Dhruvin Balar

2A Software Engineering
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SKILLS

LANGUAGES
Python • C • C++ • Assembly
Java • JavaScript • HTML
CSS • Bash • VBS • LaTeX

TECHNOLOGIES
MongoDB • NodeJS • ExpressJS
Android Studio • Arduino
Linux • Git • Cisco NetAcad
WebRTC • MS Office • Linux

EDUCATION

UNIVERSITY OF WATERLOO
Candidate for Bachelor of
Software Engineering
Expected May 2022

NORTHVIEW HEIGHTS S.S.
Ontario Secondary School
Diploma acquired
June 2017

VOLUNTEERING

2014-16 Computer Repair
2014-15 Math Tutoring

EXPERIENCE

ENGINEERING SERVICES INC. | Robotics Software Developer
May 2018 – Aug 2018 | Toronto, ON
- Design, implementation, testing, and documentation of software for **robotic devices** (including real-time control, real-time communication, and user interfaces).
- Worked alongside the design team to develop a **frontend** web interface to operate a **telepresence** robot.
- Developed a **backend** user management system to help manage the **database** of clients using **NodeJS** and **MongoDB**.
- Designed an **Android** app using **Android Studio** to increase performance of the robot's interface on mobile devices by over **50%**.
- Automated the setup process of the robot using **VBS** and **batch scripts**.

FIRST ROBOTICS | Programming Team Leader
Sep 2016 – Jun 2017 | Toronto, ON
- Implemented the robot's navigation algorithm in **C++** , then in **Java** using the FRC API.
- Organized team meetings and delivered programming lessons to rookie as well as intermediate programmers.

NORTHVIEW HEIGHTS S.S. | Computer Services Technician
Sep 2015 – Jan 2016 | Toronto, ON
- Developed communication and collaboration skills with co-workers.
- Dealt with issues that arose amongst the electronics in short time frames.
- Developed an **Excel program** for students to sign the library log via scanning Student ID. This helped keep a record of who's been in-and-out of the library.

PROJECTS

LASER TANKS | Oct 2017 - Nov 2017   Team size: ● ● ●
- Utilized an **Arduino board** and collaboratively developed a program in **C** to control a tank via **Bluetooth**.
- Programmed algorithms to allow **4-way communication** between **Arduino boards** using Bluetooth and IR signals.
- Applied knowledge of **physics** and **linear algebra** to create robust **hand gesture** detection algorithms for controller input.

CALENDAR APPLICATION | Apr 2017 - Jun 2017   Team size: ● ● ●
- Developed a graphical calendar application in **Java** for booking labs, laptops and tablets for use by teachers.
- Implemented an **algorithm** to intelligently select which form of technology is best for the teacher.
- Learned how to properly use **data abstraction,** **encapsulation** and **inheritance** to improve the quality of the code.

MARIO IN HYPERSPACE | Feb 2017 - Mar 2017   Team size: ● ● ●
- Used the **Greenfoot environment** to code a complex 2D game in **Java**.
- Utilized **object-oriented programming** to optimize code.
- Applied **abstraction** to optimize the development of the project as a **team**.

ASTEROID DODGE | Dec 2015 - Jan 2016   Team size: ●
- Programmed a 2D interactive game in **Python** using the **Pygame** library.
- Forged a **gyroscopic controller** from household materials.
- Learned how to create a GUI and take input from a parallel port.