

# Harsh Patel

[in harsh1212](#) | [G Harsh-B-Patel](#) | [Portfolio](#)

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## Work Experience

### Research Assistant - Python Developer

York University: Vision, Graphics and Robotics (VGR) Laboratory

May 2021 – Present

Remote, Full-time

### Research Assistant - Python Developer

York University: Spacecraft Dynamics Control and Navigation Laboratory

May 2020 – Aug 2020

Remote, Full-time

- Reduced development process time by 600% by developing BASH scripts that executes a configured gazebo environment and routines for lab experiments.
- Designed and developed vision based localization and navigation method for unmanned vehicles in an indoor GPS deprived environment. **(See Coding Project 1 for more details)**
- Increased localization and navigation accuracy by incorporating a machine learning library called Gmapping.

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## Coding Projects

### Vision based localization and navigation | Python, C++, ROS, Gazebo

Aug 2020

- Developed alternative localization and navigation method for unmanned vehicles in an indoor G.P.S. deprived environment.
- Integrated visual fiducial markers, April Tags, to provide position data to the Turtle bot (unmanned vehicle), into 3D simulated lab environment developed in Gazebo.
- Increased obstacle avoidance rate by 300% by incorporating Gmapping (machine learning library) into the multi agent system.  
**(Demo - 0:28)**

### RoboCode | Java, Robocode API

Dec 2019

- Developed a Robot in Java to compete in Robocode tournament.
- Performed intensive Unit Testing and gave very detailed instructions to make the robot perform desired action in given situations.
- Implemented several different algorithms to create a hybrid robot which masks itself from any enemy algorithmic detection.

### Portfolio | JavaScript, HTML, CSS, Bootstrap

Sept 2019

- Created a responsive website, that uses multiple libraries available online for special effects. Such as Bootstrap and Fake loader.

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## Technical Skills

**Languages:** Java, Python, C/C++, SQL, JavaScript, BASH

**Frameworks:** Android SDK, J Unit Testing, Eiffel Testing Framework, Microsoft Office

**Developer Tools:** Git, VS Code, Gazebo 3D Simulator, Robot Operating System(ROS), Raspberry Pi

**Libraries:** April Tag ROS Package, Gmapping, Turtle Bot3 libraries

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## Education

### BSc. Hons Computer Science

York University

Toronto

2017 – 2021

- Lassonde Undergraduate Research Award - \$8000
- GM Bursary for Undergraduate Students in Computer Science - \$3500
- Entrance Scholarship and Student Life Award - \$1500