Addison Baum

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Education

Boston University Sep 2020 – May 2024
Bachelor of Arts in Computer Science *Boston, MA*

Experience

Software Engineer (Founder) October 2025 – Present
Anigraph | *San Francisco, CA*

- Built and deployed a large-scale, full-stack anime discovery platform integrating collaborative filtering, content embeddings, and creative staff network analysis to power personalized recommendations and interactive exploration across anime, staff, and studios.
- Developed a hybrid recommendation engine blending collaborative filtering with content-based signals (tag similarity, staff networks, review-derived descriptive vectors), served via an in-memory embedding cache with hot-reload on model version changes.
- Trained an XSimGCL model on 252M user–anime interactions across 3.5M users; implemented embedding clustering for thematic discovery and a fold-in technique that embeds new users from their first few ratings, enabling real-time onboarding without retraining.
- Paired the embedding model with an XGBoost learning-to-rank reranker that combines collaborative-filtering signals with content and user-profile features to lift ranking quality beyond embedding similarity alone.
- Built a 4-phase NLP pipeline over the anime review corpus (spaCy POS tagging, weighted TF-IDF, LLM term curation, WordNet-based bipolar axis discovery) producing per-title descriptive vectors and axis scores used as content-based recommendation signals.
- Built a distributed Go ingestion and ETL pipeline pulling AniList GraphQL data through a 100-proxy scraping system with per-proxy rate limiting, exponential backoff, and resumable incremental updates; detects changed nodes and selectively recomputes recommendations and relationship graphs only for affected titles, keeping recomputation costs flat as the dataset grows.
- Designed a multi-store data architecture combining Neo4j for offline staff graph processing, PostgreSQL for transactional queries, and Elasticsearch for fuzzy full-text search across multiple indices.
- Built interactive D3.js force-directed graph visualizations for real-time exploration of staff collaboration networks with hierarchical filters and dynamic edge weighting.

Software Consultant January 2025 – April 2025
Talamel Health Tech *Remote*

- Built backend and real-time product features for a healthcare platform using Elixir, Phoenix LiveView, and PostgreSQL, contributing to application architecture and high-volume data retrieval paths.
- Implemented dashboard and data-visualization workflows with Tailwind CSS, translating product requirements into usable frontend flows across the platform.
- Improved PostgreSQL query performance by profiling query plans, reducing unnecessary allocations, and restructuring data-access patterns to reduce latency under load.
- Communicated technical decisions and delivery progress through written documentation while collaborating with product and engineering stakeholders in an Agile environment.

Software Consultant June 2024 – August 2024
Alcea Surrogacy (Contract) *Remote*

- Built an automated pipeline using Python and BeautifulSoup deployed as AWS Lambda functions to scrape external webpages updated weekly, detecting content changes across multiple public sources with configurable scheduling and error handling.
- Implemented PII filtering with regex pattern matching before sending content to OpenAI API, generating concise weekly change summaries while maintaining data privacy.
- Replaced a manual review workflow, saving significant time while maintaining privacy and compliance with sensitive data handling practices.

Varsity Overwatch Player/ In-Game Leader (IGL) September 2022 – May 2024
BU Gaming Club *Boston, MA (Hybrid)*

- Led match strategy and in-game decision-making for a five-player team and drove segments of VOD review cycles while competing at a Top 250 individual rank (top 0.05% of players); elevated an unfunded program to compete with scholarship-offering teams, achieving the highest collegiate ranking in the program's eight-year history.

Software Engineer Intern May 2022 – August 2022

Sponsors for Educational Opportunity (SEO) *Remote*

- Developed React web application with JavaScript, HTML/CSS featuring interactive CSS Grid-based calendar visualization, implementing responsive UI components and modern functional component architecture with hooks
- Integrated multiple RESTful APIs (OpenWeather, TimezoneDB) to fetch real-time UV index data and calculate timezone offsets, handling asynchronous data fetching and error states for robust user experience
- Built reusable React components including authentication forms, calendar grid, and navigation using Context API for global state management and React Router for client-side routing
- Designed and implemented Flask REST API backend with JWT authentication, MySQL database integration, and modular route architecture serving JSON endpoints for calendar data and user management
- Collaborated in team environment applying agile development practices, implementing input validation, error handling, and cross-browser compatible CSS for consistent user experience

Projects

AniList Metadata Scraper for Kodi | | *Python, GraphQL API* January 2026

- Built metadata scraper addon for Kodi living room platform, integrating AniList's GraphQL API to fetch and display anime titles, descriptions, artwork, and ratings across 150,000+ entries.
- Wrote automated test suite validating API responses, parameter handling, and edge cases like missing translations and year filtering to ensure reliability across different content.
- Designed English-first title system with fallback logic prioritizing user experience in international markets while maintaining support for native Japanese titles.

Facial Recognition Graph Search | | *Vis.js, JavaScript, Python & Flask, Redis, OpenCV* May 2024 – August 2024

- Developed interactive graph visualization interface with vis.js JavaScript library, enabling real-time node manipulation, relationship mapping, and dynamic graph expansion for investigative workflows with responsive UI controls.
- Designed and implemented a facial recognition graph search tool for analyzing and visualizing relationships between images, supporting OSINT research and relationship mapping workflows.
- Reverse-engineered obfuscated API responses and cookie-based authentication flow, implementing hex-to-ASCII decoding and analyzing stateless session validation.
- Engineered multi-face detection pipeline using dlib and OpenCV to automatically identify and extract additional subjects from search results, enabling recursive graph-based investigations.
- Implemented dynamic Excel report generation with openpyxl, programmatically embedding base64-decoded images, hierarchical node relationships, and metadata into structured investigation reports.

Overwatch Ranktool | *Python, FastAPI, Start.gg API, Overfast API* August 2023 – December 2023

- Developed a Python-based web application to automate statistical aggregation using Start.gg and Overfast APIs, alongside AWS Lambda serverless functions, streamlining data workflows for esports teams.
- Reduced stat retrieval time from approximately 7 minutes to under 10 seconds, significantly improving pre-game analysis efficiency.

Interests

DIY Home Theatre (LibreELEC and LXmini), Distributed Systems, Climbing (V7 / 5.13a), Anime & Movies, Team Operations