

Bharath Kukka

github.com/bharathkukka | linkedin.com/in/bharathkukka | bharathkukka.github.io | bharathkukka86@gmail.com | 9505666566

AI & Robotics Student focused on building autonomous systems and intelligent applications. Skilled in machine learning and robotics, aiming to create solutions for real-world problems.

Internship

Robotics Engineering Intern | 6-Axis Manipulator [GitHub](#) **Jun 2025 - Present**
Manav Rachna University

- Collaborated with a 3-member team to design, develop, and integrate a 6-axis robotic arm from scratch.
- Derived and validated DH parameters, implementing forward & inverse kinematics in MATLAB with optimized joint trajectories.
- Developing a ROS-based software stack for motion planning, trajectory execution, and manipulator control.

Projects

ShunyaNet [GitHub](#) **Apr 2025 - Present**

- Designed and implemented ShunyaNet, a custom CNN backbone inspired by ResNet, Inception, and SE-Net blocks, built for multi-domain image classification.
- Built an 8-class emotion-recognition model in PyTorch to drive a supportive content recommendation engine.
- Ported and trained TensorFlow/Keras versions for crop disease detection (Cotton 4-class and Paddy 10-class).

Home Security System [GitHub](#) **Jan 2025 - May 2025**

- Built a 3-class face recognition access system using MTCNN + Inception-ResNet-V1 model backbone for secure authentication.
- Developed a modular intrusion detection framework that leverages Gemini's generative AI for threat identification, triggers low-latency safety notifications via Telegram.
- Working on an end-to-end security platform that combines three CV models with a real-time web dashboard for monitoring and user control.

5-Axis Manipulator [GitHub](#) **Jul 2024 - Dec 2024**

- Led a 3-member team in the end-to-end design, build, and implementation of a 5-axis robotic manipulator.
- Modeled and validated kinematics using MATLAB, solving forward & inverse kinematic equations for accurate motion control.
- Built a Python (Tkinter) GUI to control the arm, issuing serial commands to Arduino Uno for stepper motors and servo actuation.

Research & Publications

- **Patent Application Published:** “Child Safety and Supervision Device”, Indian Patent Office Journal (04/07/2025), Application No: 202511059449 A. Currently developing human fall detection and threat detection models, with planned deployment on edge hardware for real-time safety monitoring.
- **Publication:** “Design and Implementation of a 5DOF Pick and Place Robotic Arm”, published in Innovations and Advances in Cognitive Systems (Springer, Information Systems Engineering and Management, Vol. 61), 2025.[DOI](#)

Skills

Programming: Java (Intermediate), Python
Deep Learning: TensorFlow, Keras, PyTorch, OpenCV, scikit-learn
Robotics: ROS(Basic), MATLAB Robotics Toolbox
Developer Tools: Docker, PyCharm, Eclipse, Git, GitHub

Education

B.Tech in Robotics & AI Manav Rachna University CGPA: 8.7/10 Senior Secondary (XII) Sri Chaitanya Junior College Score: 94.4%	Haryana, India Jun 2022 - Jun 2026 Telangana, India Jun 2020 - May 2022
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Achievements & Certifications

- Dean’s List in 4th and 6th semester.
- Python Web Developer - Infosys Foundation, **Aug 2025**
- Robotics & Control - NPTEL, **Mar 2024**
- Java - Coding Ninjas, **Jun 2025**

Languages : Telugu, Hindi, English