black-Scholes, and regression algorithms to leverage order book flow

Carbon Offset Credits Exchange | *Won 3rd place out of 100+ Hack4Delta hackathon teams*

- Developed carbon credit trading platform with listing, pricing, execution to incentivize sustainable investing

M&T Bank Partnership Lead for Quinnipiac Computing Club | *President*

- Organized 2021, 2022 hackathons, established M&T Bank sponsorship, and managed a 100+ member club budget

Athena Surveillance Object Detection | *PearVC Startup Accelerator Pitch Finalist, Harvard*

- Developed a surveillance analytics system using YOLOv5 via PyTorch API to scrape live feeds from commercial venues, providing foot traffic analysis for real estate, hospitality, and retail; stored events in PostgreSQL

Stock Network Analysis | *https://stock-network-analysis.herokuapp.com*

- Developed portfolio diversification tool by selecting minimally connected stocks using degree centrality measures

Skills

Programming Python, C++, Haskell, Java, C#, C, Rust, JavaScript, R, Go, SQL, Verilog
Technologies PyTorch, Pandas, Kibana, Elasticsearch, Snowflake, Terraform, Datadog, .NET, Git, React