RAVEENA D'SOUZA

MECHATRONICS ENGINEERING STUDENT
UNIVERSITY OF WATERLOO

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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

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

INTERESTS

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

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

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 tasks such as sorting by value and counterfeit detection
- Used Excel spreadsheets and project management methods (Gantt charts, decision making matrices) to analyse different designs

Toaster Printer | Hack the North
Python, Arduino, hardware *Sep 2017*

- Hacked a toaster to create a 12x12 grid for toasting images on bread using pattern entered by user on a grid designed with Python's GUI library
- Used Arduino to convert user's image into 1s and 0s to turn on heating elements for toasting images

VR Personal Assistant | WearHacks
Unity, C#, Myo gesture control armband *Mar 2017*

- Developed a VR personal assistant with Unity and C# to be controlled with the Myo armband to navigate through features such as notes, health, and calendar

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