Andrew Sima

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Education

Harvard University Cambridge, MA
A.B. in Applied Mathematics and Computer Science Sep 2019 – May 2023

- Relevant Coursework: Systems Programming and Machine Organization, Theoretical Computer Science, Linear Algebra and Big Data, Data Structures and Algorithms
- GPA: 3.96/4.00

Awards: USA Physics Olympiad Silver Medalist, USA Computing Olympiad Gold Division, AIME Qualifier (4x)

Professional Experience

Astranis | Ground Software Engineer – Internship San Francisco, CA
An aerospace company bringing internet access to 4 billion people using next-generation satellites May 2021 – Present

- Lead developer on new application for managing commands sent to satellite in orbit, implement robust authentication framework designed with microservice architecture in mind, improve visualization and response to incoming telemetry data from satellite

Photon Commerce | Payments Software Engineer – Internship San Francisco, CA
A fintech startup channeling computer vision and NLP for instant document-processing July 2020 – April 2021

- Reported directly to CEO, built payments workflow from scratch and managed development of all payments-related infrastructure
- Designed and implemented payments analytics and history dashboard for computer vision powered scanning app
- Integrated and authored internal documentation for using payment APIs offered by Stripe, CardConnect, Square, and Bill.com
- Built management features for supply-chain/e-commerce app, developed syncing algorithm for migrating data between SQLite and Airtable, recovered ~30k rows of corrupted customer data using SQL, patched authentication vulnerability

Lunchable, Inc. | Full Stack Engineer – Internship Berkeley, CA
A friend-finding and dating startup for ensuring that lunch is never eaten alone May 2020 – August 2020

- Implemented real-time video-call and chat functionality from scratch, designed and implemented Redis message queue for optimized latency in socket connections, built accompanying React frontend
- Improved friend-matching algorithm from 5 hrs to 45s using memoization and dynamic programming, helped automate algorithm to run weekly, built push/email notification system with Google Calendar integration

Projects

GoStreams April 2021 – Present
A real-time live streaming application designed for scalability and consistency

- Built backend API to forward live video/audio feed to Kafka brokers, designed pub-sub architecture for streaming data distribution
- Technologies used: Go, WebRTC, RMTP/HLS (streaming protocols), websockets, Javascript/HTML/CSS, Kafka, Docker

CHIP-8.vm June 2021 – July 2021
A toy virtual machine designed to mimic a CHIP-8 microprocessor for emulating black/white games

- Implemented translations from opcodes to assembly instructions in C, designed memory and stack data structures, wrote functions for virtualizing CPU and main execution loop, handled display of games using SDL C library

Activities

Harvard Data Analytics Group | Case Team Leader Cambridge, MA
An on-campus consulting organization leveraging data for business intelligence January 2021 – Present

- Worked with team of 6 analysts to build ML prediction algorithm for price estimation of baseball trading cards using image-processing and text-parsing, designed data pipeline for end-to-end scraping, cleaning, and storing of cards into database
- Processed ~3TB of card images and information, delivered full dataset and predictive model to customer

Skills and Interests

Programming Languages: Python, C/C++, Go, Javascript/HTML/CSS, SQL, PHP, Java

Technologies: Django, Flask, Selenium, Tensorflow, React, Node, MySQL, MongoDB, Postgres, Redis, Kafka, Docker, Nginx, AWS

Interests: rom-coms, manga, tennis, classical violin, chess, computer chips, and satellites