

# Alan Lin

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## EDUCATION

### Boston University

Expected (May 2026)

*Bachelor of Arts in Computer Science*

*Boston, MA*

- **Relevant Coursework:** Applied Machine Learning, Mobile App Development, Data Science Tools & Applications, Software Engineering, Web App Development, Distributed Systems, Computer Architecture, Data Structure & Algorithms, Functional Programming

## EXPERIENCE

### BU Spark!

Jan. 2025 - Present

*Software Engineer Intern*

*Boston, MA*

- Led the development of a web platform using **NextJS**, **Firebase**, and **Clerk**, incorporating **CI/CD** pipelines to enable remote access to a robotics lab for researchers, resulting in a **40%** reduction in task submission time
- Implemented an **agile development** approach with bi-weekly sprints to deliver key features, resulting in **100%** on-time delivery of sprint goals and a **15%** increase in team velocity
- Designed and integrated a dynamic leaderboard, providing users with performance metrics and filtering options, enhancing collaboration and providing valuable insights into project outcomes

### Boston University

Sep. 2024 - Dec. 2024

*Data Analyst*

*Boston, MA*

- Conducted comprehensive budget variance analysis for City of Boston, utilizing data visualization techniques to identify spending patterns and resource allocation trends across departments and neighborhoods
- Implemented data cleaning and transformation pipelines with **Pandas** to process and standardize financial datasets, resulting in a **15%** increase in the accuracy of budget analysis
- Created interactive data dashboard using **Python** and **web technologies** to present key financial insights, enhancing transparency and facilitating data-driven budget planning

## PROJECTS

### Latent Semantic Analysis Search Engine | *Python, Flask*

Oct. 2024

- Developed a **Flask**-based search engine application using **scikit-learn**, implementing TF-IDF vectorization and Truncated SVD for efficient processing of **20,000+** documents from the **20** Newsgroup dataset
- Engineered a cosine similarity algorithm to retrieve and rank the top **5** most relevant documents for user queries, achieving real-time search functionality
- Designed an interactive web interface using **ChartJS**, visualizing search results and similarity scores for up to **5** documents per query

### Recipe Recommender | *ReactJS, NodeJS, Firebase*

Sep. 2024

- Architected a comprehensive recipe management system using **ExpressJS** and **Firebase**, featuring user authentication and **7+ RESTful API** endpoints for efficient **CRUD** operations on culinary data
- Integrated **2** third-party **APIs** (Spoonacular and Sam's Club) to enable ingredient-based recipe search and real-time price comparison functionality, processing data for **100+** ingredients
- Engineered scalable **NoSQL** database architecture using **Firebase Firestore**, managing user profiles and recipe storage for **100+** unique recipes per user with **5+** data fields each

### SProfile | *ReactJS, NodeJS, ExpressJS, Firebase*

Apr. 2024

- Designed and implemented a Spotify profile integration using **ExpressJS**, leveraging **OAuth 2.0** for secure authentication and developing **8+ custom API** endpoints to interact with user music data
- Integrated multiple third-party **APIs** (Spotify, TicketMaster) to create personalized music discovery platform, managing real-time data flow for user profiles and event recommendations
- Built scalable backend architecture handling OAuth token refresh system and cookie-based state verification, ensuring secure access to **6+** Spotify user data scopes including playlist management and listening history

## TECHNICAL SKILLS

**Programming Languages:** Javascript, Java, Python, C, Bash/Shell, OCaml, SQL, Kotlin, Typescript

**Frameworks/Libraries:** ReactJS, ExpressJS, NextJS, ViteJS, Flask, NumPy, Pandas, Folium, SciKit, Flask, MongoDB

**Developer Tools:** Git/GitHub, Postman, VSCode, Webstorm, Firebase, Jupyter Notebook, LaTeX, Android Studio