SNEHEIL SAXENA

+1 858-349-6808 | sneheilsaxena@gmail.com | sneheilsaxena.github.io | GitHub: sneheilsaxena | linkedin.com/in/sneheilsaxena

EDUCATION

University of California, Irvine — Irvine, CA
M.Eng. - Electrical Engineering & Computer Science (Machine Learning & Data Science), **GPA: 3.909** — Graduating Dec 2025

University of California, Berkeley — Berkeley, CA
Global Access Program (Visiting Student) — Jan 2024 – May 2024

University of California, San Diego — La Jolla, CA
BS - Mathematics & Computer Science — Sept 2016 – Dec 2020

WORK EXPERIENCE

YAZAKI INNOVATIONS — **SOFTWARE ENGINEER** — Jan 2025 – June 2025
IRVINE, CA — M.Eng Capstone Project — 6 months

- Built a Python desktop app with Tkinter to load floor plans, set scale & place/edit electrical symbols via GUI, targeting minimum total wiring from devices to panel
- Used a YOLO-based detector plus manual fixes to tag devices, built a Hanan grid and used NetworkX to compute shortest routes under wiring constraints
- Structured outputs (room wire lengths, device counts, BOM) as machine-readable files so layouts could be versioned, checked & reused for cost/load analysis

QUALCOMM — **ENGINEER** — Nov 2021 – Oct 2023
SAN DIEGO, CA — AR/VR Research Division — 1 year 11 months

- Architected a CLI Python tool to align XR power rails with camera GPIO frame strobes for function-level power, exporting schema-stable CSVs for repeatable power/perf experiments
- Automated a multi-engineer, multi-day profiling flow into a single CLI command with clear logs across setup, capture, processing & export, making XR power studies fast, repeatable & more granular
- Analyzed power data for a point-cloud-to-depth (C2D) pipeline & other XR tracking functions across performance modes & threading configs using power rails & hardware counters; C2D trends were used with Meta to weigh XR quality vs battery-life tradeoffs
- Refactored a Python-based XR hand tracking pipeline into clear stages (decode, calibrate, depth/point cloud processing, pose estimation) to pinpoint slow or unstable stages, improve debuggability and enable targeted performance checks
- Fixed edge-case bugs in hand detection/pose and added sanity checks & targeted logs so calibration issues and unstable frames were easier to diagnose

HOUSECALL PRO — **SOFTWARE ENGINEER INTERN** — June 2019 – Aug 2019
SAN DIEGO, CA — Frontend — 3 months

- Implemented Website Builder onboarding UI in React with JS, HTML, CSS & Material UI; responsive layout plus clear loading & error states for new users
- Integrated flows with Rails REST APIs via Redux so template/form state and error codes were consistent and analyzable for funnel and activation metrics

RELIANCE JIO INFOCOMM — **SOFTWARE TESTING INTERN** — July 2017 – Sep 2017
FRISCO, TX — Android Testing — 3 months

- Designed black-box regression tests for JioPhone (KaiOS) core apps & flows, covering voice, messaging, contacts, camera, media and settings before rollout
- Used Python-driven automation and structured logs to track pass/fail results, cluster recurring defects by feature area and share concise QA reports

RESEARCH / TEACHING

Robust LED Detection and Classification — **Prof. Athina Markopoulou, UCI** — June 2025 – PRESENT

- Captured videos of blinking LEDs under varied angles/lighting and used CVAT to label bounding boxes plus on/off state per frame for supervised training
- Prototyping a lightweight CNN (YOLOv8) + RNN pipeline to track LEDs in video and tuning thresholds/architecture to cut false positives under limited compute

Course Assistant, Discrete-Time Signals and Systems — **Prof. Syed Jafar, UCI** — Apr 2025 – June 2025

- Worked with Prof. Syed Jafar to grade discrete-time signals homework and provide written feedback to clarify misconceptions & improve student performance

RELEVANT PROJECTS

DL Accelerator Hardware - Dataflow Co-design | *CNN/UNet, Maestro , Python* — Sep 2024 – Dec 2024

- Explored mappings of CNN & UNet layers onto a spatial DL accelerator, varying tiling, reuse & on-chip buffer sizing to study throughput, traffic & latency tradeoffs
- Compared dataflows and cluster sizes with simple cost models to assess utilization, bandwidth & latency for convolution and GEMM-heavy workloads
- Parsed cost reports to compare layer-wise bottlenecks and explain which dataflows were compute-bound vs memory-bound

Advanced System Security Labs - UCI EECS 231 | *C, x86 Assembly, gdb, AFL++* — Jan 2025 – March 2025

- Reverse engineered x86 crackme binaries with gdb and objdump, recovered hard-coded secrets and rebuilt packer encrypt/decrypt routines in C
- Built a return-to-libc exploit for a vulnerable TCP server in C, chaining libc calls to bypass non-executable stack defenses and spawn a root shell
- Used AFL++ to fuzz C programs and a PNG parser, tracked coverage, reproduced crashes under gdb and patched multiple memory-safety bugs

2nd Prize, HackIoT 2018, University of Southern California, LA | *Django, Python, OpenCV, Raspberry Pi* — March 2018

- Built a home monitoring system using Raspberry Pi + Django backend with OpenCV face checks, REST APIs & Android client for live video & door/window sensors
- Exposed key-based authenticated HTTP endpoints for sensors, panic alerts & intruder logs so all events were recorded centrally for review
- Split streaming, detection, alerting & lock control into modules so new IoT devices and rules could be added without major server changes

SKILLS AND EXPERTISE

Programming: Python, C++, C, Java
Systems & Runtimes: Linux, Bash, Git, GDB, basic CMake, CLI tooling, logging, basic profiling
Data & ML: NumPy, Pandas, PyTorch (CNN/RNN basics), Jupyter, Matplotlib
Perf & Analysis: Hardware rail data, counters, CSV/JSON pipelines, experiment design, power & latency trend analysis
Web & APIs: REST APIs, basic React, HTML/CSS
Testing: Unit tests, assertions, RSpec/JUnit-style tests, sanity checks & targeted logs