Gavin Wang

Computer Science, Combinatorics and Optimization · 3B

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Skills

Languages: C++, C, Scala, Python, Bash, JavaScript, HTML, CSS, R, Racket, SQL
Technologies: Jira, Jenkins, Git, MySQL, MongoDB, POSTMAN, AWS, Vim
Frameworks/Technologies: STL, React, Node.js, Express.js, Flask, Mongoose

Work Experience

Software Engineer (Incoming)

Toronto, Ontario

Huawei Technologies Canada Co., Ltd

September 2023 - December 2023

- Design, develop **distributed data system** for the next-generation data analytics
- Implement optimization of software system performance

Software Engineer

Ottawa, Ontario

Ford Motor Company

June 2023 - April 2023

- Participated in the building of **networking software** involving lower layer protocol concepts as part of Connectivity Manager team to provide a scalable distributed framework used by applications on various modules in the vehicle network
- Implemented a debugging interface and wrote Unit Test using **GTest** framework and increased the code coverage by **5%**
- Improved test runtime by **15%** by using **RAII**, move semantics, and **STL** containers/algorithms
- Resolved 20+ tickets on **Jira** platform in **C++** regarding ECU cellular/WiFi interfaces, intent processing, and WLAN services

Fintech Digital Marketing

Waterloo, Ontario

University of Waterloo

May 2022 - August 2022

- Implemented **marketing strategies** through advertising the affiliate program, and learned about the **SEM** and **SEO** marketing
- Collected and created a list of financial bloggers with data of their web page's **authority score**

Projects

Scala Compiler

Scala, MIPS, IntelliJ IDEA

- Developed a compiler for a subset of **Scala** to **MIPS** assembly, supporting **closures** and **tail recursion optimization**
- Implemented the stack allocation, and heap allocation for closures with Cheney's copying **garbage collector**
- Wrote a maximal munch scanner, a CYK parser, and an Earley's recognizer to tokenize the source code to generate the parse tree for **type verification** and compilation

Chess

C++, Vim, XWindow

- Developed a **MVC** architecture with graphical display written in C++ running on Linux OS which supports basics rules such as pawn promotion, castling, king check, etc
- Implemented features that allow players to **undo** and **redo** their moves using a vector container in Game controller class, and to customize the chess board with the forced rules being checked
- Created **AI** with 4 different levels, and allows each player to be either human or computer
- Used **Factory Method** design pattern to manage the moves of different chess pieces

Phonebook

JavaScript, React, Node.js, Express.js, MySQL

- Developed a **JavaScript** web application that manages people's contact information.
- Implemented the frontend using **React** that enable users to perform **CRUD** and filter operations to the list of contacts
- Connected the frontend to backend using **Axios** library, and connected backend to local database managed by **MySQL**
- Created backend using **Node.js** and **Express.js** that provides a **RESTful** API to frontend, and tested the API with Postman

Education

University of Waterloo

Waterloo, Ontario

Bachelor of Mathematics

September 2020 - May 2025

- **Majors:** Computer Science, Combinatorics and Optimization
- **Coursework:** Data Structures (97%), Algorithms, Operating Systems, Obeject-Oriented Programming (91%), Computer Organization and Design (94%), Compilers (98%), Graph Theory, Real Analysis, Probability (94%), Optimization (93%)
- **Scholarships:** University of Waterloo President's Scholarship ($2000), Elie and Doris Albers Scholarship ($2000)