

# Stuart Mashaal

SOFTWARE ENGINEER | TN VISA CANDIDATE

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## Education

### McGill University

Montreal, CA

B.S.ENG - BACHELOR OF SOFTWARE ENGINEERING (ACCREDITED ENGINEERING DEGREE)

September 2015 - April 2019

**Advanced Coursework:** Concurrent Programming, Distributed Systems, Cloud Computing, Applied Machine Learning, Compilers

## Experience

### Hopper

Boston and NYC

SOFTWARE ENGINEER - (SCALA, JAVASCRIPT, SWIFT, POSTGRES)

February 2020 - Present

- Designed and implemented improvements to loyalty programs such as coupons, flash deals, and cash back
- Used flamegraphs and Datadog metrics to find performance bottlenecks and optimizations for core microservices
- Updated internal dashboard written in old Angular. Updated UI and business logic in iOS app in Swift

### Nuance Communications

Montreal, Canada

SOFTWARE ENGINEERING INTERN - (JAVA, ACTIVEMQ, SQL, PYTHON/PANDAS/SKLEARN, NODEJS)

May 2018 - August 2018

- Collected job history data from production databases to train classifier for job duration
- Used Random Forest to achieve 97% accuracy on balanced dataset (k-fold cross-validation). Presented report to engineering team
- Improved usability and responsiveness of data-aggregation CLI tool

### SourceKnowledge

Montreal, Canada

SOFTWARE ENGINEERING INTERN - (PHP, SYMPHONY, JQUERY, HANDLEBARS)

May 2017 - August 2017

- Added features (frontend and backend) to analytics dashboard of real-time ad-bidding system
- Developed bid-multiplier logic based on Google's website categorization, added to real-time ad-bidding system

### IntimateData / DataProphet

Cape Town, South Africa

DATA SCIENCE INTERN - (PYTHON, SKLEARN, R, SQL)

June 2016 - July 2016

- IntimateData: scraped, cleaned and visualized S.A. demographic and language data. Incorporated into existing MySQL DB.
- DataProphet: researched sentiment analysis algos (e.g. LSTM) for Twitter-Bot project. Developed XGBoost-based classifier of EEG waves for 'mind-control wheelchair' prototype

## Projects

### xradix

Open Source Personal Project

(TYPESCRIPT)

- A tested, performance-tested, and documented implementation of the Radix Tree data structure. CI via Github Actions

### tree-sitter-scala shellvis lcs.nvim snowball.nvim

Open Source Personal Projects

(VIML, LUA, TREE-SITTER)

- Contributions to a parser for the scala language for syntax highlighting
- A few Neovim plugins

### ConuCoursePlanner

Personal Project

(JAVA TOMCAT, NODEJS, R, REACT, MONGODB)

- A tool to help freshmen select the course sequence of their curriculum. 100 unique active users per month
- Developed data pipeline: web scraper, data validator, and storage. Also wrote the core curriculum validation algorithm.

### Distributed Transactions Project

Distributed Systems, McGill

(JAVA RMI, CONCURRENCY/PARALLELISM, TWO-PHASE COMMIT)

- A toy distributed system for travel reservations (flights, cars, hotel rooms). Consensus via Two-Phase Commit. Wrote it all

### Cebolla (Onion Routing Network)

Telecomms & Networks, McGill

(PYTHON, CRYPTOGRAPHY, MULTITHREADING)

- Wrote all code for router node and directory node algorithms. Direct use of RSA and AES. Tested on 100-server cluster

## Skills

**Programming** Scala, Java, SQL, Javascript, Typescript, Python, R, Bash, Rust, OCaml, Haskell

**Cloud & Infra.** Linux, Git, Basic Networking, Terraform, AWS, Docker/Kubernetes

**Other** French (B2), Guitar