

## WORK EXPERIENCE

### Microsoft Software Engineer II

Redmond, WA | Mar. 2021 – Present

Azure Hardware Datacenter Manager (DCM) Team

- Leading an effort to enhance our production synthetic tests to act as **deployment watchdogs** to prevent regressions.

### Microsoft Software Engineer

Redmond, WA | Sep. 2018 – Mar. 2021

Azure Hardware Datacenter Manager (DCM) Team

- Designed and implemented scalable, highly available and low latency **hardware inventory pipeline** using Apache **Kafka**. Hardware data from the entire Azure data plane and control plane inventory of **3 million machines** is propagated using Kafka, processed and then published to internal customers using Kusto (Azure Data Explorer).
- Created internal user-friendly **website** for datacenter technicians using **Nancy** in **C#**, reducing the on-call burden on the team to manually update MAC addresses of Azure host machines.
- Mentored and on-boarded multiple new hires on the team by creating a "New Hire" setup wiki. This would later even be used as a reference by seasoned members of the team.
- Created **automated deployment pipeline** for the team using **Azure DevOps**, deploying to staging environments every day, and with health gates blocking broad rollouts. This allowed for team members to test their changes much more quickly, while not compromising on security.
- Managed and delegated **security incidents** and work items for the team, such as GDPR compliance, TLS 1.2 adoption, post-mortems for customer-reported incidents, privacy reviews, audits and security reviews.

### Amazon Software Development Engineer Intern

Vancouver, BC | Jun. 2017 – Aug. 2017

Unified Subledger Team (USL-C)

- Added support for a **group by** clause and **aggregate functions** (sum, average, count, etc.) in an **SQL**-like language used to query subledger data from **DynamoDB** and **S3**. This made it easier for developers and accountants to aggregate financial data.
- Parallelized the above queries by using **MapReduce** with the Apache **Spark Java** library, increasing their speed and efficiency.
- Practiced behavior-driven development (BDD) by creating unit tests with **Mockito**, **JUnit**, and **Guice**, covering **95%** of the project.

### Tactio Health Group Digital Health Software Developer Intern

Montreal, QC | May 2016 – Aug. 2016

- Created a **PHP** mock data generator with daily **Cron** jobs and a producer-consumer queue in **MySQL**, allowing for more realistic simulation of patients with various medical conditions.
- Developed a **PHP** testing framework covering **60%** of the back-end API, leading to increased bug detection before deployment.

### JNPSoft Java Developer

Montreal, QC | May 2015 – Aug. 2015

- Made importing of car parts data from Excel to an **SQL** database over **300 times** faster by implementing a bulk import in **Java**.
- Practiced test-driven development (TDD) with **TestNG**, leading to safe and reusable code.

## EDUCATION

### McGill University Bachelor of Engineering (Honours Electrical)

Montreal, QC | Sep. 2014 – May 2018

- GPA: 4.0

### Marianopolis College Diploma of Collegial Studies (Pure and Applied Sciences)

Montreal, QC | Sep. 2012 – Jun. 2014

- R Score: 35.757

### Collège Notre-Dame Secondary School Diploma

Montreal, QC | Sep. 2007 – Jun. 2012

## PROJECTS

### Microprocessor Systems Project Android & Cloud Developer

Jan. 2018 – Apr. 2018

- Created an **Android** app to process accelerometer data as well as transcribe microphone audio.
- Used **Plotly** to create an online plot of the pitch and roll accelerometer data.
- Transcribed audio via the **Google Cloud Speech API** using 16 kHz audio encoded at 2 bytes per sample.

## Artificial Neural Network Developer

Sep. 2017 – Dec. 2017

- Created a fully connected **artificial neural network** from scratch using the **Numpy Python** library with a teammate.
- Identified handwritten digits after supervised back-propagation learning with an accuracy of **98.1%**.

## Qbert Game AI Agent Developer

Sep. 2017 – Dec. 2017

- Created an autonomous agent capable of playing the **Qbert** game on the **Arcade Learning Environment**.
- Used reinforcement **Q-learning** with various generalization and exploration methods.
- Achieved **2nd place** in the tournament showcasing all the agents in the class.

## Connect-Four AI Agent Developer

Sep. 2017 – Dec. 2017

- Created an agent capable of playing a competitive **Connect-Four** game with an opponent as part of the **ECSE 526** course.
- Used **minimax** search with **alpha-beta** pruning and various heuristics to predict the most advantageous moves to take.
- Achieved **2nd place** in the tournament showcasing all the agents in the class.

## TLDR News App Lead Developer

Jan. 2017 – Dec. 2017

- Developed the idea of a service delivering summaries of relevant news as part of a project in the **BUSA 465** course.
- Created **iOS** and **Android** apps powered by **AWS** providing personalized daily summaries of the latest news.
- Participated in the Fall 2017 startup validation program at the **District 3** innovation center with a partner.

## Prometheus AI Honours Thesis

Jan. 2017 – Dec. 2017

- Created the Expert System and Knowledge Node Network **Java** layers of Prometheus AI, whose goal is to control multiple robots.
- Created thesis reports for the supervisor and a poster for the public presentation of the work.
- Supervised and guided two volunteers in the lab over the summer to help expand the functionality of the system.

## Flatmate App Lead Developer

Sep. 2016 – Feb. 2017

- Created an **Android** app powered by **Firebase** to help like-minded individuals find roommates and apartments.
- Participated in the 2017 semi-finals of the **McGill Dobson Cup** with two business partners.

## Breakout Game Developer

Sep. 2016 – Dec. 2016

- Created a **Breakout** game in **VHDL** on the Altera Cyclone II **FPGA** with an external RGB display.
- Implemented distinct levels with increasing difficulty and useful powerups for the player.

## McGill Robotics Drone Team Member

Sep. 2015 – May 2016

- Created two-player Connect-Four game using **Arduino**, 70 LEDs, shift registers and a Redboard microcontroller as a mini-project.
- Planned the selection of parts for a UAV designed to compete in the AUVSI SUAS competition in 2017.

## Robot Competition Project Manager, Java Developer

Jan. 2015 – Apr. 2015

- Designed an autonomous **robot** with ultrasonic and light sensors capable of navigating a map and launching balls at targets.
- Implemented obstacle avoidance, moving-average, and differential filtering algorithms in **Java**.
- Participated in a competition to test the robot's functionality in action against other teams.

## AWARDS & SCHOLARSHIPS

Ernest Brown Gold Medal	2018	J. B. Woodyatt Scholarship	2015
McGill University Dean's Honour List	2015 – 2018	John Howard Ambrose Scholarship	2015
Ralph M. Collins & Ruth G. Collins Scholarship	2017	J. W. McConnell Scholarship	2014
Beverly and Arthur Mendel Family Scholarships	2016	Marianopolis College Dean's List	2014
NSERC Experience Award	2016	Marianopolis College Honour Roll	2014
Mary Gilsig Scholarship	2015, 2016	Marianopolis College Scholar	2014

## TECHNICAL SKILLS

**Programming Languages:** Java, Python, C#, C++, C, PHP, Swift, Objective-C, Ruby, Arduino, VHDL, SQL, MIPS Assembly, LaTeX

**IDEs & Editors:** Visual Studio, Eclipse, Android Studio, IntelliJ IDEA, PyCharm, Xcode, VS Code, Sublime Text, vim, Arduino, IDLE

**Databases:** MySQL, DynamoDB, Firebase, MS SQL Server, MS Access

**Operating Systems:** Windows, macOS, Ubuntu, CentOS