ALEXANDER KRISTOFFERSEN

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EDUCATION

University of California, Berkeley
M.S. in Electrical Engineering & Computer Science August 2022 - Exp. May 2023
- Emphasis on computer vision and graphics, advised by Prof. Joseph Gonzalez

B.S. in Electrical Engineering & Computer Science, **GPA:** 3.93 August 2018 - May 2022
- Eta Kappa Nu (EECS honors society) officer, Accel Scholar

Relevant Coursework:
Signals and Systems, Operating Systems, Optimization Models, Probability, Comp. Photography and Computer Vision, Machine Learning, Parallel Computing, Computer Graphics, Deep Neural Networks

EXPERIENCE

Google May 2022 - August 2022
Software Engineer Intern *Sunnyvale, CA*

- Within internal core data team, worked to increase reliability of Semantic Understanding pipeline, who's internal customers span all major products within Google.
- Increased prediction accuracy of incoming requests by 80% for reliable loadbalancing/loadshedding with minimal additional overhead. (Python, C/C++)

Berkeley Sky Computing Lab (formerly RISELab) August 2020 - Present
Undergraduate Researcher in Computer Vision *Berkeley, CA*

- Developed 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.

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.

PROJECTS

Nerfstudio: A Collaboration Friendly Studio for NeRFs May 2022 - Present

- Developer for Nerfstudio, an open-source API for creating, training, and viewing NeRF models.
- Built multiple user-facing features, including camera pose optimization, Google Colab support, equirectangular image support, and extensive documentation for a project with over 2.4K GitHub stars.

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