

KAYLA ROSE HOM

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EDUCATION

University of California - San Diego

M.S. Computer Science, AI/ML and Human-Computer Interaction Specialization

Graduate Women in Computer Science (GradWIC) Outreach Chair, Amazon Women of the World

March 2026

GPA: 4.0

University of California - Davis

B.S. Computer Science and Engineering, Technology Management Minor

Women in Computer Science Co-President, Davis Undergraduate Engineering Network Officer

June 2024

GPA: 3.77

Coursework: Deep Learning, Human-Centered AI, ML Algorithms, ML Data Systems, ML Fairness & Bias, ML for Music, Computer Vision, HCI, HC4H, SWE, Web Development, Data Structures, OOP, OS Systems, Computer Architecture, Networks, Embedded Systems, Statistics

TECHNICAL PROFICIENCIES

- **Language:** Python, C, C++, Java, JavaScript, HTML/CSS, SQL
- **AI/ML:** OpenAI, Ollama, LangChain, LlamaIndex, Hugging Face
- **ML Tools:** PyTorch, TensorFlow, NumPy, Pandas, Scikit-Learn
- **Cloud & Databases:** AWS (Bedrock, EC2, S3), MongoDB, MySQL
- **Web Dev:** ReactJS, React Native, REST APIs, Node.js, Express.js
- **DevOps & OS:** Git, GitHub, Docker, Linux, CI/CD, Jenkins, Jira

PROFESSIONAL EXPERIENCE

Los Alamos National Laboratory – AI/ML Data Infrastructure Intern

Jun 2025 – Present

- Engineered a **multimodal GenAI RAG chatbot** using **Python**, **OpenAI's API**, **Ollama**, and **LlamaIndex** to analyze the Oceans11 dataset
- Designed and deployed a **Gradio-based** frontend and **CLI** for researcher interaction, enabling streamlined model evaluation and deployment
- Built a robust **LLM evaluation** framework with custom Q&A datasets and metrics, improving latency by **47%** and accuracy by **14%**

UC San Diego Health (Project KNOLO) – AI/ML Software Engineer

May 2025 – Present

- Developed a context-aware conversational **AI RAG LLM chatbot** on **AWS Bedrock** and **S3** with agent guardrails for postpartum healthcare
- Built a HIPAA-compliant, secure, user-tested website hosted in **EC2 containers** with **DynamoDB** for chat logs and clinical research data

UC Davis Health – Full-Stack Developer

Jan 2024 – Nov 2024

- Modernized **13,000+** lines of legacy code to deploy a self-administered cognitive screening test using **ReactJS** and **Agile** methodology in **Jira**
- Deployed **AWS** cloud computing using **AWS Amplify**, **DynamoDB**, **AppSync**, **IAM**, and **Route 53**, configuring website API integrations

Mr. Cooper Group – Systems Analyst Intern

Jun 2024 – Aug 2024

- Conducted text **data analysis** on **800+** customer support transcripts to improve real-time agent assistance and call topic categorization
- Led a team of **6** in **data-driven** marketing research resulting in a **\$180K** revenue increase and **15%** reduction in marketing expenses

UC Davis Computer Architecture Lab – Undergraduate Researcher

Jun 2023 – Jun 2024

- Collaborated with a team of **10+** researchers to rigorously evaluate Gem5's accuracy via performance testing and architectural development
- Leveraged **Docker** and Gem5's C++ codebase to configure custom hardware architectures and assess simulation reliability with benchmarks
- Authored **Bash** scripts and customized Berkeley's Chipyard SoC configurations to establish a robust baseline for validating Gem5's accuracy

UCSF Pain Neuromodulation Lab – Software Developer

Jun 2023 – Mar 2024

- Refactored **5000+** lines of legacy code into **ReactJS** and **ReactNative** to build a patient portal for managing surveys and patient data
- Facilitated deployment of the patient website using **Docker** and **AWS Amplify**, coordinating secure data storage with **MongoDB**
- Implemented user authentication with **AWS Cognito**, managing secure access tokens to protect API operations in **JavaScript**

Juni Learning – Computer Science Instructor

May 2022 – Jun 2023

- Delivered **200+** personalized one-on-one computer science lessons to K-12 students in **Python**, **JavaScript**, and **Java**
- Designed tailored lesson plans covering **arrays**, **OOP**, and **data structures** to engage diverse learners and support progress

PROJECTS

Autonomous Vehicle Motion Prediction | ML, Python, PyTorch, Transformers, Attention Mechanisms

Mar 2025 - Jun 2025

- Architected a **deep learning** model leveraging **transformers** and **attention** to predict future vehicle trajectories on the Argoverse 2 dataset
- Optimized loss functions and engineered input features to build an **ensemble averaging model**, achieving top **15%** MSE performance

Jazz Melody Audio Generation | ML, Python, LSTM, RNN, Markov Chains, MIDI Processing

Mar 2025 - Jun 2025

- Built an **LSTM-RNN** sequence model with **embeddings** to generate jazz music from **1000+** MIDI files conditioned on chord progressions
- Evaluated model quality via **cross-entropy loss** and **perplexity**; enhanced musical transitions with **Markov chain** probabilistic augmentation

ByteBoard | JavaScript, HTML/CSS, API, CI/CD Pipeline, Unit Testing, Agile

Sep 2024 - Dec 2024

- Designed a full-stack developer dashboard integrating **GitHub APIs** for issue and pull request tracking following **Agile** methodologies
- Integrated **Jenkins CI/CD** pipelines with **Jest unit tests** and deployed an **LLM-powered** chatbot to assist programmers with coding queries

Cornell SoNIC Computer Vision Research | ML, LLM, Python, PyTorch,

Jun 2024 - Aug 2024

- Fine-tuned the **LLaVA vision-language** model on food images to **reduce hallucinations** and improve model accuracy and trustworthiness
- Augmented a dataset of **1,500+** images, developing an image manipulation pipeline that improved object detection accuracy by **2%**

PNL Survey App & Website | AWS, JavaScript, ReactJS, ReactNative, Node.js, Express.js

Jun 2023 - Mar 2024

- Engineered the backend infrastructure using **Docker** and **AWS** services (**EC2**, **S3**, **Cognito**, and **RDS**) for secure data storage and admin use
- Developed the frontend with **ReactJS** and **ReactNative (iOS & Android)**, featuring authentication, navigation menus, and survey interfaces