

# RAVEENA D'SOUZA

## MECHATRONICS ENGINEERING STUDENT UNIVERSITY OF WATERLOO

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### RELEVANT EXPERIENCE

#### Engineering Ideas Clinic Research Assistant | University of Waterloo

C/C++, SolidWorks, Excel, VBA

May - Aug 2017

- Designed several two-axis arms on SolidWorks and built them with aluminum extrusions and pneumatics to be controlled with an Arduino
- Developed a Vehicle Safety Guidelines course to outline various safety measures for the use of borrowed university vehicles
- Collaborated with several professors to develop activities for first-year engineering classes to further grasp challenging concepts such as circuits
- Utilized Excel and VBA to analyse the flow and efficiency of a scaled-down model factory using RFID chips as production line objects

#### Industry 4.0 Lab

PLCs, C#, AutoCAD

May 2017 - present

- Debugged and developed PLC and C# code for the automation and control of a mini-factory using RFID chips as products
- Designed detailed blueprints of the mini-factory using AutoCAD
- Used finite-state machines to analyse various states of the PLC code

### SKILLS

- C++/C/C#
- Python
- Java
- HTML/CSS
- JavaScript
- SQL
- Git
- VBA
- PLCs
- Arduino
- AutoCAD
- SolidWorks
- Geometric Dimensioning and Tolerancing (GD&T)

### EDUCATION

- Candidate for a **Bachelor of Applied Science** (B.A.Sc.) in Mechatronics Engineering, University of Waterloo  
Sept 2016 – April 2021 (expected)
- Relevant courses: Algorithms and Data Structures, Microprocessors and Digital Logic

### INVOLVEMENTS

- Awarded first place for website design contest at Hack the North
- Organizer and judge for the UW Electric Vehicle Challenge and the International Autonomous Robot Racing Competition
- Engineering Society Class Representative for Fall 2017
- Shadow Day Manager for the Engineering Ambassadors
- UW Orientation Week leader

### INTERESTS

- Intramural Ultimate Frisbee
- UW Badminton Club
- Member of choir for 2 years
- Engineering outreach volunteer

### PROJECTS

#### ATM Robot

C, ROBOTC, Excel

Oct - Dec 2016

- Developed, tested, and debugged the software components of an ATM robot using ROBOTC, a C-based language
- Analysed data from various sensors (touch, colour, ultrasonic) to enable the robot to perform different tasks
- Used Excel spreadsheets and project management methods (Gantt charts, decision making matrices) to analyse different designs

#### Are You Smarter Than a 5th Grader? Program

Java

Dec 2014 - Jan 2015

- Developed a program that mimicked the game show *Are You Smarter Than a 5th Grader?* using Java
- Demonstrated problem solving skills by proficiently testing the program to ensure proper implementation

#### Pet Store Program

Python, Pygame

May - June 2015

- Developed a virtual online pet store using Python considering several different criteria to enable an easy-to-use interface

### OTHER EXPERIENCE

#### Early Learner Tutor | Kumon Centre for Math and Reading

Mississauga, ON

July 2014 - July 2016

- Tutored and guided students in advanced math and reading concepts
- Evaluated worksheets and provided feedback to enable student learning/improvement