Ryan Pham

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Education

Georgia State University **May 2026**
B.S. in Computer Science GPA: 4.1

Experience

Software Development Intern | New England Investment Consulting | Remote **May 2025 - August 2025**

- Led a team of 4 interns to refactor the Mind Map system, implementing multi-map management, parent/child map hierarchies, and dynamic node types backed by a scalable **MongoDB** schema.
- Engineered real-time collaboration between multiple users, allowing synchronized edits on 97+ mind maps with persistence to **MongoDB** using **Yjs** and **WebSocket**.
- Developed full-stack features using **Material UI**, including a new rich text editor component, a timeline-synced progress bar, and enhanced image preview & PDF export, improving user experience.
- Delivered 11 scoped issues (10 features, 1 bug fix) and 18 merged PRs across frontend and backend, contributing to ~24% of total issues and 31% of total merged PRs with +2,113 net lines of production code over 84 commits.

Projects

Melomanic - AI Music Analysis & Recommendation Platform **October 2025 - Present**

- Built and trained mood & genre classification models (Random Forest on GTZAN + DEAM), achieving early-stage ~79% accuracy to deploy model inference pipeline and predictions table for UI consumption.
- Implemented ML inference endpoints and **AI orchestration workflows** using **FastAPI**, enabling scalable model execution and API-driven integration.
- Containerized the **React** frontend, **FastAPI** backend, and **PostgreSQL** using **Docker** to enable consistent, standardized multi-service development environments.
- Implemented a CI pipeline to automate builds, tests, and deployment readiness for a multi-container architecture.

dumpy - AI Social Memory Platform | AI ATL 2025 Hackathon **November 2025**

- Architected a multimodal, agentic captioning pipeline using **GPT-4 Vision** with metadata fusion, embeddings, and retrieval logic similar to RAG systems.
- Designed RESTful API endpoints in **FastAPI** with batch processing capabilities, integrating **Supabase** database via optimized RPC functions to ensure caption generation per image with graceful error handling.
- Collaborated with a 4-member engineering team to deliver an end-to-end MVP in <36 hours, owning AI captioning architecture while rapidly iterating on user experience and product functionality under extreme time constraints.
- Engineered secure authentication + onboarding in **React Native** with **Supabase** Auth context.
- Built 4 production-ready mobile screens (Event Creation, Event Gallery, Search, Multi-step Onboarding) with real-time data fetching, form validation, dynamic filters, and responsive UI using **Expo Router**.

Heart Disease Prediction App **June 2025 - July 2025**

- Developed an end-to-end heart disease prediction web app leveraging a dataset with 10,000 records, using KNN imputation, scaling, and SMOTE preprocessing methods and multiple ML models to optimize performance.
- Achieved **83% accuracy** using Random Forest with 0.97 precision on positive predictions and improved positive-class recall to **0.84** using KNN/SVM, evaluated via cross-validation, ROC-AUC, and confusion matrix analysis.
- Designed a Bootstrap-based frontend with glass-morphism UI, probability outputs, and health advisories to enable seamless user interaction with the deployed model.

Skills

Languages: Python, JavaScript/TypeScript, Java, C/C++, SQL, HTML, CSS
Libraries/Frameworks: React, React Native, FastAPI, Django, TailwindCSS, Material UI, Expo Router, WebSockets
Cloud/Databases: Docker, GitHub Actions, Azure (OpenAI, Blob Storage), PostgreSQL, MongoDB, MySQL
AI/ML: scikit-learn, GPT-4 Vision, Pandas, NumPy, Matplotlib, Seaborn, OpenCV