ALTON BANUSHI

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EDUCATION

Northeastern University   Boston, MA
Candidate for B.Sc. in Computer Science and Mathematics   *Sep 2021 – May 2025*
GPA: 3.99/4.0

WORK EXPERIENCE

Quantitative Risk Developer Co-op   New York, NY
Nomura   *August 2024 – December 2024*
- Enhanced internal revenue prediction by optimizing ARMAX statistical model parameters, incorporating time-series anomaly detection, and introducing 3 new business lines, ultimately reducing R^2 error by 30%.
- Collaborated with stress-testing analysts to define and automate a back-testing methodology using Python and SQL, reducing manual data manipulation by $3x$ and improving model accuracy.
- Researched and deployed machine learning processes to predict domestic and foreign stock indices, driving internal risk predictive models to achieve R^2 error of ≥ 0.85

Software Engineering Intern   New York, NY
TD Securities   *June 2024 – August 2024*
- Designed and implemented an optimized RESTful API using Spring Boot, leveraging query optimization and caching to improve response efficiency by 40%.
- Engineered a dynamic React interface, utilizing Redux for state management to centralize and automate internal deal management, eliminating manual processes and reducing waiting periods by $4x$.
- Automated API testing using JUnit and Mockito, integrating with Jenkins CI pipelines to increase code coverage to 90% and reduce manual testing efforts by $2x$.

Quantitative Developer Co-op   Chicago, IL
UBS   *December 2022 – August 2023*
- Engineered a custom fixed-income web tool in collaboration with portfolio managers, leveraging React, TypeScript, and D3.js to visualize 300+ months of market data, enhancing analytical capabilities.
- Launched a portfolio optimization tool utilizing Mixed Integer Programming and internal model research, increasing data points analyzed by 75% and enabling more precise, data-driven investment decisions.
- Developed and maintained a scalable back-end system using Python and SQL to automate the collection and processing of fixed-income market data, reducing manual analysis time by $2x$ and enhancing portfolio management efficiency.

Teaching Assistant   Boston, MA
Khoury College of Computer Sciences   *August 2022 – May 2024*
- Instructed 40+ students in a weekly lab, explored lecture topics on algorithms and data structures more intensively, addressed student questions one-on-one
- Provided personalized feedback to students on over 30 assignments weekly, analyzing and evaluating more than 15,000 lines of code to identify areas for improvement
- Conducted weekly office hours, guiding 8+ students an hour on homework, debugging 10,000+ lines of code

PROJECTS

Cooper - Co-op Review Platform
- Led a team of seven developers and two designers to create a platform enabling 10,000+ Northeastern students to share details of their co-op experiences, utilizing Next.js, TypeScript, Tailwind, Drizzle, tRPC, and Google OAuth
- Scraped online sources for data of 2,000+ companies, ensuring our database maintains high quality data
- Implemented a custom location forward-search endpoint, allowing users to enter 140,000+ standardized cities

TECHNICAL SKILLS

Languages: Java, TypeScript / JavaScript, Python, C++, C#, Swift, MATLAB, R
Technologies: React, Next.js, MySQL, Spring Boot, Express, Prisma, Tailwind, Docker, Datadog, SwiftUI