Matthew Z. Kahane

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Highly motivated and detail oriented Computer Scientist with a strong passion for software development, machine learning, and full-stack development. Proficient in a range of programming languages, including Java, Python, C, and SQL. Seeking a challenging role that leverages my technical skills and allows me to contribute to innovative projects.

EDUCATION

University of San Francisco, San Francisco, CA
B.S. Computer Science; Minor: Engineering Physics *May 2024*
GPA: 3.73/4.0; Dean's List, Cum Laude

SKILLS

Languages: Java, C, C++, Python, RISC-V Assembly, SQL, Javascript

Dev Tools: Eclipse, VS Code, Linux shell, Git/GitHub

Technologies/Frameworks: HTML, CSS, Bootstrap, React, Agile

Libraries: Numpy, Tensorflow, PyTorch, MatPlotLib

EXPERIENCE

The HomeMore Project, San Francisco, CA (thehomemoreproject.org)

Project Intern *August 2023 – December 2023*

- Collaborated in a team of three to develop a document storage website for a non-profit organization, utilizing HTML, CSS, Bootstrap, JavaScript, MongoDB, and Docker, and collaborated with the founder to understand user needs.
- Created a fully accessible, responsive UI, increasing user engagement and potentially reaching 100% more users.
- Deployed a comprehensive, account-based document storage system, allowing users to manage important documents securely, with alerts for document expiration.

SF Breakthrough, San Francisco, CA

Teacher / TA *January 2024 – March 2024*

- Authored and taught Python programming lessons for middle school students, focusing on functions and loops, utilizing Replit.
- Developed and presented engaging slides and coding examples, incorporating code-along activities and solo challenges to reinforce concepts.
- Conducted interactive classes and supported other teachers as a TA with up to 10 students, ensuring personalized attention and effective learning in an elective program.
- Contributed to a cohesive learning environment over an 8-week period, enhancing student understanding and interest in computer science topics.

Saint Francis Living Room, San Francisco, CA

Volunteer / Tech consultant *February 2024 – May 2024*

- Provided in-person tech support to seniors twice weekly, assisting 12-15 individuals with common issues, fostering tech confidence within the senior community.
- Developed a customized database for senior leadership using excel, decreasing weekly time spent on donor and grant management by 50% and streamlining the process for future expansions.

- Provided personalized tech training to seniors and staff, receiving positive feedback for patient and accessible instruction and a reported 95% satisfaction rate.

Barnes and Noble Bookstore, Providence College, Providence, RI

Campus Store Team Member (part time) *July 2022 -*

- Managed sales transactions, including cash, credit, and financial aid payments, ensuring accuracy and speed of service.
- Selected and processed textbooks for student orders, including packaging and labeling.
- Handled student order pickups and returns efficiently.

ACADEMIC AND RESEARCH PROJECTS

Engineering a Multithreaded Search Engine

- Engineered the backend of a sophisticated multithreaded search engine using Java, by implementing an HTML fetcher to extract and clean content from websites and their linked pages, facilitating thorough data collection. developed over the course of a semester.
- Developed robust classes that effectively located and parsed directories, generating comprehensive lists of cleaned and stemmed words, subsequently stored in an inverted index for efficient retrieval.
- Expanded the inverted index functionality to include detailed information such as word stems, the specific files where they were found, and the precise positions within each file, to allow for comprehensive results.

Machine Learning Project(s)

- Developed and trained a fully connected multi-layer perceptron utilizing Python, focusing on creating a robust model for data analysis.
- Trained and fine-tuned a convolutional neural network to recognize handwriting, incorporating three 3x3 2D convolution layers, each followed by a 2x2 max-pooling layer, and concluding with a fully connected layer for output classification.
- Expertly fine-tuned hyperparameters for a large language model to minimize loss using PyTorch, by thoroughly analyzing validation loss history graphs and adjusting parameters to optimize model performance.

XV-6 Operating System Improvement and Expansion

- Modified and extended both the user and kernel sides of the XV6 operating system, enhancing system efficiency and improving virtual memory allocation, resulting in a 25% decrease in memory usage.
- Conducted in-depth exploration of the mapping process between physical memory and virtual memory, and developed a deeper understanding of operating system internals and their impact on system performance.
- Improved the scheduling algorithm and added support for containers to optimize resource management and process isolation, achieving a 15% increase in system stability.

Computer Processor Design and Emulation

- Developed programs in C and assembly language specifically for the RISC-V architecture, demonstrating proficiency in low-level programming.
- Created and utilized an emulator capable of executing RISC-V Assembly code, ensuring accurate simulation of the architecture, enhancing understanding of hardware-software integration.
- Designed and implemented both single-cycle and pipelined processors in a simulator through digital design, optimizing performance through detailed architectural planning.

OTHER INFORMATION

Awards/Honors: Honors graduate, AP Scholar with Honor

Interests/Hobbies: Space, Physics, Engineering, Skateboarding, Video Games, Music