KAYLA ROSE HOM

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EDUCATION

University of California - San Diego   March 2026
M.S. Computer Science | AI/ML, HCI, and Human-Centered Design Specialization   GPA: 4.0
Graduate Women in Computer Science (GradWIC) Outreach Chair, Amazon Women of the World

University of California - Davis   June 2024
B.S. Computer Science and Engineering | Technology Management Minor   GPA: 3.77
Women in Computer Science Co-President, Davis Undergraduate Engineering Network Officer

Coursework: Deep Learning, NLP, Machine Learning Algorithms, ML Data Systems, ML Fairness & Bias, ML for Music, HCI, HC4H, SWE, Human-Centered Artificial Intelligence, Computer Vision, Web Development, Data Structures, OOP, OS, Computer Architecture, Networks, Stats

TECHNICAL PROFICIENCIES

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

PROFESSIONAL EXPERIENCES

Los Alamos National Laboratory – *AI/ML Data Infrastructure Intern*   *Jun 2025 – Present*
- Engineered an **end-to-end multimodal GenAI RAG chatbot** using **Python**, **OpenAI's API, Ollama**, and **LlamaIndex** on public datasets
- Deployed a **full-stack Gradio-based** front-end 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
- Partnered **cross-functionally** with clinicians to integrate **AI/ML** models into **cloud infrastructure**, ensuring efficient model integration

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** services (**Amplify**, **DynamoDB**, **AppSync**, **IAM**, **Route 53**), ensuring reliable and secure API integrations

Mr. Cooper Group – *Systems Analyst Intern*   *Jun 2024 – Aug 2024*
- Conducted text **data analysis** on **800+** customer support transcripts, identifying patterns to enhance agent support and call categorization
- Led a team of **6**, coordinating **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 **10+** researchers, applying **problem-solving** to evaluate Gem5's accuracy via performance testing and architectural design
- 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, ensuring an accurate and robust baseline validation for Gem5

UCSF Pain Neuromodulation Lab – *Software Developer*   *Jun 2023 – Mar 2024*
- Refactored **5000+** lines of legacy code to **ReactJS** and **ReactNative**, improving usability, maintainability, and functionality of the patient portal
- Facilitated deployment of the patient website using **Docker** and **AWS Amplify**, coordinating secure data storage and workflows with **MongoDB**
- Implemented user authentication with **AWS Cognito**, managing secure access tokens and ensuring reliable, secure API operations in **JavaScript**

Juni Learning – *Computer Science Instructor*   *May 2022 – Jun 2023*
- Delivered **200+** personalized CS lessons to K-12 students in **Python**, **JavaScript**, and **Java**, adapting explanations for diverse learning styles
- Designed tailored lesson plans on **arrays**, **OOP**, and **data structures** to engage diverse learners and overcome learning challenges

PROJECTS

Autonomous Vehicle Motion Prediction | ML, Python, PyTorch, Transformers, Attention Mechanisms   *Mar 2025 - Jun 2025*
- Architected a **deep machine learning** model leveraging **transformers** and **attention** to predict 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 front-end with **ReactJS** and **ReactNative (iOS & Android)**, featuring authentication, navigation menus, and survey interfaces