

Nathan Wachholz

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EDUCATION

University of California, Santa Barbara

M.S. Computer Science, College of Engineering

Sept. 2022 – June 2023

- Research in Computational Geometry with Professor [Subhash Suri](#)

B.S. Computing, College of Creative Studies

Sept. 2019 – June 2022

- Data Structures and Algorithms, Discrete Mathematics, Formal Languages and Automata, Compilers, Computer Architecture, Operating Systems, Offline and Online Graphics, Human-Computer Interaction
- Undergrad Research in Computational Geometry, CS Theory Seminars, Competitive Programming Seminars
- Graduate Security Seminars, Hacking Competitions with [Shellphish](#)

EXPERIENCE

Google

Software Engineering Intern

June 2022 – Sept. 2022

- Worked on [Project Zero](#), contributing to [SockFuzzer](#) and internal efforts to fuzz Apple's XNU kernel
- [CVE-2022-40304](#)

STEP Intern

June 2021 – Sept. 2021

- Developed a machine learning pipeline for detecting anomalies in behavior on admin.google.com
- Investigated dozens of models, features, and data labelling strategies to maximize model performance

STEP Intern

June 2020 – Sept. 2020

- Worked with 2 interns to prototype a website for enhancing discussions of recorded university lectures
- Created design docs, unit tests, and tooling for efficient development workflows

SIONYX

Software Engineering Contractor

Mar. 2022 – June 2022

- Built applications to automate camera QA in production factories
- Developed an Electron app demonstrating camera configuration and streaming over USB and TCP/IP

Teledyne FLIR

Software Engineering Intern

May 2018 – June 2021

- Under CTO Group, helped accelerate company-wide data curation and machine learning efforts: optimized queries on [flirconservator.com](#); added automatic integration testing; streamlined developer workflow by creating and open-sourcing [conservator-cli](#)
- Under Unmanned Aerial Vehicles, designed and built demos for existing hardware, as well as prototyped future products. Full ownership of several projects, with electrical, mechanical and software aspects.

PROJECTS

[Protractr](#): Geometric constraint solver, with export to LaTeX. Made in Typescript with HTML5 canvas

[Self-playing Guitar](#): Capable of playing any MIDI file. Showcased at local museums, Makerfaire, and Facebook

[Camino](#): Low-level interrupt-based library for controlling an Arduino from Python over Serial

[cqdm](#): Drop-in replacement of the popular tqdm Python package, 4.5x faster using C-Extensions

More projects available from my [website](#) and [blog](#).

TECHNICAL SKILLS

Languages: Python, Java, Javascript, Typescript, C++, C, HTML/CSS

Technology: Docker, Kubernetes, Tensorflow, GraphQL, Flask, React, Electron, Android

Security: Reversing, binary exploitation, IDA, Ghidra, libFuzzer

CTFs: (Playing with Shellphish and 1064CBread) 2nd place CSAW Undergrad CTF 2020, 1st place CSAW Undergrad CTF Quals 2020, 1st place CSAW Red Team Competition 2018, 1st place picoCTF 2018, Finalist in CSAW High School Forensics 2017, 1st place picoCTF 2017

Other: git, gdb, Linux, XNU, Bazel, Solidworks, machining, 3d printing