

KAY KRACHENFELS

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EDUCATION

Master of Science, Computer Science || GPA: 3.93

2024 - 2026

>>> *University of California, Santa Barbara*

- **Relevant Coursework:** Distributed Systems, Operating Systems, LLM Foundation Models, Computer Vision, Interactive AI, Extended Reality, Scalable Internet Services, Data Modeling and Integration, Adversarial Machine Learning

Bachelor of Science, Computer Science and Engineering || GPA: 3.97

2020 - 2024

>>> *University of California, Davis*

- Dean's Honor List '20-23/Highest Honors; received numerous merit-based + engineering and leadership scholarships

SKILLS

- **Programming Languages:** Python, C++, C, MATLAB and Simulink, Java, R, Rust, Ruby, Bash Scripting, Batch Scripting
- **Frameworks/Libraries:** PyTorch, Django, Flask, ROS (Robot Operating System), Ruby on Rails, HTML+CSS
- **Other:** Git & GitHub, Linux, GDB/LLDB; Anaconda/Python environments; Microsoft Word/PowerPoint/Excel
- **Other Languages:** Chinese (bilingual - native speaking proficiency), Spanish (intermediate)

EXPERIENCE

Avionics Software Engineer Intern

June 2025 - Sept 2025

>>> *Blue Origin, Blue Ring Flight Software - Renton, WA*

- Worked with Python, C++, Linux, and CI/CD pipelines to create tooling for measuring technical performance and resource utilization of applications on Blue Ring flight software, saving over 10k hours of human labor

Software Engineer Intern

June 2024 - Sept 2024

>>> *General Motors, Hardware in the Loop Simulation and Integration - Warren, MI*

- Wrote Python scripts for real time testing (RTT) scenarios for vehicle simulation maneuvers and bench testing verification; used MATLAB and Simulink C programming to create new pedestrian detection submodule

Research Assistant

Sept 2021 - June 2024

>>> *Center for Mind and Brain, Janata Lab - Davis, CA*

- Used PyTorch to build and train a CNN on 200 music-evoked memory passages for prediction of lifetime periods; used Django and an AWS-hosted SQL database to set up models and pipelines for running and storing analyses
- Led project and taught other undergraduate students to get set up with coding environments and database

Software Engineer Intern

June 2023 - Sept 2023

>>> *General Motors, Software Integration Team - Milford, MI*

- Wrote an in-house Python data logging library + GUI to interact with all 30+ vehicle electrical control units (ECUs) via DoIP and CAN protocol; allowed users to send requests to any module and decode various diagnostic responses

Computing Student/Data Science Research Intern

June 2022 - June 2023

>>> *Lawrence Livermore National Lab (LLNL) - Livermore, CA*

- Wrote Python scripts and used PyTorch to train, tune, and visualize graph-based machine learning models on 2D SMILES data, including SARS-CoV-2 data, for unsupervised/semi-supervised learning and supervised property prediction
- Utilized LLNL's high performance computing (HPC) clusters to deploy SLURM batch jobs

PROJECTS

Master's Defense: Agentic AI Search and Feedback Strategies for CUDA Kernel Optimization

Oct 2025 - Mar 2026

>>> *Committee: Dr. Xifeng Yan (chair), Dr. Jianwen Su*

- Compared effectiveness of different agentic AI search heuristics (e.g. beam search, MCTS) when optimizing CUDA kernels and studied robustness of various feedback heuristics, such as to non-tested shapes or non-target hardware
- Analyzed realistic impact and speedup of optimized kernels when placed in end-to-end tests in ML/LLM models

Capstone: Sensor Fusion of Thermal Camera and LiDAR Point Cloud Data

Jan 2023 - June 2023

>>> *Publication: <https://doi.org/10.3390/s24082494> - A Compact Handheld Sensor Package with Sensor Fusion for Comprehensive and Robust 3D Mapping.*

- Designed sensor fusion algorithm for 360 point cloud and front-facing thermal camera data to produce 3D thermal maps; primarily worked with Open3D, ROS, and Point Cloud Library (PCL) for data visualization and manipulation
- Wrote Python code for depth projection, thermal data reprojection, and decoupled fusion pipeline scripts for ease-of-use