

## Skills

**Languages** Java, Rust, Go, Kotlin, C, C++, C#, Scala, PHP, JavaScript  
**Technologies** MySQL, MongoDB, REST, Hibernate, Spring, JUnit, JWT, SocketIO, NGINX, MVC, Unity3D, JQuery  
**DevOps** AWS, Ansible, gh-ost, Docker, Prometheus, Datadog, Git, Gradle, UNIX, JWT

## Experience

### YugaByte

Sunnyvale CA, USA

SOFTWARE ENGINEER INTERN · C, C++, JAVA

May - Aug 2019

- Member of Query Layer team, working to integrate Postgres fronted with distributed document store backend.
- Wrote robust and portable shared memory library to improve system catalog cache consistency across nodes.
- Added support for Postgres role-based access control, ensuring consistency in a distributed environment.
- Designed and implemented a gflag-based configuration mechanism to make Postgres configurable through YugaByte.
- Added support for various `ALTER TABLE` variants in Postgres.
- Refactored post-test cleanup process to reduce flakiness and increase test speed.
- Contributor on multiple open-source projects at YugaByte, including [yugabyte-db](#).

### Faire

Kitchener ON, Canada

BACKEND DEVELOPER INTERN · JAVA, KOTLIN

Sept - Dec 2018

- Architected an inter-server event framework using Amazon Kinesis and Protocol Buffers.
- Implemented several complex email cadences to promote and notify users of new features, with visualized A/B tests for subject lines and content.
- Designed and implemented APIs to support offline ordering, retailer-to-maker referrals, and out-of-stock products, contributing to user acquisition and an overall increase in sales.
- Added web-hooks to push logged errors into Redshift, supporting more complex error analysis.
- Mentored and on-boarded new backend developers as the team nearly doubled in size.
- Integrated code coverage tracking into TravisCI to motivate better testing practices.

### Spatial

New York NY, USA

SOFTWARE DEVELOPER INTERN · GO, C#

Jan - April 2018

- Proposed and implemented a scalable and load-balanced backend architecture for user-management, real-time messaging, and data synchronization on AWS, written in Go.
- Introduced stateless authentication and role-based authorization mechanism using JSON Web Tokens.
- Developed platform agnostic .NET web socket and http implementations for multi-threaded API clients.
- Wrote memory efficient Google Poly wrapper to rank and page results based on keywords.
- Added DevOps functionality through role-based authorization, metrics (Prometheus + Grafana), and deployment scripts for all servers (Ansible).

### Miovision

Kitchener ON, Canada

SOFTWARE DEVELOPER INTERN · JAVA

May - Aug 2017

- Independently wrote a performant API to export large amounts of data from Hibernate to AWS.
- Refactored the data extraction workflow to parallelize tasks, increase accuracy, and pave the way for future cost savings initiatives.
- Deployed metrics agents to monitor download speeds and cache performance of satellite servers.

## Projects

### dead-drop

Go

SECURE NONCE FILE TRANSFERS IN THE CLOUD

May 2019 - present

- Created tool for securely transferring files via an untrusted middle-man server.
- Utilized AES-CTR with HMAC to encrypt and authenticate user data on the client side.
- Implemented client-server authentication using asymmetric key cryptography and Json Web Tokens.

### padd

Rust

FAST AND AUTOMATIC FORMATTER OF CONTEXT-FREE LANGUAGES

March 2018 - present

- Wrote library to efficiently format text using a CFG and a set of patterns.
- Implemented multi-threaded cli wrapper to batch-format projects (directories) using diff tracking.
- Created a specification language for generating lexers and parsers at runtime.

### to\_be\_discovered

C#

2D PROCEDURAL SIDE-SCROLLER USING UNITY GAME ENGINE

2017

- Wrote scalable node-based pathfinding algorithm capable of supporting hundreds of concurrent agents.
- Created performant data structures as a powerful base for bounded random generation.

## lens

Java

### TEXT-BASED PROCESS MANAGER FOR BOOSTING PRODUCTIVITY

2017

- Modified and embedded open source JetBrains terminal emulator JediTerm into the core application.
- Created a command framework for executing various local processes through a terminal prompt.

## www.photesto.space

PHP, Java, MySQL

### DATABASE FOR SHARING STUDY RESOURCES

2015-2016

- Created login system with encryption and email verification to protect user data.
- Styled website responsively for optimal performance on both desktop and mobile devices.

## Education

### University of Waterloo • 94.24 Cumulative GPA

Waterloo ON, Canada

#### CANDIDATE FOR BACHELOR OF SOFTWARE ENGINEERING

Sept 2016 - April 2021

### E.L. Crossley Secondary School • 98.5 Cumulative GPA

Fonthill ON, Canada

#### ONTARIO SECONDARY SCHOOL GRADUATION DIPLOMA

Sept 2012 - June 2016

## Honors & Awards

1A - 3A	<b>Dean's Honours List</b> , University of Waterloo	Waterloo ON, Canada
2019	<b>President's International Experience Award</b> , University of Waterloo	Waterloo ON, Canada
2017	<b>President's Scholarship of Distinction</b> , University of Waterloo	Waterloo ON, Canada
2016	<b>Nominee</b> , Schulich Leader Scholarship	Canada
2016	<b>3rd Place</b> , Regional ECOO Programming Competition	Niagara ON, Canada
2015	<b>2nd Place</b> , Regional ECOO Programming Competition	Niagara ON, Canada
2014	<b>2nd Place</b> , Regional ECOO Programming Competition	Niagara ON, Canada
2012	<b>Gold Medal</b> , Canada-Wide Science Fair	Charlottetown PEI, Canada
2012	<b>Junior Innovation Award</b> , Canada-Wide Science Fair	Charlottetown PEI, Canada
2012	<b>Western University Scholarship</b> , Canada-Wide Science Fair	Charlottetown PEI, Canada
2012	<b>Gold Medal</b> , Niagara Regional Science and Engineering Fair	Niagara ON, Canada
2011	<b>Gold Medal</b> , Niagara Regional Science and Engineering Fair	Niagara ON, Canada

## Volunteering

### Tutor

Fonthill ON, Canada

#### E.L. CROSSLEY SECONDARY SCHOOL GUIDANCE DEPARTMENT

Fall 2014 - June 2016

- Tutored grade 9, 10, 11, and 12 students in math, science, and computer science courses.

### Camp Volunteer

St. Catharines ON, Canada

#### YOUTH UNIVERSITY & NIAGARA REGIONAL SCIENCE AND ENGINEERING OUTREACH CAMPS

July 2012 and 2013

- Collaborated with camp directors in presenting programs.
- Mentored and encouraged camp participants.