Michael DaRocha

4A Computer Science, University of Waterloo

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Skills

Languages: C++ • C# • C • Python • Java • SQL • TypeScript • JavaScript • HTML • CSS • Bash

Technologies: Angular • .NET • Spring Boot • Node.js • PostgreSQL

Infrastructure: Docker • Azure • AWS • GitHub Actions

Experience

Co-op Analyst – Systems Engineering

Toyota Motor Manufacturing Canada

September 2021 – March 2022

- Lead developer for web application used to generate internal delivery lists
  - Planned and designed application following Agile development practices
  - Created mockups for web application using Balsamiq
  - Designed and implemented SQL scripts to generate Postgres database used for storing delivery list data. Ensured design complied with 3NF
  - Created ASP.NET Core middleware used for communication between Angular and Postgres. Defined necessary CORS policies
  - Implemented various Angular components and services for displaying of webpages and communicating with middleware. Used the library PrimeNG
  - Prevented race conditions caused by updates to the database by using callback functions in Angular
  - Created documentation outlining important definitions and functionalities of the project
- Assisted with the debugging and improvement of various inhouse applications
  - Fixed UI bugs using HTML, CSS, and JavaScript
  - Used jQuery library to implement a combo box to improve UI usability
  - Added support to UI for small windows and mobile screen sizes
  - Created pipelines in Azure and GitHub
  - Created Dockerfiles
  - Built a scheduler within a Spring Boot application for file deletion
- Designed PowerBi database using star schema to generate reports for Azure work items
  - Worked with Azure DevOps Services REST API to extract work item data
  - Provided training and guidance to the co-op student who took over this project
- Debugged and improved Python script used to detect defects with machine learning
  - Worked with raspberry pi camera module to ensure sufficient image quality
  - Added additional functionality allowing for video footage to be fed into a Darknet neural network using the OpenCV module
- Researched and compared Azure and GitHub pipeline technologies. Presented findings to upper management using nontechnical language

Engineering Undergraduate Research Assistant - Blockchain Application Developer

University of Waterloo

January 2021 – April 2021

- Assisted in creating an online Blockchain based voting system
- Created project management template to track project progress
- Gained experience working with and learning about cryptographic technology
- Implemented Shamir's Secret Sharing algorithm for use in vote casting within Blockchain application
- Used OpenSSL within Shamir's Secret Sharing algorithm to generate pseudo-random numbers and pseudo-random prime numbers
- Wrote scripts in Bash using OpenSSL to generate RSA keys as well as encrypt and decrypt voter data used in all stages of the voting process
- Implemented accumulator for use by voters to verify that they have voted during the vote counting stage of the voting process
- Implemented blind signature scheme for use in sending blinded voter data to servers for voter authentication and for use in unblinding verified blinded data received from servers to acquire a token used for voting
- Implemented data structure used for storage of large unsigned numbers as well as implemented standard mathematical operations for said data structure based on several predefined algorithms such as Barret reduction algorithm and Karatsuba's algorithm
- Documented and provided summary and detailed description of code created during the work term

Education

Candidate for Bachelor of Computer Science, Honours Co-Op, University of Waterloo, Waterloo, ON, September 2018 – present

Relevant Courses:

- Algorithms
- Operating Systems
- User Interfaces
- Introduction to Database Management
- Software Design and Architectures
- Real-time programming
- Introduction to Artificial Intelligence

Awards:

- University of Waterloo President's Scholarship of Distinction
- Ontario Scholar with Distinction
- Grade 12 Academic Distinction Award