

Yuanlai (Lyle) He

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Education

McMaster University	Sep 2023 – Dec 2025 (Expected)
M.Eng. in Systems and Technology, GPA 4.0/4.0, 4-12 months Co-op	Hamilton, ON, Canada
Beijing Jiaotong University	Sep 2017 – Jun 2021
B.Eng. in Computer Science and Technology, Major GPA 3.42/4.0	Beijing, China

Work Experience

Ford Motor Company	Sep 2024 – Aug 2025
Networking Software Development Intern — C/C++, Linux/QNX, Embedded Networking	Ottawa, ON, Canada
- Resolved 100+ verified defects (Jira) across Connectivity Manager and related ECUs; reproduced, triaged, and patched C++ concurrency issues (thread pools, pub/sub) to stabilize soak tests under production-like loads and reduce latency. - Delivered 10+ stories end-to-end within sprints, collaborating with senior engineers on design reviews and rollouts. - Refactored timing logic to an event-driven approach, reducing CPU wake-ups and improving runtime efficiency. - Performed gdb core-dump analysis to trace crashes to root cause, isolating code paths and unblocking fixes. - Set up the Linux/QNX dev environment and wrote BitBake recipes for test agents; fixed C++ build issues, added VS Code launch/debug configs, and maintained recipes—cutting on-bench validation time by 40%. - Automated quality checks (CodeChecker, coverage, cppcheck); added unit-tests/PlantUML, raising coverage 85→90%.	

LABonWEB	Jan 2024 – Apr 2024
Software Development Intern; Javascript, HTML/CSS, React, Next.js, TypeScript, Python, LLMs	Toronto, ON, Canada
Spearheaded the development of an AI assistant for a web-based lab simulation platform using Large Language Models (such as Llama3), JavaScript, React, and Next.js, which reduced manual input errors by 25%.	

Changan Automobile	Aug 2021 – Jul 2023
Software Engineer; Swift, Linux, Objective-C, UIKit, CocoaPod, MQTT, Python, Django, Flask	Chongqing, China
- Managed and improved the Python Django microservice architecture for the mobile app Question-Answer system. - Collaborated with DevOps team to strategize and execute service migration and redeployment to upgraded servers. - Integrated TestFlight for beta/crash analytics; cut bug resolution from 2 days to 1 hour. - Implemented an innovative iOS interface for a car self-parking system using Swift, UIKit, Alamofire, live video streaming and a web-based dynamic 3D car model and map, enabling real-time car parking control and monitoring. - Co-led iOS refactor/componentization; cut code 10%, sped 3rd-party integration, improved reuse/maintainability.	

Institute of Network Science and Intelligent Systems, Beijing Jiaotong University	Aug 2020 – Jul 2021
Application Research Assistant; Java, Linux, MySQL, Redis, JSP, Tomcat, MVC, Git, HTML/CSS	Beijing, China
- Developed a Literature Management and Forum System for academic research, enabling users to manage and share academic papers and discuss research topics for a team of 20+ researchers, reducing paper management time by 50%. - Reduced the latency by 32% when accessing the system by utilizing a Redis cache layer for frequently-used contents. Dockerized services and deployed on a cluster for 24/7 multi-user uptime; authored setup/architecture docs.	

Projects

AI-Powered Flashcard Learning System (iOS • RAG • IoT)	Nov 2024 – Apr 2025
Swift, SwiftUI, Python (FastAPI), PyTorch/Transformers, LlamaIndex, LangChain, Firebase, AWS, Raspberry Pi, MQTT	
- Shipped an iOS app that auto-generates flashcards from notes/PDFs using Retrieval-Augmented Generation (chunking, embeddings retrieval, LLM reformatting) for spaced-repetition study and targeted mastery progress tracking. - Built backend in Python on AWS (FastAPI, PyTorch/Transformers) and integrated Firebase for auth and real-time sync. - Added IoT progress display: Raspberry Pi pulls metrics from cloud via MQTT to show cards completed vs. remaining.	