KAYLA ROSE HOM

(916)-385-3616 | kayla.r.hom@gmail.com | linkedin.com/in/kayla-hom/ | github.com/kalechip22/

EDUCATION

University of California San Diego January 2026
M.S. Computer Science and Engineering, Human-Centered Design Specialization GPA: 4.0
Graduate Women in Computer Science (GradWIC) Outreach Chair, ACM, 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 in AI, ML Algorithms, ML Data Systems, ML Fairness & Bias,, ML for Music, Computer Vision, HCI, HC4H, SWE Data Structures, OOP, OS Systems, Algorithm Design, Computer Architecture, Computer Networks, Embedded Systems, Statistics, Linear Algebra

TECHNICAL PROFICIENCIES

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

PROFESSIONAL EXPERIENCE

Los Alamos National Laboratory – *AI/ML Data Science Intern* ***Jun 2025 – Present***
- Engineering a **multimodal LLM** chatbot using **Python**, **Ollama**, **LangChain**, and **LlamaIndex** to process the Oceans11 VTK dataset
- Developing a **Gradio/Streamlit** interface and **CI/CD** pipeline with **GitLab** to test performance and deploy models with documented code

UC San Diego Health – *AI/ML Software Engineer* ***May 2025 – Present***
- Prototyping a **LLM**-based **RAG** system using **Python** and **Ollama** to deliver reliable, user-focused postpartum healthcare guidance
- Building a secure, user-tested website with **AWS (EC2, DynamoDB, Amplify)**, emphasizing responsible AI use and verified medical content

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 with **ReactJS** and **Agile** methodology via **Jira**
- Deployed AWS cloud computing with **AWS Amplify**, **AWS AppSync**, **IAM**, and **DynamoDB** and configured website API integrations

Mr. Cooper Group – *Systems Analyst Intern* ***Jun 2024 – Aug 2024***
- Analyzed and organized 800+ customer call transcripts to enhance Agent-Assist Artificial Intelligence (AI) real-time call categorization
- Project managed a team of 6 to research marketing data, increasing annual revenue by $180,000 and reducing marketing costs by 15%

UC Davis Computer Architecture Lab – *Undergraduate Researcher* ***Jun 2023 – Jun 2024***
- Collaborated with a team of 10+ researchers to conduct research on Gem5's accuracy through performance testing and development
- Used **Docker** and Gem5's **C++** code base to configure custom architecture and test simulated hardware's reliability with microbenchmarks
- Developed **Bash** scripts and custom configurations of Berkeley's SOC, Chipyard to create a baseline comparison for Gem5's accuracy

UCSF Pain Neuromodulation Lab – *Software Developer Lead* ***Jun 2023 – Mar 2024***
- Refactored 5000+ lines of code to create a patient and researcher portal to contain surveys and patient data in **ReactJS** and **ReactNative**
- Facilitated the deployment of the patient website through **Docker** and **AWS Amplify** which coordinating its data storage on **MongoDB**
- Implemented a user-login interface with **AWS Cognito** to keep track of users with access tokens to manage API operations in **JavaScript**

Juni Learning – *Computer Science Instructor* ***May 2022 – Jun 2023***
- Taught 200+ curated one-on-one computer science lesson plans to students ranging from elementary to high school
- Instructed 15 students on arrays, object-oriented programming, data structures in **Python**, **JavaScript**, and **Java**

PROJECTS

Autonomous Vehicle Motion Prediction | ML, Python, PyTorch, Transformers, Attention Mechanisms ***Mar 2025 - Jun 2025***
- Constructed a **deep learning** model using **transformers** and **attention** to predict future vehicle trajectories on the Argoverse 2 dataset
- Evaluated multiple loss functions and feature sets to build an **averaging ensemble** achieving top-ranked MSE below 8 on forecasting

Jazz Music Generation | ML, Python, LSTM, RNN, Markov Chains, MIDI Processing ***Mar 2025 - Jun 2025***
- Built an **LSTM** sequence model with **embeddings** to generate jazz music from 1000+ MIDI files conditioned on chord progressions
- Measured performance via **cross-entropy loss** and **perplexity**, enhancing sequence transitions using **Markov chain** augmentation

ByteBoard | JavaScript, HTML/CSS, CI/CD Pipeline, Unit Testing, API, Agile ***Sep 2024 - Dec 2024***
- Designed a full-stack developer dashboard integrating **GitHub API** for issue and PR (pull request) tracking using **Agile** methodology
- 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***
- Conducted **ML** and **deep learning** research to enhance food detection accuracy on the **LLava LLM**, focusing on reducing hallucinations
- Manipulated a dataset of 1,500+ images, developing an image manipulation method that improved object detection accuracy by 2%

PNL Survey App & Website | AWS, JavaScript, ReactJS, ReactNative, Node.js, Express.js ***Jun 2023 - Mar 2024***
- Built up backend using Docker and an AWS pipeline including Amazon Cognito, EC2, S3, and RDS for data storage and admin use
- Constructed frontend of app and website design with ReactJS and ReactNative (iOS & Android) including login, menu, and survey page