Samuel Lain Hedden

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Technical Skills

Programming: Python, Java, C, C++
Cloud/Infra: AWS (Lambda, Step Functions, DynamoDB, Cognito, S3, EventBridge, API Gateway, IAM), AWS CDK, IaC, Docker, CI/CD
ML/AI: LLMs, RAG, Fine-tuning (LoRA), Multi-Agent Systems, MCP
Data: SQL, Time-Series DBs, NoSQL
Web: React, Node.js, HTML, CSS

Education

Michigan State University, College of Engineering — East Lansing, MI
B.S. in Computer Science Engineering — GPA: 3.7 — *May 2026*

Experience

Amazon Web Services — Agentic AI Team — Santa Clara, CA
Research Engineering Intern — *May 2025 – Aug. 2025*

- Completed an independent research project investigating a novel problem regarding observability in LLM Agents within a Multi Agent System.
- Built a 15-agent simulation with memory for long-horizon runs and implemented multiple detection approaches to compare noise and precision.
- Deployed on AWS with CDK and CI/CD using API Gateway, Lambda, ECS, S3, SageMaker, and Step Functions.

Amazon Web Services — Bedrock Team — Santa Clara, CA
Software Development Engineering Intern — *May 2024 – Aug. 2024*

- Architected a synthetic-data generation framework on Step Functions, Lambda, and DynamoDB; produced 5,000 labeled rows (25,000 API calls) in under 55 minutes with zero rate-limit errors.
- Delivered end-to-end IaC with AWS CDK (TypeScript) and a React UI; onboarded 4 teams and cut per-dataset setup time from days to under 1 hour.
- Added task types (Q&A, Classification, Summarization) with queue-based multithreading and exponential backoff for reliability.

Projects

Ensemble — Coding Development Tool (Best Dev Tool, MHacks 2024) — *Python, FastAPI*

- Developer tool that turns high-level feature requests into code via a dynamic multi-agent framework (planner, writer, tester, reviewer) with tool-calling and shared memory.
- Produces implementation-ready outputs in an isolated workspace with self-review and eval hooks; live demo showed $\sim$10$\times$ faster prototyping vs. manual baseline.

Desktop & Game Assistant — Cross-Platform AI Assistant — *Electron, FastAPI, Python, RAG*

- Desktop assistant that analyzes real-time screen capture and local context to deliver in-game and coding help; retrieval-augmented responses, session history, and a plugin-style tool system.

Terrain Generator — Procedural Worldbuilder — *C, Perlin Noise, OpenGL*

- 2D Perlin noise and heightmap generation with an interactive OpenGL renderer for real-time visualization and terrain edits (brush/parameter controls).

Certificates

Machine Learning Specialization — DeepLearning.AI (Stanford University)