

Jacob Sharf

Software Engineer

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Long Island City, New York, US

Experience with realtime sensor data, simulation, firmware and machine learning. Skills include C++, Python, and Systems software.

Experience

Software Engineer

Aug 2023 - Present

[SafeBVM](#)

Sole software engineer for SafeBVM clinical trial. Developed realtime software tool for monitoring and recording patient ventilation data in an operating room environment. Collaborated with trial surgeon to design efficient UI with minimal distractions. Collaborated with researchers to collect data critical to validation of a novel constant-flow valve for manual ventilation.

- Sub-5ms latency sensor pipeline on Windows, OSX, and Linux
- Realtime, robust breath-counting algorithm
- Validation of commercial off-the-shelf sensor to fulfill project requirements.

Research Engineer

Sep 2021 - Jun 2023

[Cornell Language, Interaction, and Learning Lab](#)

Research platform for Natural Language Processing (NLP) interactions. Created dataset of grounded language instructions in collaborative asymmetric user scenarios. Online demo (<http://cb2.ai>) serves live multi-modal model on website, simulated self-play, and dataset management.

- Dataset of 500+ interactions played on AWS mechanical turk
- Client in Unity and C#. Server in Python.
- Hundreds of clients simultaneously with sub-second latency.
- Paper available at arxiv.org/abs/2303.08127
- ACL 2023 Outstanding Demo Award

Software Engineer

Jul 2015 - Aug 2021

[Google \(Alphabet\)](#)

Developed systems software. C++ and Python. Realtime distributed systems. Software Reliability.

- Platforms (2 yrs): GPU and Accelerator cloud deployment. Signed binary distribution and system software
- Daydream (2.5 yrs): High-accuracy position-tracked VR controller firmware. Bluetooth low-latency sensors
- Devices & Services (0.5 yrs): Consumer device HW. Google Pixel Buds development & factory bring-up
- Waymo (1 yr): Deterministic HW simulation framework. Hardware-in-the-loop testing and presubmit service
- Received C++ Readability Certificate

Internship, Flight Software

Jan 2014 - Jan 2014

[SpaceX](#)

Dragon spacecraft crew communication firmware. Realtime audio codecs and HW prototyping. C++ and Python

Internship, Static Analysis

Jan 2013 - Jan 2013

[Coverity](#)

Performance analysis tools for Coverity's static analysis software. Python

Student Research, CASIT

Jan 2012 - Jan 2012

[UCLA Center for Advanced Surgical and Interventional Technology](#)

Prototyped smart lower limb prosthetic device.

Education

Bachelors, Computer Science

[University of California](#)

Projects

[Plasticity Neural Network Framework](#)

C++ Machine Learning Framework from scratch with symbolic differentiation and GPU acceleration. <https://github.com/jsharf/plasticity>

[Argos Smart Camera](#)

A home apartment monitor that uses cheap, ubiquitous wifi webcams to create a smart camera system. <https://github.com/jsharf/Argos>

Volunteer

Weekly Section Leader, Code in Place 2021 & 2022

[Stanford Code in Place](#)

Weekly section lead for 10 students. Taught introductory Python course.

Links

jsharf.github.io

github.com/jsharf