

ALEXANDER KRISTOFFERSEN

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EDUCATION

University of California, Berkeley

August 2018 - Exp. May 2022

B.S. in Electrical Engineering & Computer Science

GPA: 3.942

Relevant Coursework:

Computer Architecture, Efficient Algorithms and Computability, Signals and Systems, Intro to AI, Operating Systems and System Programming, Optimization Models, Probability and Random Processes, Computer Security, Intro to Computer Vision, Intro to Machine Learning, Parallel Computing

EXPERIENCE

Butterfly Network Inc.

May 2021 - August 2021

Research Scientist - Machine Learning Intern

Remote / New York, NY

- Part of Butterfly's Deep Learning Team, developing models to run on a handheld ultrasound device at a fraction of the cost of standard machines. (Python, Tensorflow, C/C++, Swift)
- Developed IMU sensor fusion infrastructure and models to aid in education and visual accuracy.
- Bootstrapped from low-level driver code, requiring design up through S3 backend and tensorflow models.

Berkeley RISELab

August 2020 - Present

Undergraduate Researcher in Computer Vision

Berkeley, CA

- Developing video super-resolution deep-learning techniques that are efficient enough for real-time inference, with the goal of applying this to low-quality video streams. (Python, OpenCV, PyTorch)

Corelight Inc.

May 2020 - August 2020

Summer Research Intern

Remote / San Francisco, CA

- Worked under Dr. Vern Paxson researching experimental network analysis techniques within Corelight's Research Team, developing proprietary plugins for its core open source project, Zeek.
- Built tools to parse/clean large volumes of network data (over 100 Gigabytes per file) under multiple protocols with minimal state storage and memory overhead. (C/C++, Python, Zeek Language, Go)

Space Technologies at Cal (STAC)

August 2019 - Present

Team Lead, High Altitude Balloon Team

Berkeley, CA

- Designing the flight code for HAB-IV, the 4th generation balloon, in order to avoid dangerous or unreachable landing spots through in-flight self-corrections by manipulation of parachute wires.
- Integrating sensor data, including IMU and GPS, ground and satellite communications using Zigbee and rockBLOCK devices, and servo control in C++ on a low-power embedded system.

PROJECTS

Stegasaurus: Steganographic Private Messaging Tool

October 2019 - May 2020

- Created algorithm and web server implementation for encoding large amounts of encrypted text data into images with minimal visual trace, winning 2nd Place at CalHacks 6.0 out of over 2,000 participants.
- Utilized the Discrete Cosine Transform (DCT) and redundancy measures, to protect encrypted messages of over 7,000 characters in \approx 500p images resilient to over 60% compression in both PNGs and JPEGs.

TECHNICAL STRENGTHS

Languages/Skills: Java, Python, C++, C, SQL, Assembly (RISC-V, x86), Unit Testing

Tools: Vim, VSCode, Docker, Valgrind, GDB, Jupyter Notebook, Git, Arduino, Unix, PyTorch, Tensorflow