Shane **Hickman**

3B Software Engineering · University of Waterloo

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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.

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.