

# CHINMAY AMRUTKAR

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## PROFILE

As a dedicated Robotics Engineer, I bring expertise in **computer vision**, **image processing**, and **robotic manipulation**, fueled by a passion for **robotics**, **AI** and **autonomous navigation**. I am committed to harnessing these skills to develop cutting-edge **algorithms** that tackle complex real-world challenges while advancing the betterment of society. Guided by a deep dedication to **inventing and simplifying**, I strive to **deliver impactful results** that push the boundaries of robotics technology. I thrive in **collaborative** settings, partnering with teams to transform obstacles into **innovative solutions** that create a meaningful difference.

## EDUCATION

**Master of Science in Robotics and Autonomous Systems (AI) at Arizona State University (Tempe, AZ)** Aug 2024 – Present

- Achievements: NAMU University Scholarship (\$10,000), Engineering Fellowship (\$1000)
- Courses: Artificial Intelligence, Robotics Systems, Space Robotics and AI, Machine Vision and Pattern Recognition

**Bachelor of Technology in Robotics and Automation at MIT World Peace University (Pune, India)** Aug 2019 – May 2023

- Achievements: CGPA: **9.77/10**, Graduated as a Gold Medalist, 3 times merit scholarship holder (\$3750)

## SKILLS

- Programming Languages: **Python, C++, C, Java, PyTorch, Tensorflow, Machine Learning**
- Software and Frameworks: MSC Adams, Virtual Test Drive, SolidWorks, Fusion 360, MATLAB, ROS, ROS2, Git, Optimization, **Linux, Ubuntu**
- Soft Skills: **Problem Solving, Teamwork, Leadership, Effective Communication**, Time Management

## PUBLICATIONS

- "Overview of Autonomous Vehicles and Its Challenges", *Techno-Societal 2022. ICATSA 2022. Springer, Cham*
- "A state-of-the-art review on robotics in waste sorting: scope and challenges", *International Journal on Interactive Design and Manufacturing (IIJDeM)*, vol. 17, 2789–2806 (2023)

## PROJECTS

**Motion Magnification for Subtle Signal Amplification** Feb 2025

- Developed an Eulerian video magnification **algorithm** in **Python** using OpenCV to amplify subtle color changes in facial videos, effectively revealing physiological signals such as blood pulse.

**Integration of MyCobot Pro 600 and Digital Twin for Maze Navigation** Dec 2025

- Developed an **autonomous maze-solving** system by integrating **computer vision** (Python, OpenCV) and **inverse kinematics** (MATLAB), enabling precise **motion coordination** for the MyCobot Pro 600.
- App advanced skills in **video processing**, temporal filtering, and signal analysis, with applications in healthcare and structural monitoring.

**Design and Prototyping of Robotic Arm for Waste Sorting using Computer Vision** Sep 2022 – Nov 2022

- Built a 4 DOF **robotic arm** with Arduino control for **robotic manipulation**, capable of sorting recyclables (glass, paper, cardboard, tin cans) with a payload capacity of 200 grams, addressing **real-world sustainability challenges**.
- Trained a **deep learning** model (**YOLOv7**) on 2000+ images for **object detection**, achieving high accuracy in **perception** tasks.

## WORK EXPERIENCE

**Graduate Engineer Trainee at Jabil Circuit India Private, Pune, India** Jan 2024 – July 2024

- Led the design and implementation of an automated ESD wristband monitoring system, reducing ESD-related incidents by 30%.
- Worked closely with **cross-functional** teams to understand their specific needs, delivering tailored solutions that improved operational efficiency.

**R&D Intern at Hexagon Manufacturing Intelligence, Pune, India** Feb 2023 – Aug 2023

- Created and automated over 1000 test cases using Sikuli (OCR tool), developing a user-friendly tool that enabled non-coders to generate test scripts, boosting **test efficiency by 20%**.
- Developed a script generation tool, enabling non-technical team members to contribute to **automation** and improving **productivity by 40%**. Acquired a deep understanding of both Virtual Test Drive and MSC Adams Software.

## LEADERSHIP AND VOLUNTEER WORK

**Volunteer – Center for Human, Artificial Intelligence, and Robot Teaming (CHART) Lab** Jan 2025 – Present

- Contributing to cutting-edge research on human–AI–robot collaboration in mission-critical scenarios, gaining hands-on experience with robots like FETCH, HUSKY, UR5, ABB Yumi, and Turtle Bot.

**Team Captain – Design and Manufacturing of Electric Vehicles** Jan 2020 - Jan 2023

- Upheld **High Standards** by **diving deep** into cross-functional challenges, taking **ownership** of a 14-member team to think big for designing an electric vehicle that clinched first place in acceleration through bold innovation and **teamwork**.

**Robotics Instructor, Volunteer** Jan 2023

- Successfully led hands on **training** program in robotics and IoT to enhance technological skills in rural India.