# Shane **Hickman**

3B Software Engineering · University of Waterloo

+1 (226) 792-4763 | srhickma@edu.uwaterloo.ca | srhickma.dev | srhickma


## 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 asymetric 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

**Candidate for Bachelor of Software Engineering · 94.24 Cumulative GPA** *Waterloo ON, Canada*

UNIVERSITY OF WATERLOO *Sept 2016 - April 2021*

**Ontario Secondary School Graduation Diploma · 98.5 Cumulative GPA** *Fonthill ON, Canada*

E.L. CROSSLEY SECONDARY SCHOOL *Sept 2012 - June 2016*

## Honors & Awards

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