

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, Industrial Automation, 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: 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.