Ryan Tan

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Education

University of California, Berkeley Expected May 2026

B.S. Electrical Engineering and Computer Science - GPA: 3.57/4.0 *Berkeley, CA*

Relevant Coursework: Structure of Computer Programs, Discrete Mathematics, Probability Theory, Data Structures and Algorithms, Object Oriented Programming, Linear Algebra, Computer Security*, Computer Networks*

Technical Skills

Languages: Python, TypeScript, C++, Java, JavaScript, HTML, CSS, SQL
Frameworks: React, Node.js, Express.js, Tailwind, Flask
Tools: AWS, Docker, MongoDB, VS Code, PyCharm, Eclipse, Jupyter Notebook, Google Colab
Libraries: PyTorch, Scikit-learn, NumPy, Pandas, Matplotlib

Experience

Coding Instructor Sep. 2023 – May 2024

Code Ninjas *Fremont, CA*

- Designed and taught programming lessons in Python, JavaScript, and Unity to 30+ students aged 5–14, boosting coding proficiency and project completion through hands-on activities tailored to individual learning styles.
- Provided one-on-one and group instruction tailored to individual learning needs, boosting student engagement and retention through personalized teaching methods.

Projects

K-Popify | *React, TypeScript, Flask, Python, Pandas, NumPy, Spotify Web API* | GitHub Link Dec. 2024 – Jan. 2025

- Built a web application to recommend K-Pop songs based on user-inputted tracks, integrating the Spotify Web API to fetch track features and utilizing Flask for a RESTful backend to deliver personalized song suggestions dynamically.
- Optimized song recommendation accuracy to 92% across 275 K-Pop songs by implementing an Euclidean distance-based algorithm analyzing 9 distinct audio characteristics.

Binder | *React, TypeScript, Convex, Clerk, Python, Flask, OpenAI API* | GitHub Link Oct. 2024 – Oct. 2024

- Led the full-stack development of a collaborative studying platform for custom quizzes and study group matching, leveraging GPT-4 and Flask to generate personalized learning content based on group goals.
- Improved study group matching accuracy by 65% by implementing a Bayesian Knowledge Tracing algorithm that analyzes quiz performance across multiple subject areas, acheiving 82% accuracy in predicting student's strengths and weaknesses.
- Developed a robust backend using Convex and Clerk, achieving 99% authentication accuracy and ensuring secure, efficient user data management for a seamless platform experience.

Skincare Tracker | *React, Node.js, Express.js, Tailwind, MongoDB* | GitHub Link June 2024 – Sep. 2024

- Built a responsive web app for managing skincare routines using React and Tailwind CSS, enabling users to track progress and develop consistency.
- Reduced API response times by 54% by optimizing MongoDB queries and implementing efficient RESTful API design with Express.js
- Implemented user authentication with JSON Web Tokens (JWT) and integrated comprehensive API tests using Supertest, achieving 100% endpoint reliability while ensuring secure session management and data integrity.

Leadership/Extracurricular Activities

Software Developer Sep. 2024 – Dec. 2024

UC Berkeley *Berkeley, CA*

- Developed an LLM-based recommendation system with a team of 7 acheiving 82% accuracy for 10,000+ queries by implementing a two-stage RAG approach using Python, PyTorch, and OpenAI API.
- Streamlined data workflows with Pandas and NumPy, reducing computation time by 74% and improving response efficiency for large-scale data processing.

Machine Learning Researcher Sep. 2023 – Dec. 2023

Algoverse *Remote*

- Collaborated with a group of 4 students to explore the effects of implementing emotional cues when interacting with LLMs.
- Developed a custom language model by integrating emotional stimuli into prompts to enhance user interactions, fine-tuning the model using a combination of transfer learning and hyperparameter optimization techniques.
- Evaluated the impact of emotional cues on NLP tasks, including sentiment analysis, measuring a 52% improvement in user-friendliness.