# Lingjie (Larry) Li

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## TECHNICAL SKILLS

- **Programming Languages:** Python, C, C++, Java, JavaScript/TypeScript, HTML, CSS, SQL
- **Operating Systems & Networking:** Linux, Computer Networks, Distributed Systems, Embedded Systems
- **Data & Cloud Technologies:** HDFS, Pytorch, AWS, Google Cloud Platform, Docker, Kubernetes
- **Web Development:** Express.js, React.js, Node.js, REST API, Flask, MongoDB, PostgreSQL, Postman

## PROFESSIONAL EXPERIENCE

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

- Participated in **V2X scenario testing**, validating critical safety features such as Forward Collision Warning (FCW) and Blind Spot Warning (BSW) to improve vehicle communication reliability.
- Helped design communication protocols between MEC (Multi-access Edge Computing) and RSU over **TCP/IP**, enhancing **real-time** data transmission in vehicle-to-infrastructure (V2I) systems.
- Designed and documented **C-based** data packet structures for MEC–RSU communication, specifying field offsets, checksums, and error-handling logic to support reliable message exchange and system integration
- Developed a UPER encoder/decoder in **C** for efficient processing of ASN.1 message sets, improving the performance of V2X communication protocols.

**HackHub** Vancouver, BC
**Full-Stack Developer Intern** (MarketBay Bootcamp Project – [Live Demo: http://3.93.45.172/]) October - December 2024

● 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.
● Deployed the frontend to **AWS S3** and the backend to **AWS EC2**, ensuring high availability, scalability, and CI/CD-friendly deployment workflows.
● Designed and managed data models using MongoDB Atlas and Mongoose, supporting efficient and reliable CRUD operations across users, products, and transactions.
● 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)** October - December 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.
- Built and deployed a scalable web application with Next.js and FastAPI, featuring interactive visualizations and **real-time predictions**, hosted on **AWS**.

**Gatekeeper Insights** **(Embedded Systems Development, Hardware-Software Integration, C Programming, IoT Protocols)** March - April 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** Burnaby, BC
Simon Fraser University December 2024 - Present

- Assisted students in grasping fundamental computer science topics, including algorithms, data structures, object-oriented programming, and memory management, while providing support for assignments and debugging.
- Responsibilities included supervising exams, grading assignments, and providing guidance during lab sessions and office hours.

## EDUCATION

**Simon Fraser University** Burnaby, BC
*Master of Professional Computing Science in Big Data* September 2024 - Present
*Bachelor of Science in Computing Science* September 2019 - August 2024