Jacob Sharf Software Engineer

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

· Validation of commercial off-the-shelf sensor to

· Paper available at arxiv.org/abs/2303.08127 · ACL 2023 Outstanding Demo Award

fullfill project requirements.

second latency.

presubmit service

· Received C++ Readability Certificate

Experience

Software Engineer

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

Research Engineer

Cornell Language, Interaction, and Learning Lab

Research platform for Natural Language Processing (NLP) interactions in a 3D environment. 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. · Hundreds of clients simultaneously with sub-

· Developed a realtime online, multiplayer 3D game · Dataset of 500+ interactions played on AWS

- mechanical turk
- · Client in Unity and C#. Server in Python.

Software Engineer

Google (Alphabet)

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

· Platforms (2 yrs): GPU and Accelerator cloud · Devices & Services (0.5 yrs): Consumer device deployment. Signed binary distribution and HW. Google Pixel Buds development & factory system software brina-up · Daydream (2.5 yrs): High-accuracy position-· Waymo (1 yr): Deterministic HW simulation framework. Hardware-in-the-loop testing and

tracked VR controller firmware. Bluetooth lowlatency sensors

Internship, Flight Software

SpaceX

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

Internship, Static Analysis Jun 2013 - Sep 2013 **Coverity** Performance analysis tools for Coverity's static analysis software. Python

Student Research, CASIT

UCLA Center for Advanced Surgical and Interventional Technology

Prototyped smart lower limb prosthetic device.

Aug 2023 - Present

(818) 961-7103 jacobsharf@gmail.com

Long Island City, New York, US

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, ubuiquitous 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

Jun 2014 - Sep 2014

Apr 2012 - Oct 2012

Sep 2021 - Jun 2023

Jul 2015 - Aug 2021