# Harsh Patel

 harsh1212 |  Harsh-B-Patel | Portfolio

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## Work Experience

### Research Assistant - Python Developer
*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.

### Telephone Interviewer
*Institute for Social Research*

May 2019 – Aug 2019

- Increased participation rate by 30% by improvising interview introduction, while ensuring all protocols are being followed.
- Developed strong verbal and written communication skills by providing detailed information in an impactful way to team members.

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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 Gmaping (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, Eiffel
**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, Gmaping, 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