Madeline Miller

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EXPERIENCE

Software Engineer I, Argonne National Laboratory June 2025 - Present

- Accomplished accessible scientific data exploration, as measured by streamlined researcher interaction with experimental results, by creating portals for scientists to easily view and analyze their X-ray data.
- Delivered reliable data management for X-ray experiments, as measured by improved accuracy and stability of research workflows, by writing automated tests and debugging APIs that ensured seamless data flow and system integration.

R&D Software and DevOps Intern, Keysight Technologies June 2024 - March 2025

- Developed an image generation system, as measured by successful deployment of customized Windows instances to signal generators, through efficient automation and BIOS configuration management.
- Streamlined the build promotions process, as demonstrated by reduced reliance on executables and enhanced functionalities, by using REST API, Jenkins, JFrog Artifactory, and by building a full stack app.

AI Fellow, JP Morgan Chase Aug. 2024 - Dec. 2024

- Built an AI-driven financial news analysis agent, as assessed by accurate prediction of stock price impacts using NLP, deep learning, and predictive modeling, through effective news summarization and financial sentiment analysis as part of Cornell University's Break Through Tech's AI Studio program.

Vice President for Girls Who Code Club, UC Santa Cruz May 2024 - Dec. 2024

- Successfully hosted a technical workshop with Google engineers that engaged 150+ members and garnered positive feedback, while boosting club membership by 25% through hosting engaging events.

AI/ML Fellow, Cornell University May 2024 - Aug. 2024

- Gained practical experience in analyzing real-world data and developing ML models, as validated by successful projects and mentorship feedback, by engaging with industry experts in the AI/ML field.

Data Structures and Algorithms Tutor & Grader, UC Santa Cruz Apr. 2023 - June 2024

- Mentored ~50 students in C/C++, improving their debugging skills, as measured by increased test case scores, by teaching efficient use of Valgrind/GDB debuggers and explaining in-depth coding strategies.

EDUCATION

Computer Science B.S. - University of California, Santa Cruz Sept. 2021 – March 2025
GPA: 3.9/4.0, Jack Baskin School of Engineering, **Dean's Honors List** (Top 15% of Engineering Class)

PROJECTS

Deep Learning Course Scheduler Sept. 2024 - Dec. 2024

- Reduced manual scheduling time by 60% through developing an AI-driven course scheduling system that integrated RateMyProfessor reviews, prerequisites, and major requirements using deep learning techniques like neural networks, sentiment analysis, and goodness scoring.

NLP-Based Book Recommendation System Sept. 2024 - Dec. 2024

- Decreased book discovery time by 70% by building a recommendation system that utilized data cleaning and tokenization, feature engineering (log ratings, binary encoding, TF-IDF, sentiment analysis), and TF-IDF cosine similarity within a Next.js and FastAPI interface, validated through comparative testing.

Keysight AI-Based Plugin Generation Project Jan. 2024 - June 2024

- Minimized plugin development time by 75% by developing an automated AI-based plugin generation system using a RAG-based approach with Azure, LLMs, **Python**, and LangChain.

Multi-threaded Dining Hall Simulation in C May 2023

- Solved concurrency issues (race conditions) in a dining hall management system, verified through extensive testing, by utilizing mutexes and condition variables to ensure effective synchronization.

Storing Vast Integers in C++ April 2023

- Overcame the issue of not being able to handle very long numbers in C++, as exemplified by efficient storage, by developing a custom linked list data structure to manipulate lengthy numbers.

SKILLS

- Programming Languages: **Python**, **SQL, C**, **C++**, **JavaScript**, **MATLAB**, **Dart**, **RISC-V Assembly**
- Other: Microsoft Azure, LangChain, Flask, LLMs, Flutter, Firebase, HTML, CSS, Git, Bash Scripting, Scrum/Agile, CI/CD, Seaborn, Numpy, Pandas, Scikit-learn, PyTorch, Jira, Confluence, Jenkins, Ansible
- Operating Systems: Linux (Ubuntu), macOS, Windows, Virtual Machines