HAIFAN WANG   ✉ rayking2017@outlook.com   in www.linkedin.com/in/wanghaifan

Academic & Skills

Bachelor of Computer Science   🎓University of Waterloo   📅Sep. 2019 – Aug. 2023   4 scholarships with over $13,500

Programming Languages: C/C++, Python, JavaScript, Node.js, Java, SQL, MySQL, Bash, Kotlin, R, LaTeX

Technical Skills: Linux, git, AWS (Lambda, S3, DynamoDB, EC2, API Gateway, Route 53, EFS), CMake, IntelliJ IDEA, JavaFX, Gradle, TensorFlow, Google Stack

- Bronze Medalists of Canadian Computing Olympiad 2018 and ranked #15 in Canada, which is used to select the Canadian National Team for International Olympiad in Informatics (IOI). Demonstrated extremely strong understanding of algorithms and data structures.
- Ranked #82 in Canada in Canadian Senior Math Contest 2018, which is used to select the Canadian Math National Team.

Work Experience

Software Developer   `C++` `git` `Java`   📍Google (Montréal, Québec, Canada)   📅 May. 2022 – Aug. 2022

- Built a new Chrome Enterprise reporting connector to report crashes in the browser. Investigated how crashes are handled from the massive Chrome codebase. With an innovation mindset, deftly worked around issues that cropped up due to the infeasibility of the project initial design. The project was complex and challenging due to the little visibility into the architecture details of other parts in Chrome.
- Implemented crash event generation and reporting in Chrome browser using C++, including atomic file operations, multithreading, observer pattern, build dependency and communicating with the database. It demonstrated a thorough understanding of concurrency and multithreading as well as quickly grasping how it works in the context of Chrome's lock-free architecture. commit link: https://chromium-review.googlesource.com/c/chromium/src/+/3814112. Implemented server-side event parsing, unit testing, writing to the database and displaying events on Google's management and analysis tools using Java.
- Collaborated cross-functionally with another team to collect information and gather relevant insights. Prepared a detailed design document and hosted a design review session to collect feedback.
- Identified a launch-blocking bug throughout the responsibility of identifying and fixing critical bugs. Reviewed others' code and left insightful comments. Made community contributions to improve Google's documents.

Cloud Software Engineering   `AWS` `Node.js` `C++`   📍Mixonset Inc. (Montréal, Québec, Canada)   📅May. 2021 – Dec. 2021

- Unilaterally developed Mixonset's all cloud infrastructure from the ground up. Without any prior experience, quickly ramped up cloud development and built a robust infrastructure within the short project time constraints.
- Developed APIs and their back-end Node.js AWS Lambda functions that can handle complex requests, manage multiple DynamoDB cloud databases and automatically scale up to create new tables. The APIs have received billions of requests.
- Invented a new method for establishing a globally distributed S3 file system two months before AWS officially built a similar product called S3 Multi-Region Access Points. In comparison, my method accelerates performance by 70% on average (AWS' is up to 60%) and it costs $0.5 per month (AWS' is $0.0033 per GB or $50 per month). The file system stores over two million files and has received hundreds of millions of API requests.
- Set up EC2 Linux virtual machines for managing EFS file systems and compilation environments of AWS C++ runtime Lambda, which required using CMake. Also designed and implemented multi-layer machine learning AWS Lambda functions with EFS file systems in different languages (C++ and Node.js).

Advanced Wireless Systems Engineering   `TensorFlow` `Python`   📍Huawei Canada Research Lab   📅Sep. 2020 – Dec. 2020

- Implemented GPU-based Python machine learning algorithms for 5G and future 6G wireless communications, which includes customizing loss functions and regularizers in neural networks, constructing subclasses of TensorFlow, and generating and labeling testing data.
- Enforced the orthogonality and unit modulus constraints on the weight matrices, and unit absolute value constraints on the hidden layers of autoencoders in the field of complex numbers through various mathematical approaches.
- Collected and analyzed results from neural networks. Remotely and efficiently presented them to colleagues with self-explanatory graphs. Thoroughly documented the process in a formal technical report.

Projects

Note Taking App: Devote   `Kotlin` `MySQL` `git` `JavaFX` `IntelliJ IDEA` `Gradle`   📅Jan. 2022 – Apr. 2022   ⓞ12958954/devote

- Team project of a desktop note taking application in an agile product development environment, including stand up meetings, regular sprint planning and project demonstration. It used GitLab for project source control, JUnit for unit testing and Gradle to build this JavaFX project in IntelliJ IDEA.
- Created the database layer including using MySQL Connector/J (JDBC driver) in Kotlin, built notes and folder structure using JavaFX libraries and OOP concepts as well as set up the unit testing environment for the team.