

# Sebastian Osorio

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## Education

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University of California Santa Cruz (UCSC)	Santa Cruz, CA
Masters of Science - Scientific Computation and Applied Mathematics	GPA: 4.00
Bachelor of Science (BS) Applied Mathematics - Scientific Computation Track	GPA: 3.77

## Skills

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**Programming Languages:** Python, C/C++, Java, Latex, SQL

**Tools and Frameworks:** PyTorch, numpy, pandas, scikit, Cuda, Git, GitHub, Matlab

## Employment History

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### Student Researcher for GLAB and DARPA - April 2024 - September 2025

- Led deep learning initiatives for wound infection detection and healing prediction, developing a multi-task U-Net model with 91.7% test accuracy and 100% recall (zero false negatives) for infected cases at an optimized threshold.
- Engineered comprehensive wound image processing and data preparation pipeline. Developed a wound image shuffler script to generate diverse wound infection scenarios for machine learning model training, enabling accurate prediction of wound healing states. Applied label masks and refined image data for infection severity prediction.
- Developed and compared multimodal deep learning models for predicting wound healing outcomes. Achieved up to 91.6% test accuracy (ROC AUC 0.97) with proteomics and 74% accuracy with image-based U-Net models.

### Teaching Assistant for Linear Algebra - September 2024 - December 2024

- Led weekly discussion sections and held office hours to support student learning. Assisted with proctoring and grading exams.

### Grader for Computational Methods and Applications - January 2024 - March 2024

- Provided timely feedback on assignments and facilitated student understanding by explaining code errors and offering guidance.

## Projects

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### Statistical Analysis of Biomolecular Processes using Transcriptomic Data - Research @ UCSC

- Collaborated with a UCSC Post Doc to interpret transcriptomic data, implementing Python programs with Pandas, NumPy, Matplotlib, and SciPy for visualization, statistical analysis, and feature extraction pipeline development.

### GPU Programming for Scientific Computation @ UCSC

- Created a linear algebra [library](#) optimized with GPU operations. Implemented functions include matrix transposition, generalized matrix multiplication, lower and upper triangular solve, and LU decomposition.

### Applied Machine Learning and Artificial Intelligence @ UCSC

- Developed Pac-Man agents using search and adversarial algorithms (based on [Berkeley program](#)) and studied machine learning algorithm design for reliability and clarity.

### C Programming and Computer Systems @ UCSC

- C programming class focused on common data structures for embedded systems. And use of interrupt service routines, techniques to handle various peripheral interfaces (UART, GPIO), and use of Finite State Machines (FSM) to implement complex projects.

## Extracurricular

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### ACM Research Lab Club 2023-2024

- Co-authored an unpublished [paper](#) on map generation using a variational autoencoder U-net architecture. Established a data pipeline to collect and test map data for the model.