

Samuel Lain-Hedden

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OBJECTIVE

Motivated computer science student with passion for creative problem-solving and building large-scale systems. Experienced in full-stack development, rapid prototyping, and learning new technologies.

EDUCATION

Michigan State University, College of Engineering- East Lansing, MI
Bachelor of Science, Computer Science Engineering, Minor in Physics

GPA: 3.6 - May 2026

Relevant Coursework:

Data Structures & Algorithms, Linear Algebra, Computer Organization and Architecture, Discrete Math, Calculus 3

SKILLS

Programming Languages: C, C++, Python, Java, TypeScript

Cloud & DevOps: AWS (Lambda, Step Functions, DynamoDB, Cognito, S3, EventBridge, API Gateway, IAM), AWS CDK, Infrastructure as Code, Docker, CI/CD

Machine Learning & AI: PyTorch, RAG, LLMs, Data Generation, Finetuning Models

Data Management: NoSQL (DynamoDB), SQL, Spark

Software Development: Full-Stack Development, System Architecture, Source Control (Git), Design Documentation

Soft Skills: Collaborative Development, Problem Solving, Teamwork

WORK EXPERIENCE

Amazon Web Services - Santa Clara, CA

Software Development Engineering Intern

May 2024 – August 2024

- Designed and implemented an LLM based Synthetic Data Generation Framework using AWS services and Infrastructure as Code (IaC) with AWS CDK.
- Optimized a distributed system to handle 25,000 API calls in 55 minutes, ensuring reliability and real-time processing, preventing rate limiting through batch processing and multithreading.
- Managed full-stack development (Python backend, React frontend, and TypeScript for IaC), managing 3 packages and a CI/CD pipeline while collaborating with leadership from 5 teams to gather user requirements and feedback, demonstrating strong teamwork and communication skills.
- Developed advanced question generation techniques to enhance data generation capabilities, supporting Classification, Summarization, and Q&A tasks.

PROJECTS

Fine-Tuned Problem Generator – Python

- Fine-tuned LLaMA 3 - 8B locally to generate practice exam questions tailored for the CSE 232 C++ course.
- Developed a curated dataset of high-quality examples to improve model accuracy, focusing on specific problem types and difficulty levels for C++ exams.
- Applied various fine-tuning techniques to optimize model performance, ensuring the generated practice problems effectively served as study materials.

Terrain Generator – C

- Implemented a 2D terrain generator using Perlin noise in C to produce dynamic, realistic terrain features.
- Built an OpenGL-based rendering pipeline, leveraging shaders for efficient visualization and real-time terrain adjustments, such as altering frequency, amplitude, and octaves of the Perlin noise.
- Optimized noise generation using low-level memory management techniques and data structures to ensure smooth real-time terrain interaction.

CERTIFICATES

Machine Learning Specialization – DeepLearning.AI, Stanford University