

# Zachary Katz

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## EDUCATION

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### University of California - Irvine

Irvine, CA

*Master of Science in Computer Science*

*Expected Dec. 2025*

- GPA: 3.93/4.0
- Relevant Coursework: Machine Learning, Distributed Data Management, Graph Algorithms, Design and Analysis of Algorithms, Data Structures, Parallel Computing, Embedded Systems

### University of California - Irvine

Irvine, CA

*Bachelor of Science in Computer Science*

*Sept. 2020 - Mar. 2024*

- GPA: 3.93/4.0
- Campuswide Honors Collegium (8 Quarters), Dean's List (11 Quarters), Phi Beta Kappa Book Award
- Relevant Coursework: Operating Systems, Data Structures and Algorithms, Computer Architecture, Artificial Intelligence, Information Retrieval, Database Management, Compilers and Interpreters, Graphical Models

## EXPERIENCE

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### Graduate Teaching Assistant

Sept. 2024 - Present

*Donald Bren School of Information & Computer Sciences*

*Irvine, CA*

- Assist in instructing up to **200 students** from diverse backgrounds, supporting their development in the field of computer science through assignment design, active contributions to curriculum planning, and daily lab sections.
- Dramatically improved grading efficiency by automating the process with Bash and Python scripts.
- Delivered a guest lecture on networking and multithreading using Python's `socket` and `threading` libraries.
- Increased student engagement by holding a technical interviewing workshop for beginner software engineers.
- Received positive evaluations from students for effective communication, support, and engagement in the course.

### Undergraduate Research Assistant

Oct. 2023 - Mar. 2024

*University of California - Irvine*

*Irvine, CA*

- Collaborated with Professor Brian Demsky's research group to explore the software development capabilities of large language models.
- Developed AI tools capable of implementing and assessing software using Python and OpenAI API calls.
- Collected and organized benchmark documents to evaluate the performance of an AI framework designed to streamline message history creation and parallelize tasks.

## PROJECTS

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### BasePath | *JavaScript, React.js*

- Developed a Major League Baseball-themed daily web game with a user-friendly and responsive front-end with custom components using React.js.
- Built a pipeline to scrape, transform, and store data for **23,000+ players** using Bash and Python scripting.
- Designed and integrated a MongoDB database with an Express.js API to efficiently handle queries on player data.

### ZotFitness | *TypeScript, React Native*

- Led a team of software engineers to create a mobile app that allows users to chronicle their workout plans, meals, and sleep schedule while receiving personalized recommendations.
- Developed a cross-platform mobile front-end using React Native, integrating a Firebase cloud storage system.
- Constructed a personalized model by interacting with Apple HealthKit to extract various user health metrics.

### Search Engine | *Python, Flask*

- Created a search engine that efficiently and effectively retrieves documents that are relevant to a search query.
- Implemented a scoring algorithm that ranked relevant pages using cosine similarity and PageRank scores.
- Built and optimized an inverted index to efficiently retrieve relevant pages from a corpus of **50,000+** documents.
- Designed a web interface capable of processing user queries and displaying the most relevant results with Flask.

## TECHNICAL SKILLS

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**Languages:** Python, Java, JavaScript, TypeScript, C, C++, C#, Bash, HTML, CSS, SQL, MIPS Assembly

**Developer Tools:** MongoDB, MySQL, Vim, Git, Linux, Jupyter Notebooks, Android Studio

**Libraries/Frameworks:** React.js, React Native, Node.js, Express.js, Pandas, NumPy, Firebase, Tailwind CSS, Flask, Django, Scikit-learn, Pytorch