

Lyhorng Heng

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Education

Mississippi Christian University	B.S. Computer Science and B.S. Mathematics • GPA 3.66/4.00
Computer Science and Mathematics	Clinton, MS • August 2025 – May 2029

Projects

<u>Secure Python CTF Engine</u>	June 2026 – June 2026
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- Engineered an interactive application-security platform that safely executes and grades untrusted user-submitted Python code in real time.
- **Won the Excellent Award at the CS4Everyone:** Build with Python Hackathon by successfully mitigating malicious module imports and infinite-loop DoS attacks.
- Built a containerless two-layer sandbox and a relational leaderboard using FastAPI, SQLAlchemy/SQLite, vanilla JavaScript, and a custom AST static analyzer.

<u>Agent Operations Center WebMCP Challenge</u>	August 2026 – September 2026
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- Built a web-based incident-response control center where an AI agent investigates production-style incidents and proposes remediation for human approval.
- Enabled evidence-based root-cause diagnosis by correlating service metrics, deployment history, dependencies, and logs, with recovery verification after approved actions.
- Implemented nine WebMCP tools using Next.js, React, and TypeScript, with argument validation and single-use execution safeguards.

<u>FreshGuard-Agent DataHub Agent Hackathon</u>	August 2026 – August 2026
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- Developed an autonomous AI agent that discovers stale data pipelines, traces root causes through DataHub lineage, and automatically files native incidents.
- Alerted downstream consumers to silent pipeline failures by auto-generating native DataHub incidents, and contributed this LangChain tool upstream to DataHub's official MCP server to patch a false-success bug.
- Executed the LangChain reasoning loop on a local Qwen model using Ollama, keeping all catalog metadata securely on-machine with zero external API calls.

<u>Math 12 - Khmer Grade 12 Math Practice Web</u>	June 2026 – July 2026
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- Architected a full-stack web application generating Khmer-language Grade 12 math exercises with AI-authored step-by-step solutions, rendering LaTeX and interactive graphs via MathJax.
- Delivered an interactive learning environment featuring an embedded AI explainer chatbot, robust progress tracking, and a comprehensive admin dashboard for student analytics and moderation.
- Built a Node.js/Express REST backend on Supabase (PostgreSQL), securely integrating the Google Gemini API behind a rate-limited, server-side prompt layer with JWT and Google OAuth.

Skills

Language	Framework & Tools
Python, Java, JavaScript, TypeScript, HTML/CSS	React, Next.js, Node.js, Express.js, FastAPI, Supabase, Git, PostgreSQL, SQLite, LangChain, Ollama, WebMCP