

Kailan Mao

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EDUCATION

Carnegie Mellon University

May 2026

B.S. in Computer Science | GPA: 4.00

- **Relevant Coursework:** Data Structures and Algorithms, Computer Systems, Linear Algebra, Multidimensional Calculus, Database Development, Application Development

SKILLS

Programming Languages: Python, C/C++, Ruby, Java, Standard ML, HTML, CSS, JavaScript

Frameworks & Tools: Git, React, PostgreSQL, MongoDB, WordPress, Figma, Scikit-Learn, Pandas

EXPERIENCE

Research Assistant

August 2023 - May 2024

CMU Privacy Economics Experiments Lab, Pittsburgh, PA

- Developed email and HTML reconstruction scripts that assemble fragments in MySQL database from over 1,200 study participants.
- Implemented purchase scraping scripts to extract participant purchase behaviors from HTML data.
- Conducted extensive infrastructure testing on study's browser extension, email extension, MySQL database, and HTML reconstruction scripts to ensure proper collection and processing of participant data.

Software Engineer Intern

June 2023 - August 2023

TRACT, San Francisco, CA

- Implemented a social sentiment model in Python that quantifies individuals' online presence, leveraging machine learning algorithms and feature engineering for accurate predictions.
- Collaborated with the application development team to optimize data preprocessing pipelines for more efficient handling of large-scale social media datasets.
- Developed social media scrapers to collect data from Twitter, LinkedIn, Instagram, and Facebook.

Web Developer

May 2023 - July 2023

Re:Bloom, Pittsburgh, PA

- Crafted a responsive and user-friendly website using WordPress, catering to the unique needs of a local business.
- Collaborated with the client to design, wireframe using Figma, and user test a new website design, resulting in improved search engine optimization and 12% increase in web traffic.
- Created training materials and video tutorials, allowing the client to effectively manage and update their new site.

PROJECTS

Gotham City Police Department

May 2024

- Developed a fully functional web application for the fictional Gotham City Police Department using HTML, CSS, JavaScript, React, and Ruby on Rails, along with comprehensive unit and integration tests.
- Implemented user authentication, authorization, and a back-end SQL database.
- Created a custom API for seamless communication with external systems.

C0 Virtual Machine

April 2023

- Developed a virtual machine using C tailored for C0, a subset of C used in introductory programming courses, allowing for the execution of arbitrary C0 code.
- Devised an operand stack and frame mechanism to manage the execution flow within the virtual machine.
- Implemented bytecode execution processes, enabling mathematical operations, logical statements, memory allocation, array operations, function invocation, and generic pointers.

Movie Review Sentiment Analysis

December 2022

- Implemented a sentiment analysis application in Python, using the Natural Language Toolkit (NLTK) library to assess the sentiment of movie reviews webscraped from Rotten Tomatoes.
- Created a mini game allowing users to compare their movie taste with Rotten Tomatoes reviews.
- Developed a search tool to retrieve the sentiment of movies, enabling users to quickly evaluate film reception.

AWARDS & CERTIFICATIONS

- First Place, CMU ACM Algorithms with a Purpose Hackathon (Undergraduate Bracket) February 2023
- Foundations of Cybersecurity (Google Cybersecurity Certificate Course) June 2023
- Member, Society of Women Engineers September 2022 - Present