# Brooke Dolny

Software Engineering Student

bmdolny@uwaterloo.ca ✉

github.com/brookedolny ⌂

linkedin.com/in/brookedolny ▦

## Experience

**Secure Embedded Developer** · ESCRYPT *Jan 2019—Apr 2019*

- Contributed to a mobile phone to car communication scheme for use in commercial vehicles

**C++/Backend Developer** · DF/Net Software *May 2018—Aug 2018*

- Revitalized a data analytics software for use in clinical studies.
- Fixed bug in hashing function, introduced by a change of platform, allowing over 8000 users to login after weeks of lockout; introduced better C programming practices as a result.
- Designed an API endpoint that resulted in up to 4.5x faster page load times for a web application.
- Restructured components of a JavaScript codebase to improve readability and maintainability.
- Reported security flaws and vulnerabilities in C, C++, and JavaScript codebases.

## Relevant Experience

**Electrical Team Member** · University of Waterloo Rocketry Team *Oct 2018—Present*

- Wrote drivers for PIC microcontrollers controlling the various electrical components of the rocket
- Interfaced with an external CAN module over SPI to communicate with other microcontrollers

## Projects

**Personal Cryptographic Library** *Present*

- Contains a working implementation of the Advanced Encryption Standard with CBC and ECB operational modes, and the Secure Hash Algorithm 2 suite of cryptographic hashes, written in C.

**Fractal Generator** *Apr 2018*

- A fractal art generating program written in Java that supports the Mandelbrot and Julia sets.
- Leverages parallel programming to improve performance by using a worker pool.
- Utilizes the principles of object-oriented programming to improve readability.

**Traffic Simulator (Traffix)** *Nov 2017*

- Simulates traffic flow in an arbitrary city defined by a graph.
- A graphical interface presents to the user a real-time view of congestion and traffic patterns.
- The application was written in C++ with the Qt framework.

## Education

**Candidate for Bachelor of Software Engineering** · University of Waterloo *2022*

- Term Dean's Honour List, December 2017
- President's Scholarship with Distinction