Lingjie (Larry) Li

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TECHNICAL SKILLS

- **Programming Languages:** C, C++, Python, Java, JavaScript/TypeScript, SQL, HTML/CSS
- **Systems & Networking:** Linux (Debian), TCP/IP, IP Networking, Distributed Systems, Embedded Systems, BIOS, RTOS
- **Tools & Platforms:** Git, Docker, Postman, HDFS, AWS, Google Cloud Platform, Kubernetes
- **Testing & Performance:** Test Plan Design, Protocol Debugging, Performance Profiling, Logging Tools
- **Web Development:** React.js, Node.js, Express.js, Flask, RESTful APIs, MongoDB

PROFESSIONAL EXPERIENCE

iSmartWays Technology Inc. Edmonton, AB
Embedded Software Engineer Intern May 2023 – Aug. 2023

- Executed **system-level** testing for V2X communication protocols including Forward Collision Warning (FCW) and Blind Spot Warning (BSW), contributing to platform reliability and functional correctness.
- Conducted **low-level** performance profiling and resource monitoring (e.g., memory and network usage) to diagnose communication latency and recommend optimizations.
- Designed and analyzed **TCP/IP**-based communication protocols between MEC (Multi-access Edge Computing) and RSU, improving reliability and throughput in real-time V2I systems.
- Designed and documented **C-based** data packet structures for MEC–RSU communication, using **field offsets**, **checksums**, and **error-handling** logic to ensure reliable integration, and validated protocol integrity with Wireshark and custom logging tools to detect packet loss and bottlenecks.
- Delivered a UPER encoder/decoder in C for ASN.1 message processing, optimizing embedded software efficiency and message compliance.

HackHub Vancouver, BC
Full-Stack Developer Intern (MarketBay Bootcamp Project – [Live Demo: http://3.93.45.172/]) Aug. 2024 – Jan. 2025

- Completed a full-time software engineering bootcamp at HackHub, emphasizing industry-grade full-stack development and **agile** collaboration.
- Engineered a responsive **React.js** frontend featuring dynamic product listings, secure user authentication, and an intuitive user experience.
- Built and maintained a scalable **RESTful** API with **Express.js** and **Node.js**, enabling user management, product workflows, and a custom buyer-seller offer system using MongoDB Atlas and Mongoose.
- Deployed the frontend to **AWS S3** and the backend to **AWS EC2**, ensuring high availability, scalability, and CI/CD-friendly deployment workflows.
- Integrated real-time communication with **Socket.io**, enabling instant chat between buyers and sellers to enhance user engagement and negotiation flow.

PROJECT EXPERIENCE

Scalable Data Analysis and Predictive Modeling for E-commerce **(Python, Data Science, Machine Learning, HDFS, Cloud Computing)** Oct. 2024 – Dec. 2024

- Developed and optimized cloud-based data pipelines using **AWS EC2** and **HDFS** for efficient large-scale data processing.
- Conducted data exploration, sentiment analysis, and predictive modeling on customer reviews, achieving 77.11% accuracy for rating prediction and 84.21% for category classification using **NLP**, **Random Forest**, and a fine-tuned BART model.

Gatekeeper Insights **(Embedded Systems Development, Hardware-Software Integration, C Programming, IoT Protocols)** Jan. 2024 – Apr. 2024

- Developed an embedded **customer traffic monitoring system** in **C** programming to track real-time store occupancy and analyze traffic trends.
- Integrated **BeagleBone Green (Debian Linux)** and **Arduino** to manage sensor input and peripheral control, including motion sensors, laser-photocell setups, MCP9808 temperature sensors, NeoPixel LEDs (**PRU**), and displays, by programming **C-based drivers** for reliable hardware interaction.
- Implemented **UDP-based data transmission in C**, sending **real-time** occupancy data to a **JavaScript (Node.js) web dashboard**, with **IndexedDB** for storage and visualization.
- Designed **joystick-controlled mode switching in C**, toggling between **People Count, Temperature, and Smile modes**, displayed on an **8x8 LED matrix**, while configuring the **14-segment display (I2C GPIO)** for **occupancy count** and the **4-digit Grove display** for **current time**.

EXTRACURRICULAR EXPERIENCE

Computer Science Teaching Assistance (System Programming) Burnaby, BC
Simon Fraser University Dec. 2024 - Present

- Assisting in a **UNIX-based** systems programming course covering topics such as process/thread management, memory allocation, inter-process communication (IPC), and OS-level security.
- Help students debug **C/C++** programs that interact directly with the OS via syscalls, command-line tools, and multithreading constructs.
- Lead labs and office hours focusing on practical skills in **Linux** environments, GDB, fork(), pipes, and shared memory

EDUCATION

Simon Fraser University Burnaby, BC
Master of Professional Computing Science in Big Data Sept. 2024 - Present
Bachelor of Science in Computing Science Sept. 2019 – Aug. 2024