

# TYLER NYCHKA

## SOFTWARE ENGINEER

✉ Tyler.Nychka@gmail.com  
🌐 TNychka.com  
☎ 415 400 6113  
in tylernychka  
📄 TNychka

Graduating Software Engineer with 2 years of experience in designing and building highly performant and scalable software systems. Experienced in **C++**, **Java**, **Python**, **Kotlin**, and **JavaScript**.

## » SKILLS

### LANGUAGES

C++  
Python  
Java  
Kotlin  
JavaScript  
Golang

### TOOLS

Node.js  
Kotlin Multiplatform  
Jenkins  
Docker  
Unix  
Git/Perforce/SVN

### TECHNOLOGIES

Blockchain  
Distributed Systems  
Concurrency

## » AWARDS

### CHIEF SCOUT'S AWARD Scouts Canada 08.2014

The highest award which can be achieved at the Scout level in Scouts Canada. Awarded for outstanding Citizenship, Leadership, and Personal Development.

### PRESIDENT'S SCHOLARSHIP OF DISTINCTION University of Waterloo 09.2015

Awarded for Admission average over 95%.

## » INTERESTS

DUNGEONS AND DRAGONS  
Game Master

TRADITIONAL SKETCHING  
Hobbyist

## » EDUCATION

### UNIVERSITY OF WATERLOO

Bachelor of Software Engineering BSE 2020

Dean's Honour List: 3.8/4.0 GPA

Relevant Courses: Introduction to Artificial Intelligence, Distributed Systems, Concurrency

09.2015 - 04.2020

## » EMPLOYMENT

### MARCONI PROTOCOL

Software Engineering

San Francisco, United States · 09.2019 - Present

- Iterated on **Golang** distributed **Blockchain** networking code to implement ranked discovery of peer service nodes in the Marconi Blockchain Network.
- Designed and implemented **Socks5** client code to enable **React-Native** app communication with **Golang** service nodes.
- Created **Bash** deployment script for Marconi products - used in major client demo and continuous deployment pipeline.

### COGNITE AS

Software Engineering

Oslo, Norway · 01.2019 - 04.2019

- Designed and implemented **Java** Parallel Retrieval API for concurrent retrieval of data resources, reducing the time of data acquisition by 13200%.
- Built a comprehensive **Python** integration testing suite into **Jenkins** deployment pipeline; added 1000 new API integration tests and identifying 10+ server 500 errors.
- Developed **Databricks** and **Spark** scripts to process and evaluate database consistency: checking more than 2 million items concurrently.

### RELIC ENTERTAINMENT

Gameplay Programmer Age of Empires IV

Vancouver, Canada · 05.2018 - 08.2018

- Optimized and expanded in-house **C++11** Essence Game Engine API, enabling vital developments for multiple major gameplay features central to the upcoming title, Age of Empires IV.
- Designed and implemented software architecture for state tree telemetry tracks; added 12 new data events to gameplay state trees and enabled easy addition of new data point tracking for data analysts.
- Rewrote legacy code to use modern **C++11** features such as templating, variadic arguments, and move semantics; reduced optimized files' size by 90% and increased the performance of the Essence Engine to **Lua** Scripting API.
- Wrote documentation detailing the architecture and usage of the Essence Engine Telemetry System. Additionally updated existing documentation by modifying 30+ Confluence documentation pages.

### AUTODESK

Fusion360 Software Engineering

Montreal, Canada · 09.2017 - 12.2017

- Developed multiple features and refactored code architecture of user management for the in-browser 3D modelling software Fusion360 Web using **JavaScript** with **Node.js** and modern **C++**.
- Integrated crucial security scans into **Jenkins** deployment pipeline, catching and fixing 50+ major security vulnerabilities including cross-site scripting in the process.
- Created **Jenkins** pipeline for continuous integration, avoiding 3 potential production crashes by adding a suite of 50+ automated **Mocha.js** tests and linting code during the submission process.

### ICF OLSON

Full-Stack Developer

Toronto, Canada · 01.2017 - 04.2017

- Designed and implemented new **Java** server endpoints using **Springboot** and **Hibernate** to quickly and securely query databases to retrieve server status and guest information.

### HELPFUL.COM

Full-Stack Developer

Toronto, Canada · 05.2016 - 08.2016

- Prototyped iOS **Swift** app and backend **Java Springboot** server using agile development to create a minimum viable product.

## » PROJECTS

### HABITICA ANDROID/IOS - MUTLIPLATFORM MIGRATION + OFFLINE MODE

05.2019 - Present

- Refactored **Android** and **iOS** application architecture to use a shared multi-platform code library implemented with **Kotlin Multiplatform** spanning 500 files and 8000 lines of code.
- Working to implement an offline mode for synchronization of local and global databases in the event of a loss of connectivity.

### HABITICA - CONTRIBUTOR

01.2016 - Present

- Contributed to the Habitica project, an open-source website designed around the gamification of tasks to increase productivity using **JavaScript** with **Vue.js**, **Node.js**, **Express.js**, and **MongoDB**.
- Submitted multiple approved and merged pull requests fixing synchronization errors and adding a new API token reset feature into production.

### GENETIC SOLDIERS

05.2016 - 08.2016

- A **C++** experiment in genetic algorithms designed to find a pattern that consistently defeats a basic AI opponent.
- Created chromosome representation of AI strategy to breed new generations of AI, which learned to defeat an opponent in a minimal number of new generations.
- Created an algorithm to breed a perfect AI in fewer than 1000 generations which always plays the optimal strategy.

### RAYTRACER - FIELD OF SPHERES

01.2019 - Present

- An ongoing project in **C++17** to learn the concepts of graphics and rendering images using Ray Tracing.