

# Shane Hickman

## 4B SOFTWARE ENGINEERING · UNIVERSITY OF WATERLOO

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## Skills

<b>Languages</b>	<b>Strong</b>	Java, Rust, Go, Kotlin, C, C++, C#, SQL
	<b>Medium</b>	Scala, PHP, JavaScript, HTML, CSS, PBasic, Assembly, MATLAB
	<b>Limited</b>	NodeJS, Ruby, Python, VHDL, BASH
<b>Server/Cloud</b>		REST, AWS, Heroku, NGINX, SocketIO, Spring, UNIX
<b>Database</b>		yugabyteDB, MongoDB, PostgreSQL, MySQL, Hibernate, JPA, Diesel, gh-ost
<b>Security</b>		JWT, AES-CTR, HMAC, RSA, TLS, OpenSSH, OpenSSL
<b>Deployment</b>		Ansible, Terraform, Docker, Kubernetes
<b>Build/CI</b>		Gradle, Maven, [C]Make, Jenkins, TravisCI, various code coverage tools
<b>Monitoring</b>		Datadog, Prometheus, LogDNA, Sentry
<b>App Development</b>		Unity3D, Photon, UWP, Android Studio, JavaFX, Swing
<b>Editors</b>		Spacemacs, Visual Studio [Code], anything by JetBrains


## 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.
- 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.
- Implemented several complex email cadences to promote and notify users of new features, with visualized A/B tests for subject lines and content.
- 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 metrics gathering (Prometheus + Grafana), and deployment scripts (Ansible) for all servers.

### Miovision

Kitchener ON, Canada

SOFTWARE DEVELOPER INTERN · JAVA

May - Aug 2017

- Designed and implemented a performant API to export large amounts of data from Hibernate + MySQL to AWS.
- Refactored 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.
- Wrote and maintained POJOs to facilitate json data transfer to and from computer vision software.
- Worked closely with computer vision team to determine specifications and integration details of new software and the data export API.

## 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 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.

### 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 • 95.05 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 - 3B | <b>Dean's Honours List</b> , University of Waterloo                        | Waterloo ON, Canada       |
| 2021    | <b>President's International Experience Award</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**

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

*St. Catharines ON, Canada*

*July 2012 and 2013*

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