Brooke Dolny
· Math and Cryptography Enthusiast ·

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Experience

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.
- Identified and reported security flaws and vulnerabilities in C, C++, and JavaScript codebases.

Junior Developer · ESM *Jun 2017—Aug 2017*
- Utilized the principles of Behavior Driven Development to develop test cases for a web-based software in Ruby
- Identified and fixed numerous bugs in the codebase.

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.

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*
- Traffix 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