Kyle He

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EDUCATION

University of Southern California   **Expected Graduation**: May 2026
B.S. and M.S. in Computer Science   GPA: 3.9/4.0, Major GPA: 4.0/4.0

Honors: Presidential Half-Tuition Scholarship, Viterbi Dean's List, Academic Achievement Award

Relevant Coursework: Operating Systems, Computer Systems, Artificial Intelligence, Embedded Systems, Algorithms, Discrete Math, Linear Algebra, Probability Theory, *Machine Learning, *Functional Programming *(* scheduled)*

EXPERIENCE

Bloomberg   *Software Engineering Intern*   June 2024 - August 2024
- Developed a **high-performance filter language library in C++** for TickerPlant, a core distributed low-latency timeseries database for market events that processes over 80 billion queries a day.
- Overhauled the query processing pipeline by introducing this new functionally complete filter language, improving code maintainability and expanding filtering capabilities.

USC Viterbi School of Engineering   *Course Producer*   August 2023 - May 2024
- Designing course content and holding office hours for **CSCI 170 (Discrete Math)** during Fall 2023 and Spring 2024.
- Teaching topics like asymptotic notation, algorithm analysis, graphs, counting, and first-order logic.

VMware   *Software Engineering Intern*   June 2023 - August 2023
- Developed a bug triage tool to automatically detect duplicate bugs using deep learning for the vSAN System Test team.
- Designed and trained a **Siamese Neural Network** using **PyTorch** to reduce duplicate bug entries by **15%**.
- Created a full-stack web tool with **Angular.JS** and **Flask**.

USC GLAMOR Lab   *Undergraduate Researcher*   April 2023 - July 2024
- Developed and trained reinforcement learning models using **Stable Baselines**, devising new policy networks to improve collaboration through communication in collaborative games like Overcooked.

PROJECTS

Programming Language Interpreter   *Python*
- Built an interpreter for a dynamically-typed, object-oriented language with support for variables, functions, control flow, first-class functions, block scoping, class inheritance, garbage collection, and error handling based on Lox.
- Implemented **lexical analysis, parsing, and intermediate representation** for efficient execution.

P2HB Chat Bot   *Python, MongoDB*
- Built a chat-based game on Discord, connecting **500,000 members and 12,000 active users online across 6,600 servers**.
- Implemented features like Pokémon-themed multiplayer games, applying **concurrent programming paradigms** and **asynchronous event handling** to process thousands of messages a minute.

Unus Motus (Puzzle Game)   *C#, Unity, MongoDB*
- Created a tile-based puzzle game with C# on **Unity**, featuring 14 unique levels and a leaderboard stored on **MongoDB**.
- Try it here: https://keeelay.itch.io/unus-motus

FoodMatch   *Typescript, React, TailwindCSS, Python, ConvexDB*
- Created a social media website using **TypeScript, React, and TailwindCSS** for a 36-hour hackathon (TreeHacks @ Stanford) that identifies a user's taste preferences with a pairwise ELO ranking system.

LEADERSHIP & INVOLVEMENTS

USC Makers   *Project Manager, Software Engineer*   September 2022 - Present
- Led a team of 6 students to build a fun mechatronics project over the course of a year, presenting updates to club sponsors like the Ming Hsieh Department of ECE, Second Order Effects, Tesla, and Microsoft.

TECHNICAL SKILLS

Languages: Python, C++, C, C#, Java, Rust, OCaml, Javascript, HTML/CSS, SQL

Libraries/Frameworks: Pandas, PyTorch, NumPy, Svelte, Unity, AWS, Docker, Vercel