Austin Liu

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Education

Brown University Providence, RI

B.S. in Applied Math-Computer Science, B.A. in Economics *2027 | **GPA** 3.9*

- **Relevant Coursework**: Operating Systems, Computer Systems, Machine Learning, Deep Learning, Data Structures and Algorithms, Statistical Inference, Applied Ordinary Differential Equations, Computational Probability, Linear Algebra

Work Experience

Symbotic May 2025 - August 2025

Software Engineer Intern *Boston, MA*

- Reduced **C#** API latency by **84%** by refactoring unbound queries into server-side execution, preventing CPU bottlenecks
- Ensured **99.95%** data integrity across **20M+** warehouse SKUs through automating health checks, preventing critical errors
- Cut SQL execution time for warehouse database by **60%**, converting full scans into index seeks using **SQL Sentry Explorer**
- Automated XML configuration management by deploying a **C# .NET** MVC application to **10+** warehouse sites nationwide, enabling seamless updates and reducing downtime by eliminating reliance on weekly versioned deployments

Helios February 2025 - May 2025

Software Engineer Intern *Remote*

- Engineered **Graph-based Retrieval-Augmented Generation (GraphRAG)** pipeline integrating **Qdrant** (vector DB) and **Neo4j** (graph DB), reducing query latency by **40%** and improving retrieval accuracy
- Designed a YAML-driven database abstraction layer to swap between active and archived **Qdrant/Neo4j** instances, enabling collections to be offloaded when inactive and restored on demand, **reducing infrastructure costs**
- Increase admin efficiency for entire engineering team by building a dynamic **React** moderation dashboard with virtualized lists
- Ensured reliability for a production web app serving **1K+ active users** by maintaining **CI/CD pipelines** and QA processes

Projects

Guitar Tab Transformer | *React, Django, OpenCV, TensorFlow, Python* June 2024 - Current

- Enhanced **dadaGP** open-source Python package by adding support for single-track input and irregular tunings, improving transcription accuracy across diverse guitar formats
- Improved sheet music processing efficiency by building an **OpenCV–TensorFlow pipeline** that applied morphological operations to clean and analyze **5K+** images
- Achieved **95% accuracy** in notehead classification by training **TensorFlow CNNs** for binary detection of noteheads

Beya | *React Native, Firebase, Pinecone, AWS* November 2024 - Current

- Developed a **React**-based SaaS platform generating **$20K+ ARR**, adopted by **10+** clients to automate AI-powered workflows
- Streamlined cross-application workflows by engineering **Retrieval-Augmented Generation (RAG)** pipelines with **Pinecone** and **AWS S3**, enabling contextual retrieval in a custom content management system

Leadership

Backend Software Lead September 2024 - Current

Brown Formula Racing *Providence, RI*

- Led a backend team of **10 engineers**, leading design discussions, task delegation, and mentorship to accelerate feature delivery
- Deployed a **React–Django** web application on **AWS EC2** with automated **CI/CD pipelines**, **Nginx** load balancing, and **AWS S3** storage, contributing to a **Top 20 national finish**

Family Head November 2024 - Current

Chinese Student Association *Providence, RI*

- Strengthened community support by mentoring **10** underclassmen, providing academic guidance and organizing team-building
- Increased student engagement by hosting **5+** cultural events (e.g., boba workshops, Lunar New Year dinners)

Skills

Languages: Python, SQL, Java, C/C++, C#, JavaScript/TypeScript, HTML/CSS

Technologies: React, Django, .NET, TensorFlow, OpenCV, Pandas, NumPy

Databases/Cloud: Firebase, Amazon Web Services, Google Cloud Platform, MySQL, Pinecone

Interests: Fingerstyle Guitar, Brown Men's Volleyball, Steak and Sushi, Sports