Yuanlai (Lyle) He

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Education

McMaster University	Sep 2023 – May 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 – Apr 2025

Software Development Intern; C/C++, Linux/QNX, Ethernet link, IP layers   *Ottawa, ON, Canada*

- Developing networking software for next-generation connected vehicles using C/C++ on QNX and Linux platforms.
- Working with lower-layer protocols to build scalable frameworks for in-vehicle applications and services.
- Troubleshooting Ethernet link and IP layers. Scripting with Python and shell scripting for automation tasks.

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%**.
- Designed and implemented comprehensive unit and integration tests, reducing bug rates by **20%** over previous iterations.

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.
- Optimized the **iOS APP development** process by integrating TestFlight for beta testing and **crash analysis**, reducing bug resolution time from **2** days to **1** hour, enhancing team collaboration, and elevating testing quality.
- 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.
- Collaborated on an **iOS APP refactoring** and **componentization**, achieving a **10%** codebase reduction, faster third-party library integration, improved code reusability and maintainability, and introduced unit and integration testing.
- Mastered **WebKit** to seamlessly integrate web-based pages with iOS native applications, enhancing app functionality.

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** all services and deployed the system on the cluster to **secure stability** and serve multiple users **24/7**.
- Wrote detailed documentation of **40+** about the environment setup, system architecture, and user manual for a team.

Projects

Better Sleep iOS Application with the Internet of Things (IoT)   Sep 2023 – Nov 2023

Swift, UIKit, MQTT, Google Firebase, Arduino, Adafruit, Google Cloud Run, Cloud Pub/Sub

- Developed a sleep environment monitoring **iOS dashboard APP** and IoT system for **real-time MQTT-based** dehumidifier controlling using **Swift**, **UIKit**, **Charts**, **Google Firebase**, and **Arduino**.
- Utilized **Google Firebase** for **secure authentication** and data storage, boosting app functionality and user experience.