

Justin Kong

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Education

Vanderbilt University

May 2027

Majors: B.S. Computer Science & B.A. Medicine, Health, and Society

GPA: 3.77

Honors: Dean's List: 2023, 2024, National Merit Finalist

Relevant Coursework: Data Structure & Algorithms, Discrete Structures, Computer Architecture, Intermediate Software Design, Scientific Computing, Biology: Molecules and Cells

Experience

Change++ — Software Engineer

Sept. 2024 - Present

- Maintained and enhanced a functional web application built for nonprofit organization Miracle Flights providing **700** free monthly commercial flights for sick children and families in need of medical care.
- Developed full backend service for patient OneDrive automations, optimizing and streamlining workflow productivity by **30%**.
- Utilized **Typescript**, **Express**, and **Airtable** in writing controller functions for financial document upload and modification.

Wallace Lab: Brain-Inspired AI — Research Assistant

Aug. 2024 - Present

- Conducted comparative research on large language model and human developmental linguistics through the manipulation of immersion within 3D virtual environments and the manipulation of sensory modalities.
- Created and optimized an end-to-end, novel analytical pipeline leveraging multi-modal embedding models from **Meta**, efficiently extracting prosodic and semantic features of audio files and precisely calculating similarity scores between Tensor embeddings.
- Processed over **1,000+** minutes of audio, employing **Bayesian Optimization** and creating **Representational Dissimilarity Matrices**.

Vanderbilt Computer Science Department — Social Media Assistant

Aug. 2024 - Present

- Oversee Twitter, LinkedIn, and Facebook accounts with **1000+** total followers for Vanderbilt University's computer science department, increasing engagement by over **400%** and tailoring content for computer science students to grow the department's online presence.
- Spearheaded the launch of the department's Facebook page, creating and customizing content tailored to computer science students' interests based on analysis of social media trends and data.

Wond'ry Social Innovation — Software Development Intern

Jan. 2024 – May 2024

- Collaborated with a team of 5 in a 10-week program to develop a standardized case management form, partnering with Gift of Mary and Room In The Inn, an organization that supports over **200** individuals experiencing homelessness, to design effective workflows.
- Launched the technical implementation of the case management form utilizing **modern web development** libraries and frameworks.

Projects

findmyAP | (Python, Selenium, SQL, Flask, JS)

- Developed a **full-stack** web application that automates the search for College Board AP credit policies at **2000+** institutions using a Python web-scraping script, potentially saving students thousands in tuition costs.
- Implemented **SQL** to store college credit data and integrated **Flask** to handle backend endpoints **alongside state management**.
- Identified and established an active user population of **100+** high school students, presenting to **50+** high school faculty members.

Analyzing Developmental Linguistics Within Large Language Models | (Python, Pytorch, TensorFlow, C#, Unity)

- Engineered and optimized virtual environments in Unity using **C#**, enhancing runtime efficiency by **60%**.
- Developed a robust Python-based pipeline to process audio data, utilizing **Meta's Seamless Communication models** and **OpenAI's Whisper model** to extract prosodic and semantic features, resulting in a **200%** increase in embedding creation efficiency.

Hyundai Oriental Grocery Database Management | (Python, MongoDB)

- Implemented an inventory database for an Asian grocery store containing SKU and sale metric data for **2500+** items using **MongoDB**.
- Created a dynamic management system, allowing the owner to make data-informed decisions on inventory procurement valued **\$15,000+**.

Patty Wagon Voyage | (MERN)

- Created a full-stack **MERN** geography trivia-based game based on the SpongeBob SquarePants Movie.
- Built a **RESTful** API backend using **Node.js** and **Express** for handling logic, session data, and leaderboard data stored in **MongoDB**.
- Implemented a responsive, interactive **React** frontend utilizing state management for a seamless user experience.

Skills

Languages: Python, Java, C++, C#, R (ggplot2, tidyverse, haven), HTML/CSS, JavaScript, Typescript, SQL

Frameworks: Next.js, Tailwind, React, Bootstrap, Node.js, Express.js, Flask

Tools: Git, Postgres, MongoDB, Docker, Adobe Creative Cloud, Jupyter

Concepts: Neural Alignment, Software Development, Web Development, Frontend, Backend, Agile, Data Analysis