Michael Dai

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Skills

Languages C++, Python, Java, C, R, Scheme

Frameworks Git, Bash, PowerShell, Vim, Visual Studio, Amazon Web Services, Google Protocol Buffers, GDB, gMock, Keras, MySQL, Flask, Docker, Confluence, SonarQube, JIRA, Jenkins

Experience

Ford Motor Company — *Ottawa, ON*

Software Infrastructure Developer — *May 2019 - Aug. 2019*

- Developed SOA Middleware in C++, a set of frameworks and services that enables complex applications to be deployed and executed in the vehicle.
- Introduced the singleton and factory method design patterns as to reduce code footprint and increase modularity.
- Enhanced code dealing with Google Protocol Buffers to have up to 90% increased efficiency in transmitting information.
- Fixed critical defects involving race conditions by debugging with GDB to increase stability of code.
- Created functional tests and unit tests using GMock with 100% code coverage to prevent regressions.
- Worked in an Agile environment with the project management software JIRA and attended daily stand-up meetings.

Ford Motor Company — *Ottawa, ON*

Embedded Software Developer — *Sept. 2018 - Dec. 2018*

- Developed Bash and Shell scripts that use Android Debugging Bridge to configure and load builds onto various target devices which allowed for fully automated sanity tests.
- Wrote Java scripts to generate jobs for Jenkins, which are used in GitHub pull request status checks to perform regression testing.
- Created Python tools which use a RESTful API to query and analyze GitHub and SonarQube for productivity, code coverage, and issue metrics and to upload a summary onto Confluence for managers.

Projects

Microinsurance Recommender — *Hack the 6ix*

Backend Developer — *Aug. 2019*

- Developed an android application that recommends insurance policies by parsing, processing, and managing assets provided as images.
- Integrated Amazon Rekognition and Textract for machine recognition to parse the assets and extract their properties for the recommender.
- Implemented the insurance recommender system by training a sequential model in Keras.
- Developed and hosted Rest API endpoints with Flask and MYSQL Database on Amazon Web Services.

Chess Board and Engine — *University of Waterloo*

Developer — *Mar. 2019 - Apr. 2019*

- Designed chess board in C++ with strategy design pattern to support multiple game modes, including 4-way chess and tandem chess.
- Implemented chess engine in C++ using iterative deepening depth-first search and alpha-beta pruning for effective operation under time constraints.

Stock Checker — *Ottawa, ON*

Developer — *2018 - 2019*

- Devised a web-scraping Python tool used for determining when specific items would be in stock on e-commerce websites.
- Incorporated requests library to parse websites and smtplib library for sending email alerts when a desired item is available.

Education

University of Waterloo — *Waterloo, ON*

Candidate for Bachelor of Computer Science, GPA: 90.37 — *Sept. 2017 - May 2022*