KAY KRACHENFELS

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EDUCATION

Master of Science, Computer Science || GPA: 3.90 **Sept 2024 - April 2026**
>>> University of California, Santa Barbara

Bachelor of Science, Computer Science and Engineering || GPA: 3.97 **Sept 2020 - Dec 2023**
>>> University of California, Davis

- Dean's Honor List '20-23/Highest Honors; received numerous merit-based + engineering and leadership scholarships
- **Relevant Coursework:** Software Engineering; Operating Systems; Machine Learning; Data Structures & Algorithms; Machine-Dependent Programming; Computer Architecture; Computer Networking; Circuits; Embedded Systems

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

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 other natural language libraries to analyze/visualize sentiments, similarities, and various patterns across memories
- 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

Teacher **June 2019 - July 2019**
>>> Arduino Robotics Camp - Fremont, CA

- Designed curriculum for two 30-hour weeks; taught students aged 9-13 circuitry, C programming, and CAD

PROJECTS

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