

Michael Dai

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Skills

Tools Linux, Git, Bash, PowerShell, Vim, Visual Studio, GDB, Confluence, SonarQube, JIRA, Jenkins
Languages Python, C++, C, SQL, Java, Scheme
Frameworks Docker, Airflow, MongoDB, TreasureData, Flask, Keras, gMock, Amazon Web Services, Google Protocol Buffers

Experience

GTS Securities

New York, NY

PYTHON DEVELOPER

Sept. 2020 - Dec. 2020

- Developed and deployed Airflow in Docker using docker-compose with CeleryExecutor and Redis for pipelines to scale horizontally.
- Eliminated dependency on the host machine environment by containerizing the Airflow platform and Airflow tasks for Trading Analytics pipelines using Docker, allowing for custom application environments and removing the need to perform system-wide updates to upgrade packages.
- Integrated existing Trading Analytics code with Airflow libraries to enable direct communication between the Airflow scheduler and Docker tasks.
- Implemented a trading model using C++ that issues market and limit orders based on Level 2 market data as well as currently held positions.

ContextLogic (Wish)

San Francisco, CA

FULL STACK SOFTWARE ENGINEER

Jan. 2020 - Apr. 2020

- Optimized APIs that retrieve and process order data by streamlining MongoDB lookup operations, decreasing lookup times by 58%.
- Implemented a dummy order generation system in Python, a tool in Wish's sandbox environment that aids API partners in testing integration.
- Enforced multiple policy changes due to COVID-19 by using Python scripts to perform SQL queries on TreasureData and process the results.
- Developed logic in Python to reassign orders from merchants that are unlikely or unable to fulfill them, increasing the order fulfillment rate.

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.
- Created functional tests and unit tests using gMock with 100% code coverage to prevent regressions.

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 target devices for automated sanity tests.
- Wrote Java scripts to generate jobs for Jenkins, which are used in GitHub pull request status checks to perform regression testing.

Projects

Microinsurance Recommender

Hack the 6ix

BACKEND DEVELOPER

Aug. 2019

- Created 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 using 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.

Education

University of Waterloo

Waterloo, ON

CANDIDATE FOR BACHELOR OF COMPUTER SCIENCE, MAJOR AVERAGE: 91.71

Sept. 2017 - Apr. 2022