Loni Halsted-Ruelas

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Education

Oregon State University | Corvallis, OR September 2025 - Present
- **Doctor in Philosophy in Robotics (Ph.D.)**, Expected June 2030

University of California, Santa Cruz | Santa Cruz, CA September 2023 - June 2025
- **Bachelor of Science in Computer Science (B.S.),** Earned June 2025
- Relevant Coursework: Deep Learning, Machine Learning, Data Structures and Algorithms, Artificial Intelligence, Probability Theory, Analysis of Algorithms
- Scholarships: **University Club, Primm Overcoming Obstacles, HFSV Latinos in Technology, Hazel Reed Burmeister, Alice Kleeman and Joseph Buttral Impact**
- Cumulative GPA: 3.78

Foothill College | Los Altos Hills, CA September 2020 - June 2023
- **Associate of Science in Computer Science (A.S.)**, Earned June 2023
- Relevant Coursework: C++, Java, Statistics, Discrete Math, Linear Algebra, Multivariable Calculus, AWS
- Member of Transfer Honors Program, STEM Tutor, PRE-STEM Program, Science Learning Institute, Project Hacks
- Cumulative GPA: 3.68

Skills & Interests

Skills/Programs: Python, Pandas, SciKit-Learn, PyTorch, HuggingFace, C++, Java, Bash, R, Google Suite, AWS
Interests: Machine Learning, Computer Vision, Robotics, Human-Computer Interaction, Healthcare, Decision Making
Languages: Fluent in English and Spanish
Citizenship: U.S.A

Research Experience

Computer Vision Research Group at University of California, Santa Cruz | Santa Cruz, CA March 2025 - Present
Research Assistant
- Generated Panoramic dataset using GNN SuperGlue based pipeline against traditional openCV SIFT based methods, increasing keypoint detection by ~200% in collaboration with Roberto Manduchi's Computer Vision Lab
- Fine-tuning Panoramic dataset of key UCSC academic buildings for segmentation labeling

Zhang Research Group at University of California, Santa Cruz | Santa Cruz, CA January 2024 - February 2025
Research Intern
- Developed neural network model of electrocatalyst mechanisms to better design renewable battery materials in PyTorch
- Developed and debugged regression model for Hydrogen Evolution Reaction polarization curves given experimental data, shortening experiment time by 4 days per material using SciKit-Learn, and Pandas

Jornada Research Group at Stanford University | Stanford, CA July 2023 - September 2023
Research Intern
- Developed machine learning model for intralayer interactions of TMD material MoS_2 using Python and Bash
- Generated DFT Database using Quantum Espresso, trained and tested model using NeQuiP, and analyzed model using Weights and Biases (W&B)

CpG Group at National Autonomous University of Mexico | Mexico City, Mexico November 2021 - March 2023
Research Intern
- Employed SLiM population genetics simulations using Python and RStudio to test assumptions surrounding selection on synonymous sites

Petrov Group at Stanford University | Stanford, CA June 2019 - December 2020
Research Intern
- Analyzed erroneous Nanopore sequencing data, identifying bacterial DNA strains and evolutionary relationships; leveraged Bash and R for data processing and error correction.
- Attended SLiM UCLA workshop to process evolutionary fitness trends with selection dominance parameters from published Drosophila DNA using Bash and Python languages and employed the use of BLAST to analyze and quantify data

Project and Certification Experience

Muay Tech | Santa Cruz, CA September 2024 - December 2024
Team Lead
- Led a team to develop a high-performance strike classification model for Muay Thai using cutting-edge Vision Language Models, including HuggingFace's VideoMAE and TimeSformer, along with MMAction2 for pose classification.
- Improved baseline accuracy by 7x compared to an LSTM-based StrikeMetric model.
- Presented results to faculty and peers, demonstrating advanced technical skills and leadership in machine learning and computer vision.

wakaWonders | Santa Cruz, CA   March 2024 - June 2024
Participant
- Implemented game agents for Pacman using search, multi-agent, and reinforcement learning algorithms against baseline agent and tournament-style teams based on UC Berkeley AI Pacman Project

Leadership and Community Involvement

Bioinformatics Bootcamp, Connectado Inc.| Virtual   February 2025 - May 2025
Participant

- **Developed technical proficiency in Python, R, and Pandas** for biological data analysis and statistical modeling.
- **Applied molecular biology, genetics, and precision medicine** concepts to analyze genomic, proteomic, and wearable health data.
- **Leveraged bioinformatics software tools and databases** to process and analyze large biological datasets.
- **Gained interdisciplinary expertise** at the intersection of computer science, biology, and data analysis, focusing on bioinformatics applications in healthcare.
- Dedicated 50 hours to technical and career readiness skills through weekly cohort and mentorship sessions, expanded professional networks through faculty mentorship, and enhanced career readiness with a focus on communication and networking.

Introduction to AI Bootcamp, Connectado Inc.| Virtual   September 2024 - December 2024
Participant
- Completed immersive AI Literacy Bootcamp, offered by Conectado Inc. in partnership with the Mark Cuban Foundation, focusing on foundational AI principles, ethical considerations, and applications in industry.
- Dedicated 50 hours to technical and career readiness skills through weekly cohort and mentorship sessions, expanded professional networks through industry mentorship, and enhanced career readiness with a focus on communication and networking.

Lead Classroom Assistant, COSMOS | Santa Cruz, CA   July 2024 - August 2024
Lead CA
- Created classroom materials and led lab sessions in Cluster for Sustainable Energy in solar tracking, machine learning, and alternative energy-powered vehicles

Culivamos Excelencia Research Scholars, University of California Santa Cruz | Santa Cruz, CA   January 2024 - June 2024
Research Scholar
- Carried out an electrocatalyst screening research project in a university lab, received mentorship from PI Mentor and Graduate Student Mentor, and engaged in cohort-based community activities
- Presented research at Research Symposium to peers, mentors, and faculty

SLI Internship Application Support Program, Foothill College | Los Altos Hills, CA   February 2024 - April 2024
Mentor
- Provided mentorship to computer science students at Foothill College, facilitating their professional growth during internships and scholarship programs

Science Learning Institute, Foothill College | Los Altos Hills, CA   February 2023 - September 2023
Student Fellow
- Lead 4+ tabling and community outreach events to increase the visibility of STEM programs to current students
- Collected and analyzed survey data regarding student experience in Foothill STEM classes to present to STEM faculty, administration, and in Foothill Research Symposium Spring 2023

Project Hacks Workshop Program, Foothill College | Los Altos Hills, CA   September 2022 - September 2023
Team Lead
- Organized content and logistics for workshop series on Design Thinking and Project Based Learning in group contexts

PRE-STEM Program, Foothill College | Los Altos Hills, CA   September 2022 - September 2023
Member
- Engaged in biweekly sessions on study skills, career exploration, and networking, focused on supporting underrepresented STEM students.