ALEXANDER KRISTOFFERSEN

akristoffersen@berkeley.edu ⋄ github.com/akristoffersen ⋄ akristoffersen.com ⋄ (909) 754 · 3438

EDUCATION

University of California, Berkeley August 2018 - Exp. May 2022
B.S. in Electrical Engineering & Computer Science GPA: 3.934
Relevant Coursework:
Signals and Systems, Operating Systems, Optimization Models, Probability, Comp. Photography and Computer Vision, Machine Learning, Parallel Computing, Computer Graphics, Deep Neural Networks

University of California, Berkeley Exp. August 2022 - Exp. May 2023
M.S. in Electrical Engineering & Computer Science

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 (DNN, GANs) that are efficient enough for real-time inference, applying this to low-quality video streams. (Python, OpenCV, PyTorch)
- Current research: photo-realistic view-synthesis techniques for monocular 360 degree video for VR.

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 4^{th} 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 ≈500p images resilient to over 60% compression in both PNGs and JPEGs.

TECHNICAL STRENGTHS

Languages/Skills: Python, C++, C, Java, SQL, Assembly (RISC-V, x86), Unit Testing, CUDA, Bash
Tools: Vim, VSCode, Docker, Valgrind, GDB, Jupyter Notebook, Git, Arduino, Unix, PyTorch, Tensorflow