Henry Moran

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EDUCATION

University of Houston Houston, TX
Bachelor of Science in Computer Science *Aug. 2024 – Dec. 2025*

Lone Star College Tomball, TX
Associate of Science *Aug. 2020 – May 2024*

EXPERIENCE

Software Engineering Intern Aug. 2025 – Feb. 2026
Global Dynamic Solutions *Remote*
- Designed and deployed an agentic AI sales assistant for construction contractors using LangChain, LlamaIndex, and FastAPI.
- Integrated external tools (cost estimation, lead intake, scheduling, building-code retrieval) into an AI agent capable of reasoning and structured decision-making.
- Developed a local development environment with `uvicorn`, Python virtual environments, and a PHP frontend for real-time chat interaction with the AI backend.
- Implemented secure environment configuration via `.env`, supporting multiple model providers (DeepSeek, OpenAI, Ollama).
- Collaborated on deployment scripts and automated setup, ensuring reproducibility for teammates.

Undergraduate Research Assistant May 2025 – Aug. 2025
University of Houston *Houston, TX*
- Collaborated with a PhD candidate to design and evaluate real-time scheduling experiments for mixed-criticality traffic intersections.
- Created Python scripts to automate SUMO/TraCI simulations and data collection to reduce analysis time.
- Proposed and led an independent project on adaptive deadline assignment; presented findings at weekly lab meetings.

PROJECTS

Personal Portfolio Website *(HTML, JavaScript, PHP, Apache, MariaDB)* May 2025 – Present
- Developed a full-stack portfolio site hosted on a home Apache server with a MariaDB backend.
- Implemented dynamic content management to showcase projects, skills, and blog posts with responsive design for desktop and mobile.
- Configured and secured the LAMP stack on a local RHEL machine, optimizing database queries and server performance.

Deadline- and Priority-Based Traffic Signal Control *(Python, TraCI, SUMO)* Spring 2025
- Implemented EDF and FP controllers in Python with SUMO/TraCI, modeling a four-way junction with three vehicle priority levels.
- Enforced minimum-green intervals; achieved EDF miss rates of 21.8–38.6%.

LU-Dense Solver in CUDA *(CUDA C/C++, cuBLAS)* Spring 2025
- Ported serial LU decomposition to CUDA using shared-memory tiling and cuBLAS, achieving a $41\times$ speedup (2.97 s) on a 5000×5000 system.
- Benchmarked across matrix sizes; analyzed trade-offs in memory bandwidth and kernel overhead.

TECHNICAL SKILLS

Languages: C, C++, Python, Java, JavaScript, PHP, Lua, R
Web/Backend: FastAPI, Flask, Node.js, LAMP/Apache
AI/Data: LangChain, LlamaIndex, pandas, NumPy, Matplotlib
Systems: CUDA C/C++, cuBLAS, SUMO/TraCI, real-time scheduling
Databases: MySQL/MariaDB, PostgreSQL
Tools: Git, Docker, TravisCI, Azure Web Apps, AWS, GCP, Linux (RHEL, Fedora, Ubuntu), Vim, VS Code