

# RYAN DULLAERT

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## SKILLS

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- Languages: C++, SQL, Bash, JavaScript
- Technologies: Git, OpenCV, SQLite, QNX, Google Test, Eigen, TinyXML-2

## EXPERIENCE

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### Ford Motor Company of Canada – C++, SQL, Bash

May 2020 – Aug. 2020

#### *Embedded Developer Co-op – Waterloo, ON*

- Developed **C++** features for embedded devices running **QNX** to support the Fully Networked Vehicle 2 platform
- Automated upload of incomplete event metadata from **SQLite** to improve error handling of interrupted events
- Implemented a service locator pattern to enable support for mock methods in 72 unit tests in **Google Test**
- Validated the accuracy of regex scrubbing by creating unit tests in order to comply with data protection laws

### Christie Digital Systems – C++

Sept. 2019 – Dec. 2019

#### *Software Engineering Co-op – Kitchener, ON*

- Developed an automatic projector correction algorithm in **C++** to smooth projected content on rough surfaces
- Gathered accurate colour data from non-uniform screens by identifying relevant projector pixels with **OpenCV**
- Implemented a matrix solver with the **Eigen** library to generate colour corrections for every identified pixel
- Created additional unit tests for new and existing code with **Google Test** to minimize regressions

### Shared Services Canada – SQL

Feb. 2019 – May 2019

#### *Information Management Specialist – Ottawa, ON*

- Obtained asset data from the Enterprise Control Desk database with **SQL** queries to track government property
- Consolidated internal records to organize authoritative sources and improve security for information owners

## PROJECTS

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### FTL Game Data Editor – C++

- Developed a **C++** program to allow customization of game data files in a user-friendly environment
- Imported XML data recursively into tree data structures with the **TinyXML-2** library to store game events
- Provided verification for user-created events by travelling down event trees to model their interactive stories

### Space Combat Simulator – C++

- Developed a resource-management and tactical game for Windows using object-oriented programming in **C++**
- Implemented a Newtonian physics engine using semi-implicit Euler integration and rotation quaternions
- Modelled spaceship operations based on civilian and military research to provide an accurate simulation

### uWaterloo Schedule Exporter – JavaScript

- Parsed website elements and extracted text with **JS** to import information into a Google Chrome extension
- Updated builder and date function to export class schedule data into an iCalendar file for students to use

## EDUCATION

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### University of Waterloo (*Candidate for B.A.Sc. in Computer Engineering*) Sept. 2018 – Apr. 2023 (expected)

- Relevant courses: Algorithms and Data Structures, Digital Computers (RISC-V), Systems Program & Concurrency