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.

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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.