

Calum Crawford

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EDUCATION

University of San Francisco (USFCA), San Francisco, CA —

August 2021 - May 2025

- Candidate for Bachelor of Science in Computer Science
- Current Coursework includes: Computer Architecture, Computer Networks
- Relevant Coursework: Python, Java, C and Systems Programming, Data Structures and Algorithms, Linear Algebra, Discrete Mathematics, Calculus

WORK/INTERNSHIP EXPERIENCE

humanID, San Francisco, CA

January 2024 - present

Technical Lead

- Leading the development of humanID's SDK's, integrating a diverse tech stack including Docker, Express.js, JavaScript, MySQL, PHP, Python, Django, and SQL.
- Spearheading the development of a dynamic payment feature, enabling customizable payment preferences and repeat transactions via the STRIPE API, leveraging JavaScript, HTML/CSS, Python, and Django.
- Demonstrated exceptional leadership by assessing project requirements, strategically delegating tasks, and successfully recruiting two interns after conducting over 12 technical interviews.
- Resolved a critical bug in the humanID production Discord Bot by adjusting AWS VPC security groups to facilitate secure inbound communications between the bot's EC2 instance and RDS.

Bushido, San Francisco, CA

May 2023 - January 2024

Software Engineer Intern

- Collaborated with a team of three other engineers to develop new web-based features and optimizations, achieving a 309.1% increase in new subscribers, a 2961.2% increase in MRR (Monthly Recurring Revenue), and the acquisition of 48 new paying customers.
- Led the development of a comprehensive ticketing system, creating over five distinct pages using TypeScript, React.js, and Tailwind CSS for the frontend, with Next.js for routing. Utilized Prisma for database schema modeling and migrations, Zod for type safety, and tRPC for request handling between the frontend and the database.
- Contributed to the early development of the ticketing system, now in production, facilitating the creation of more than 43 events by 14 distinct artists, resulting in an 18.7% increase in MRR and a 35% increase in net volume for the company.
- Directed the creation of a persistent audio streaming player with React Context and the MUX Audio API, enabling continuous music playback across different web pages. This effort addressed a major request from investors and artists, supporting Bushido's continued funding and development.
- Configured custom domains for artists using Vercel's DNS settings to match the specified CNAME records.

USFCA Residential Housing Association, San Francisco, CA,

August 2022 - August 2023

Resident Advisor

- Successfully built strong rapport with 32 residents by prioritizing attentive listening, demonstrating genuine care, and effectively addressing student needs through targeted consultation and referral, enhancing overall community atmosphere.
- Organized and executed seven social and educational programs for residents, with an average attendance of 5 residents, more than any other floor in the residence hall.

PROJECTS

End-to-End Compression Detection

February 2024 - present

- Developing a C-based client-server application and a standalone network monitoring application.
- Implementing TCP for client-server communication, enabling the client to send configuration data as JSON payloads for UDP packet reception.
- Utilizing socket programming in C for efficient network communication, and processing UDP packets with varying entropy to assess network compression.
- The standalone application employs raw sockets to analyze network traffic and uses TCP SYN packets to enable end-to-end compression detection.

HTTP Server

November 2023

- Developed a custom HTTP server in C capable of hosting a variety of websites.
- Implemented server functionality using the poll() function, enabling efficient, non-blocking handling of multiple simultaneous connections.
- Ensured adherence to TCP/IP protocols, guaranteeing reliable and standard network communication.

SKILLS

Programming Languages: AppleScript, C/C++, Java, PHP, Python, JavaScript, R, SQL, TypeScript.

Networking Tools/Protocols: ARP, DNS, UDP, TCP, IP, HTTP, Wi-Fi, Firewalls, Iptables, Wireshark, nmap, tcp-dump

Cloud Services: AWS CLI, AWS EC2, AWS EKS, AWS IAM, AWS RDS, AWS VPC, Google Cloud (BigQuery)

Databases: MySQL, Postgres.

Operating Systems/Technologies: Bash/Shell, GNU Make, Linux/Unix, REST APIs, Ubuntu, Windows.