

# Swapneel Bhatt

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## SUMMARY

Robotics Software Developer with internship, research and full-time experience in the development and maintenance of robotic software and computer vision applications. A fast and willing learner with a proven ability to create, optimize, and manage software applications for robotics and computer vision.

## EXPERIENCE

### Robotics Software Developer

Augmentus

July 2022 - Present, Singapore

- Developed C# code for a no-code robotics platform for operators and businesses, to reduce up to 73% in engineering costs for clients.
- Engineered algorithms for robot kinematics and motion planning to efficiently carry out robotic processes with accuracy and speed.
- Spearheaded application deployment at customer sites for welding, spraying and sandblasting applications. Reduced robot programming time by up to 21 times and increased productivity by 10 times.
- Utilized test-driven development and rigorous code reviews to ensure only high-quality code deployed at customer sites.
- Experienced with using UR, ABB, Yaskawa, Kawasaki and Mitsubishi robots.
- Implemented industrial computer vision enhancements for robots such as Keyence CV-X, and LMI Gocator Scanners.

### Corporate Research (Robotics) Intern

Robert Bosch SEA

January 2021 - December 2021, Singapore

- Robotics intern for an R&D Project developing a new automated plastic-waste sorting system for SEA markets.
- Developed code integration of Industrial ABB Robot and ROS with Vision AI-based plastic waste sorting system to increase productivity by 60%.
- Created a digital twin for the robotic arm and supporting mechatronic systems on the conveyor belt.
- Designed proof-of-concept demo utilising a smaller 6-degree-of-freedom robotic arm and supporting sensors for sorting application.
- Integrating the robotic system with the TeraHertz sensor used for the classification of plastic waste based on plastic types.

### Robot Navigation Intern

Transforma Robotics

May 2020 - August 2020, Singapore

- Developed navigation package with the software team for novel disinfectant robot designed to tackle COVID-19 spread.
- Collaborated with software leads to gain knowledge about the application, and learn ROS architecture.
- Utilised ROS Navigation Stack to program robot path planning for application tasks in a mapped environment, leading to 4x faster disinfection.

## PROJECTS

### Final Year Project

August 2021 - April 2022

- Developed code for integrating camera feed features in a human-machine interface for a construction site stair-climbing robot.
- Conducted a literature review of existing image stitching methods to achieve 360-degree views for automobiles and robots with fish-eye cameras, and sourced appropriate fish-eye cameras for the project.
- Carried out image stitching to achieve 360-degree views and prepared frames for individual directional camera feeds as well.
- Integrated camera feed and different views with JavaScript UI server and implemented bi-directional communication to let the user select camera view.

### intelliJob - Intelligent Job Seeking Platform

iNTUition Hackathon - JobTech Track Winner • March 2022 - March 2022

- Developed a platform that provides a curated list of jobs keeping in mind the user's cognitive, sensory and mobile impairments, powered by data and delivered to their fingertips.
- Utilised a combination of NLP algorithms and trained over 1000 job postings to find suitable job postings for users with impairments on Indeed.com.
- Explored development on this project to expand it for freshly graduated students and internship seekers as well.

### Robotic Dishwasher

Robotics Course Project • August 2021 - October 2021

- Engineered a 6-DOF Robotic Arm and surrounding mechatronic systems to automate dishwashing in households.
- Designed a system consisting of the robotic arm, trays for dirty and clean utensils, and a rinsing and scrubbing station to clean over 5 types of utensils.
- Led the robotic control team and utilized ROS, MoveIt!, and Dynamixel Workbench to carry out motion planning and actuation of the robot.

## EDUCATION

### Bachelor of Engineering in Mechanical Engineering

Nanyang Technological University • Singapore • 2022 • 4.32 GPA

- Specialised in Robotics and Mechatronics

## SKILLS

Software:

ROS, Computer Vision, Python, C++, C#, Java, Unity, Solidworks, AutoCAD, OOP, ABB RAPID, URScript