

# Swapneel Bhatt

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## EDUCATION

**Columbia University, New York, NY**

Aug 2024 - Dec 2025

M.S in Mechanical Engineering, Robotics and Control Concentration

- Relevant Coursework: Applied Robotics, Robotics Studio, Data Science

**Nanyang Technological University, Singapore, SG**

Aug 2018 - Jun 2022

B. Engg, Mechanical Engineering, Mechatronics and Robotics Specialisation, GPA: 4.32/5

- Relevant course work: Intro to Robotics, Machine Vision, Mechatronics System Design, Theory of Mechanisms, Fluid Mechanics, Heat Transfer & Thermodynamics, CAD/CAM, Object Oriented Programming.

## PROFESSIONAL EXPERIENCE

**Augmentus, Singapore, SGP**

Jul 2022 - Jul 2024

Robotics & Application Engineer

- Developed C# code for a no-code robotics platform for robot operators to reduce up to 73% in engineering costs for clients.
- Engineered robot kinematics and motion planning solvers to execute over 5 different robotic manufacturing processes.
- Spearheaded application deployment at customer sites for welding, spraying and sandblasting applications and reduced robot programming time by up to 21 times and increased productivity by 10 times.

**Bosch, Singapore, SGP**

Jan 2021 - Dec 2021

Corporate Research Intern (Robotics)

- Programmed industrial robot arm motion for development of novel automated plastic-waste sorting system for SEA markets to sort 3 types of residential plastic waste using a multi-modal AI system.
- Created a digital twin on ROS for ABB robotic arm and supporting mechatronic systems on conveyor belt.
- Integrated ABB programs and digital twin with Vision AI-based plastic waste sorting system to increase productivity by 60%.
- Organised regular research progress presentations to Bosch Corporate Research Scientists and management.

**Transforma Robotics, Singapore, SGP**

May 2020 - Aug 2020

Robot Navigation Intern

- Constructed navigation package with software team for novel disinfectant robot designed to tackle COVID-19 spread.
- Utilized ROS Navigation Stack to program robot path planning for application tasks in a mapped environment, leading faster disinfection by 4 times.
- Collaborated with software leads to review ROS architecture usage and application knowledge base.

## PROJECTS

**Final Year Project, Robotics Research Centre, NTU**

Aug 2021 - Apr 2022

- Developed software to integrate vision features in operator 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 identified specifications for cameras needed.
- Carried out image stitching to achieve 360-degree views and prepared frames for individual directional camera feeds.
- Integrated camera views with JavaScript UI server and implemented remote operation to let user modify views.

**intelliJob - Intelligent Job Seeking Platform, iNTUition Hackathon, NTU**

Mar 2022 - Mar 2022

- Won the iNTUition Hackathon's JobTech Track in 2022 by developing job-seeking platform to provide a curated list of jobs keeping in mind user's cognitive, sensory and mobile impairments.
- Utilised a combination of NLP algorithms and trained over 1000 job postings to find suitable job postings for users with impairments on various job seeking platforms.
- Explored development to expand for freshly graduated students and internship seekers with over 100 student surveys.

**Robotic Dishwasher, Robotics Course Project - NTU**

Aug 2021 - Oct 2021

- Engineered a 6 degree of freedom Robotic Arm and supporting mechatronic systems to automate dishwashing.
- Designed a system consisting of robotic arm, utensil trays, and a rinsing and scrubbing station to clean over 4 types of utensils.
- Led robotic control team and utilized RViZ, ROS MoveIt!, and Dynamixel Workbench to execute motion planning and actuation of robot.

## SKILLS

**Technical:** ROS, Computer Vision, Python, ABB RAPID, URScript, C#, Unity, Solidworks, AutoCAD. Proficient in ABB, UR, and Yaskawa robot usage.

**Spoken languages:** Fluent in English and Hindi, elementary German (A2 Certified).

**Interests:** Drumming (Rockschool UK Grade 5) , SCUBA (SSI Advanced Certified), Soccer, Trekking.