Kaleb Crans

707-672-4384 | kacrans@ucdavis.edu | linkedin.com/in/kaleb-crans/ | github.com/kcrans

Education

The University of California, Davis — Davis, CA
Bachelor of Science in Applied Mathematics and Computer Science — *Sep. 2020 – March 2023*

- GPA: 3.65/4.00
- Computer Science Coursework: Object Oriented Programming, Data Structures and Algorithms, Computer Organization & Machine-Dependent Programming, Discrete Math, Databases, Machine Learning
- Math Coursework: Multivariate Calculus, Linear Algebra, Probability Theory, Real Analysis, Combinatorics, Stochastic Processes, Statistics, Differential Equations, Complex Analysis, Topology
- Outreach Coordinator for Davis Computer Science Club
- Dean's Honor List

College of the Redwoods — Eureka, CA
Associate's in Mathematics for Transfer — *Aug. 2019 – May 2020*

- Graduated with highest honors

Projects

Titi Monkey Technology | *Python* — April 2022 – Present

- A multi-platform app written in python designed for running visual stimuli experiments with non-human primates
- Modular design to allow different researchers to run and modify experiments according to their specifications
- Uses PsychoPy for visual and audio purposes and as the base level of experiment control
- Wrote multiple GUI utilities to make common administrative tasks easier for end-users
- Created a system for managing configuration using JSON files
- Work done as part of a research internship with the Bales lab at UC Davis

L-Store Database System | *Python* — January – March 2022

- Developed a python-based version of L-Store, a lineage-based HTAP database system with columnar storage
- Experimented and visualized the effects of different bufferpool sizes on performance
- Implemented durability with a contention-free "merge" background process
- Created a simplified SQL-like query interface that supports operations like select, update, sum, increment and time-travel queries
- Used the threading Python module for multithreading with a strict 2PL concurrency protocol

Spectral Clustering in C++ | *C++, Eigen template library, Python/Matplotlib* — March 2021

- Wrote a version of the unnormalized spectral clustering algorithm in C++
- Used Eigen for matrix computations and linear algebra operations
- Also wrote a k-means algorithm implementation in C++ for performance comparison
- Tested on datasets from SNAP and from P. Fänti and S. Sieranoja
- Visualized clustering in action with Matplotlib

Non-Technical Experience

Yogurt Shop Server — June 2022 – Present
Ted and Ron's — *Elk Grove, CA*

- I take and prepare orders at a frozen yogurt shop while working as part of a team
- I have done a bit of everything as it's a small mom-and-pop place

Undergraduate Reader — September 2021 – May 2022
UC Davis — *Davis, CA*

- Performed grading duties in undergrad math courses
- Worked with professors and TAs to make grading schemes for homework assignments
- Have read for each course in the Real Analysis sequence, Combinatorics, and Intro to Abstract Math

Technical Skills

Languages: Python, C/C++, SQL, JavaScript, and HTML/CSS
Developer Tools: Git, Linux, Bash scripting, and Vim
Libraries: NumPy, Matplotlib, pandas, PyTorch and TensorFlow