# Harsh Patel

+1 437-990-5880 | mailharshjob@gmail.com | linkedin.com/in/harsh1212/ | Toronto, ON Canada

## WORK EXPERIENCE

**York University - VGR Lab** **Toronto, ON**

***Research Assistant - Python Developer*** *May 2021 - September 2021*

- Developed and deployed a GPS based autonomous navigation system for ASVs (Autonomous Surface Vessel) to identify and monitor invasive aquatic plant species in lakes across Ontario using **Python, XML, Bash and ROS**.
- Built an app using **Python, Node JS and ROS**, that connects to the Autonomous Boat and provides the user an Open Street Maps based graphical Interface that can be used to select regions to monitor.
- Developed an algorithm in Python that can create a waypoint path, covering the area inside the user-selected regions in a lawn mower pattern for monitoring.
- Designed and developed a 3D model of Farlain lake using **Blender**. Exported the model to Gazebo (3D Simulator) and built a Gazebo environment with GPS navigation and sonar data collection capabilities to test the autonomous navigation system.

**YorkUniversity - SDCN Lab** **Toronto, ON**

***Research Assistant - Python Developer*** *May 2020 - September 2020*

- Designed and developed a vision-based localization and navigation method for unmanned vehicles in an indoor GPS deprived environment using **Python, C and ROS**. This system was developed to provide a navigation system to a self- navigating tour guide robot at Sherman Health Sciences Research Center at York University.
- Created a multi-agent system with Unmanned Aerial Vehicles (UAVs like drones) and Unmanned Ground Vehicles (UGV like turtlebot). Where the UGVs are able to guide the multiple UAVs while traveling from one point to another.
- Enhanced localization and navigation accuracy by incorporating machine learning functionality.

## PROJECTS

**Github: https://github.com/Harsh-B-Patel**

**Help Desk Application** (**Node JS, Express JS, NoSQL, MongoDB**, **CSS, HTML,** Kali-linux)

- Developed a web based help desk chat application, with chat rooms, auto customer-admin assignment, admin authentication and many admin-only features that can be used to resolve customer's issues.
- Performed various penetration tests and static code analysis to discover potential vulnerabilities and exploits in the application. (Burp Suite, John The Ripper, Hydra, ZAP, SQL Injections, XSS Testing)
- Modified the application to patch various security exploits and vulnerabilities.

**Road Network's Robustness** (**NetworkX, Python**)

- Wrote a paper that studies the robustness and reliability of city's road networks as they undergo simulated traffic congestion. This paper also compares multiple cities and how different city planning methodologies affect local road networks.

**Portfolio Website: https://harshdev.ca/**

## SKILLS & INTERESTS

- Proficient with Microsoft Office with advanced experience in MS Excel.
- Languages: Java, HTML, CSS, JavaScript, C++, SQL, Python, PHP
- Interests: Computer Technologies, Finance, Travel, Gaming.

## EDUCATION

**York University** **Toronto, ON**

*Hons. Bachelors of Sciences, Computer Science* *April 2022*

**CGPA: 7.0/9.0 |** Lassonde Undergraduate Research Award (2021) ($10,000) | Lassonde Undergraduate Research Award (2020) ($8,000) | GM Bursary for Students in Computer Science ($3,500) | Entrance Scholarship ($1000).