Jason Yi

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Education

University of North Carolina at Chapel Hill — Chapel Hill, NC
Bachelor of Science in Computer Science, Statistics and Analytics ~ GPA: 3.54/4.00 — *Aug. 2022 – May 2026*

- **Coursework**: Operating Systems, Machine Learning, Algorithms, Data Structures, Databases, Models of Languages and Computation, Computer Organization, Stochastic Modeling, Probability
- **Teaching Assistant**: System Fundamentals in C (Fall 2024), Data Structures in Java (Fall 2023, Spring 2024)

Technical Skills

Languages: C/C++, Java, Python, TypeScript, JavaScript, HTML/CSS, Assembly, Swift/SwiftUI
Frameworks/Libraries: React.js, GraphQL, Angular, Node.js, PostgreSQL, NumPy, Pandas, Matplotlib, JUnit
Developer Tools: VSCode, Git, GitHub, Vim, Jira, Jenkins, Splunk, IntelliJ, Linux Kernel, AWS, XCode

Experience

NSF RTG Networks | UNC Statistics Department — Sep. 2024 – Present
Undergraduate Research Assistant — *Chapel Hill, NC*

- Advised by Dr. Chudi Zhong to develop **Interpretable Machine Learning** algorithms/pipelines by refining models such as Decision Trees and Generalized Additive Models to ensure better decisions in high-stakes situations
- Optimized the TreeFARMS algorithm in **C++** and **Python**, reducing runtime by **20%** through parameter tuning and tree depth constraints, enabling faster enumeration of almost-optimal **Decision Trees**

Fidelity Investments — June 2024 - Aug. 2024
Software Engineer Intern — *Durham, NC*

- Developed Backend services in **GraphQL** via **Experience API** for Account Opening which impacts **50+ million users**, and Frontend services in **Angular and TypeScript** for Crypto IRA
- Implemented customer info, address validation, and risk analysis services to prevent user fraud or illegal activity during account opening using **TypeScript and GraphQL** by matching data from multiple downstream APIs
- Established excellent code quality and performance through unit testing via **Mocha, Splunk, and NestJS**

CS+Social Good — Jan. 2023 – Dec 2023
Full Stack Developer — *Chapel Hill, NC*

- Collaborated with CATCH (Carolina Adapts Toys for Children) to develop a user-friendly and responsive platform to support their mission of adapting toys for children with special needs using **React, Firebase, UI/UX Design**
- Improved user navigation with a fixed Navbar and essential functions for efficient data management

Projects

Distributed Stock Exchange | *C++, FIX/FAST, FastDDS, MySQL, TCP/IP, Distributed Systems, Linux*

- Engineered **FIX/FAST** protocol based high frequency **C++ stock exchange**, load-balancing over 3 matching engine nodes, supporting **1,000,000+** order insert request and transactions **per second**
- Supports **market/limit/stop order** matching through **Price-Time Priority**; built gateway node for **TCP/IP** request authentication/authorization from **MySQL** database; used **FastDDS** for inter-node communication
- Designed and integrated custom thread-safe optimized data structures (**priority queues, hash maps**) and utilized **GNU** profiling techniques for optimizing insert latency by **100x** from initial speeds

Restaurant-Finder | *PostgreSQL, Express.js, React.js, Node.js (PERN Stack)*

- Developed a **full-stack website** for Creating, Retrieving, Updating, and Deleting restaurants and reviews
- Maximized data efficiency by **utilizing dual Postgres tables** for managing restaurant and review data
- Improved component data retrieval to automatic and minimized prop drilling by **utilizing Context API**

Twittermenti | *Swift, CreateML, Twift, Twitter API*

- Developed a model that displays the **sentiment** of a given Twitter handle via emoji by filtering the top 100 tweets
- Achieved **96% accuracy rate** in classifying tweets into positive, negative, or neutral sentiments using CreateML
- Integrated Twitter API to gather live data streams to track trends and sentiment shifts over time