

# ALEXANDER KRISTOFFERSEN

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## EDUCATION

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### University of California, Berkeley

May 2022

B.S. in Electrical Engineering & Computer Science

GPA: 3.938

#### Relevant Coursework:

Computer Programs, Information Devices and Systems I/II, Data Structures and Algorithms, Multivariable Calculus, Electromagnetic Physics, Linear Algebra, Discrete Mathematics and Probability, Computer Architecture, Efficient Algorithms and Computability, Signals and Systems, Intro to AI

## EXPERIENCE

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### Corelight Inc.

May 2020 - Present

*Summer Research Intern*

*Remote / San Francisco, CA*

- Working Under Dr. Vern Paxson researching experimental network analysis techniques and building tools to parse/clean network data under various protocols. (C/C++, Python, Zeek Language, Go)

### Berkeley RoboMaster

August 2019 - May 2020

*Member, Perception Team*

*Berkeley, CA*

- University team for annual ICRA RoboMaster AI Challenge, an international competition to develop the autonomous system to defeat another robot in ping pong ball projectile combat.
- As part of the Perception team, I developed a training-data pipeline from raw video to cropped and filtered data for use in classification neural network for enemy robot detection (OpenCV, C++, Python).

### 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<sup>th</sup> 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, and servo control in C++ on a low-power embedded system.

## PROJECTS

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### Stegasaurus: Steganographic Private Messaging Tool

October 2019 - Present

- 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.
- Using Discrete Cosine Transform (DCT) and redundancy measures, can protect encrypted messages of over 7,000 characters in  $\approx 500p$  images resilient to over 60% compression in both PNGs and JPEGs.

### Fourier Series Educational Visualizer

December 2018 - February 2019

- Developed a command-line Java program and IPython educational demo for the visualization of the Fourier Series, which approximates a function as a sum of sinusoids.
- Uses a linked-list of circles to draw each circle as it rotates about the other, and outputs to approximate function to an animated continuous graph.

## TECHNICAL STRENGTHS

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**Languages/Skills:** Java, Python, C/C++, Breadboarding, Circuit Design, SQL, Assembly (RISC-V)