

# Allen Wang

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## EDUCATION

**Brown University**, Providence, RI

Expected Graduation: May 2026

*Sc.B. in Applied Mathematics-Computer Science*

GPA: 4.00/4.00

**Relevant Courses:** Database Management Systems (*Teaching Assistant*), Software Engineering, User Interfaces and Experience, Computer Systems, Deep Learning, Machine Learning, Data Structures and Algorithms, Discrete Structures, Linear Algebra

**Skills:** Python, Java, JavaScript, React, NodeJS, TypeScript, HTML/CSS, REST, GraphQL, Kafka, Swagger, Postman, SQL/NoSQL, Mockito, JUnit, Playwright, Spring Boot, Flask, Docker, OpenShift, Git/Gitlab, C/C++, Go, Microsoft Azure, Pytorch, Tensorflow

## EXPERIENCE

**USAA Bank**, Software Engineer Intern

San Antonio, TX | May 2024 – Present

*Java/Spring Boot/GraphQL/ReactJS/Kafka/Swagger*

- Integrated CCIF legacy mainframe with 13 million records into troubleshooter tool using GraphQL query/mutation endpoints in Spring Boot (Mockito testing); enabled employees to edit member data across both mainframe and DB2 databases
- Implemented Kafka-based feature allowing developers to emit schema-validated events to topics for consumer logic testing

**Wingspans** (Techstars EdTech startup, 50,000+ users), Software Engineer Intern

Providence, RI | May 2023 – May 2024

*Gatsby/Node.js/React/Typescript/CSS/Firebase/Algolia/Cosmic*

- Fully owned and launched gamification feature, directly resulting in a 71% boost in user engagement via point interactions
- Engineered adaptive feedback loop enabling users to like/dislike 10+ careers suggestions to refine recommendations
- Developed resume optimization tool using Large Language Models to tailor resumes to specific job postings

**Brown University CS Department**, Software Developer

Providence, RI | January 2023 – August 2023

*Next.js/React/TypeScript/MUI*

- Created internal tool for Brown University classes to streamline assignment of lab/recitation times; team of 4
- Developed custom TypeScript frontend allowing professors to manage lab times and grades for 600+ people classes

**Brown Data Science Institute Lab**, Machine Learning Research Assistant

Providence, RI | March 2023 – August 2023

*Python/Pandas/OpenAI*

- Worked in team of 6 to investigate biases that LLMs can have when solving automated decision tasks through OpenAI API
- Employed prompt engineering techniques on tabular US Census data to identify optimal prompts for accurate predictions

## PROJECTS

**AeroForecast**, *Pytorch*

April 2024 – May 2024

- Designed CNN-LSTM/Transformer and ConvLSTM weather prediction models, capturing complex spatiotemporal patterns
- Processed 5D meteorological data from ECMWF ERA5, predicting 12 features (wind, pressure, etc) across a global grid
- Tuned hyperparameters to achieve testing loss of 0.0002598 and accuracy of 93.69%

**SpotiDuo**, *TypeScript/Java/Spark/Azure/Spotify*

November 2023 – December 2023

- Developed music-based language learning app rooted in research highlighting music's role in boosting retention, featuring karaoke-style lyric input alongside real-time translations for over 150 native dialects (supported through Azure)
- Crafted tiered difficulty system for lyric interaction and implemented Levenshtein algorithm for accuracy assessment
- Delivered personalized song recommendations based on user's initial selection, utilizing 20+ attributes (energy, mood, etc)

**Interactive Maps Data Visualization**, *TypeScript/Java/Spark/JUnit/Jest/Playwright*

August 2023 – November 2023

- Integrated map (Mapbox) with GeoJSON data overlay, allowing users to interact/visualize historical redlining data
- Developed web API server (optimized with caching), enabling users to query/view relevant data in CSV/JSON formats
- Applied comprehensive testing using TypeScript/Java (unit, integration, property, fuzz) to ensure secure/reliable performance

**Database Indexing**, *Go/B+Tree/Hash Table/Extendible Hashing*

October 2023

- Developed efficient database indexing using B+Tree that allows for insertion, splitting, and traversal operations
- Constructed an extendible hashing system for rapid data lookups, ensuring smooth bucket overflow management, dynamic table extensions, and optimal space utilization

## ORGANIZATIONS

**Full Stack at Brown**, *Vice President*

Providence, RI | September 2022 – Present

- Led and mentored teams of project managers, developers, and designers, ensuring successful execution of 10+ web projects
- Hosted weekly events and workshops for 100+ members, fostering skills in web development and project management

**Brown University Database Systems Course**, *Teaching Assistant*

Providence, RI | May 2024 – Present

- Developed and refined course materials for 80+ person class and coordinated weekly projects and quizzes
- Provided timely feedback and assistance through office hours and one-on-one sessions to enhance student learning