UBC Science Co-op

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Luke Lu

Major in Computer Science, Fourth Year

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Technical Skills

- Languages:
  - C#, Java, C++, Python, JavaScript, HTML/CSS, SQL (SQL Server, Oracle, SQLite)
- Platforms/Frameworks/Architectures:
  - .NET/ASP.NET Core, React.js, Node.js, Express.js, JUnit, GNU (GDB), MVC, REST
- Technologies/APIs:
  - Git/GitHub, Docker, SSRS, Unix (Linux, Mac), JDBC, Ollama, OpenAI

Work Experience

JAN 2025 – PRESENT
Full Stack Software Developer (Android Platform) – Canadian Nuclear Laboratories
Tech stack: TBD

- Leading the implementation and assisting in the design of a secure high-availability fault-tolerant android platform that will be the next evolution of our existing sitewide facility readings & inspections system. Expecting to deliver a cutting-edge end-product that is consistent with CNL's record of technical innovation while becoming an adept android development in the process.
- Continuing to support development of ongoing software projects, with a focus on delivering new high-priority features to our clients.

MAY 2024 – DEC 2024 (Contractor) | SEPT 2023 – APR 2024 (Co-Op)
Full Stack Software Developer (Web & Database Systems) – Canadian Nuclear Laboratories
Tech Stack: ASP.NET CORE, C#, JavaScript, HTML/CSS, MS SQL Server, SSRS

- Revamped user experience by overhauling the Fleet Management web platform to include enhanced graphics, responsiveness, and search functionalities. Decreased time required to query/modify fleet records by over 50%.
- Streamlined reporting services by altering database schema to support report-oriented tables. Reduced lines-of-code for reporting queries by >30% and stored procedure execution times by >50%.
- Spearheaded the implementation of enhanced maintenance tracking features to the Fleet Management project, seamlessly automating the tracking and scheduling of all required maintenance over any timeframe. Reduced missed required maintenance by approximately 95%.
- Enhanced the integrity of our data pipeline for numerous projects by normalizing databases and implementing additional client and server-side input processing and validation. Eliminated all data anomalies in the affected projects.
- Automated segments of our clients' workflow through stored procedures and SSRS reports. Introduced live data analytics to the Fleet Management homepage and on-demand reporting. Reduced error margin of frequently requested reports by >75% and saved in excess of 300 work hours throughout the organization.
- Modernized numerous projects running on depreciated versions of the .NET framework, ensuring continued security, performance, and maintainability into the future.

Recent Software Projects

SUMMER 2024
LLM Code Interpreter – React/Express.js, JavaScript, HTML/CSS, SQLite, Docker, Ollama
https://github.com/LukeL0000/LLMCodeInterpreter

- Implemented a database and LLM-Driven React/Express.js web application designed to aid students in code comprehension.
- Spearheaded the creation of a separate JavaScript back-end API Service to seamlessly integrate database and Gen-AI (LLM) functionality into the client-side user experience.
- Utilized open-source large language models from Ollama to generate working code based on user prompts. Ensured consistency through extensive prompt engineering and output parsing.
- Containerized and deployed locally using Docker for maximum device compatibility. Attempted storing to AWS ECR and hosting on AWS ECS.

SUMMER 2023
Trip Organizer – Java, JDBC, Oracle Database, JavaFX
https://github.com/LukeL0000/TripManager

- Developed a comprehensive database-driven solution for finding, organizing, and recording trips of various natures using Java and a JDBC-linked Oracle Database.
- Created a simple front-end JavaFX GUI that delivers a reliable user experience integrating effectively into the Java back-end that accesses an Oracle Database via JDBC.
- Enforced consistent logic for trip organization through entity relationships and column constraints, empowering the user with relevant information for organizing the best trips that they desire.

SPRING 2023
Programming Assignments – C GNU (GDB)

- Implemented an image scrambler and unscrambler, maze generator and solver, and image compression program in C++ as part of an algorithms and data structures course.
- Optimized program efficiency using a variety of data structures and search algorithms including arbitrary arity trees, graphs, depth-first search, and linked lists.
- Used various libraries and technologies including GDB for PNG image support and debugging.

Education

SEPT 2021 – MAY 2026 (EXPECTED)
Bachelor of Science, majoring in Computer Science – University of British Columbia
GPA: 3.85 | 83%