

Himanshu Sharma

Robotics & Automation Engineer
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EDUCATION

- **Bachelor of Engineering in Automation & Robotics** Expected Jul 2026
Modern Education Society's Wadia College of Engineering (SPPU) Pune, Maharashtra
 - **Relevant Coursework:** Robotics — IIT Kanpur (NPTEL), Introduction to Python — CS50P (Harvard University), Introduction to Artificial Intelligence — CS50AI (Harvard University)

EXPERIENCE

- **Robotics Intern — Industrial Robotics** Feb 2026 – Present
FANUC India Pvt. Ltd. Bangalore, Karnataka
 - Worked with FANUC industrial and collaborative robots including CRX-10iA/L, M-2000iA, M-900iB, and R-2000iC series on simulation, inspection, palletizing, and machine tending applications.
 - Performed robotic feasibility studies and process simulations using FANUC RoboGuide for industrial automation customers, covering palletizing, chip-cleaning, and multi-machine handling systems.
 - Optimised robot trajectory planning using Target Point methods, reducing TP programming overhead and improving cycle-time efficiency across simulation projects.
 - Conducted thermal and joint-load analysis for high-cycle robotic operations, evaluating reducer lifespan and operational constraints under elevated ambient temperatures.
 - Built a bidirectional digital twin of the CRX-10iA/L collaborative robot by integrating FANUC RoboGuide with a ROS 2 Humble environment over Modbus TCP, enabling real-time robot-simulation communication.
 - Deployed fanuc_ros2_driver on WSL2 (Ubuntu 22.04) and documented end-to-end integration workflows for cross-system replication.
 - Assisted in loan inspection, rectification, backup restoration, and commissioning workflows for CRX and LR Mate robot systems.
 - Produced technical SOPs, onboarding guides, and training documentation for RoboGuide and industrial robotics workflows.
 - Participated in customer demonstrations, factory visits, and internal 5S implementation activities.
- **UAV Engineer** Dec 2025 – Jan 2026
QuantumTechFPV Onsite
 - Core member of the engineering and build team for end-to-end development and delivery of 10 hexacopter anti-jamming UAVs with fiber-optic primary control and RF (ELRS) failover at 5 km range, delivered to an Indian Army battalion in Prayagraj.
 - Performed early-stage assembly including soldering high-current bullet connectors, ESC phase wires, and 6S power distribution, ensuring low-resistance, reliable joints across all units.
 - Developed comprehensive technical and operator manuals documenting system architecture, ArduPilot baseline configuration, and integration workflows for the hexacopter platform.
 - Standardised pre-flight, failover, and acceptance testing procedures to improve link reliability, recovery safety, and field readiness.
 - Designed a battery lifecycle management and BMS tracking framework with audit-grade logging to reduce in-field power failures.
- **Automation Intern** Jul 2025 – Sep 2025
Spark Minda Onsite
 - Gained hands-on exposure to Surface Mount Technology (SMT) production lines, covering PCB assembly from laser marking and solder paste printing through automated optical inspection (AOI) and quality control.
- **Technical Copywriter** Jan 2024 – Mar 2024
cryptoprism.io Remote
 - Produced technical content for a DEX screener SaaS product targeting cryptocurrency users, contributing to improved user engagement and product adoption.

PROJECTS

- **DeX: Robotic Manipulator** | *CAD, 3D Printing, ESP32, Python*
 - Designed and built a 5-DOF robotic manipulator with gesture-based teleoperation using flex sensors and wireless ESP32 communication, exploring intuitive human-robot interaction paradigms.
- **Robot Mechanics** | *Python, NumPy, Matplotlib*
 - Developed an open-source Python library implementing core robotics concepts — coordinate transformations, forward/inverse kinematics, and robot link modelling — from first principles, with modular components, unit tests, and visualisation tooling.
- **Multi-Agent LLM Architecture for Robotic Manipulation** | *ROS 2, Python, Gazebo*
 - Designed and implemented a multi-agent LLM system (Planner, Executor, Supervisor, and Feedback agents) over a ROS 2 bridge to control a 5-DOF manipulator for tabletop pick-and-place tasks, achieving a 75% task-success rate validated in Gazebo simulation.
- **Preview — PDF Viewer** | *PyQt5, MuPDF, Python*
 - Built a minimalistic cross-platform PDF viewer using PyQt5 and MuPDF, designed for fast rendering with a clean interface.

TECHNICAL SKILLS

Programming Languages: Python, MATLAB

Robotics & Simulation: FANUC RoboGuide, ROS 2 (Humble), MoveIt 2, RViz2, TP Programming, Gazebo

Industrial Robotics: Palletizing, Machine Tending, Cycle-Time Optimisation, EOAT Design, Joint Load Analysis, Reducer Lifespan Analysis, iRVision, PMC

Digital Twins & Communication: Modbus TCP, fanuc_ros2_driver, Bidirectional Robot-Simulation Integration

Hardware & Embedded: ArduPilot, ESP32, ESC wiring, 6S Power Distribution, SMT Assembly, BMS

Programming Libraries: NumPy, Matplotlib, PyQt5, MuPDF

CAD & Design Tools: SolidWorks, Figma, LaTeX

Development Environments: Ubuntu 22.04, WSL2, Windows 11

Concepts: Robot Kinematics, Trajectory Planning, Digital Twins, Industrial Automation, 5S Methodology

COURSES & CERTIFICATIONS

- Robotics — IIT Kanpur via NPTEL
- CS50 Introduction to Python — Harvard University
- CS50 Introduction to Artificial Intelligence — Harvard University
- From Big Bang to Black Holes — University of Tokyo via Coursera

LEADERSHIP

- **Co-founder, Avinya Club** — Founded a project-focused student club at MESWCOE Pune for hackathons and technical development and bagged funding to create Lab from a startup.
- **Technical Head, ASME Student Chapter** — Led technical initiatives and projects as head of the American Society of Mechanical Engineering Student Chapter at MESWCOE Pune.
- **Event Organiser & Speaker** — Organised inter-collegiate technical events and served as keynote speaker; won multiple competitions.

INTERESTS

Reading: Non-fiction, Evolutionary Biology, Physics, Philosophy, Astronomy, Science Fiction

Music: Instrumental, Original Soundtracks

Writing: Technical blogs, Poetry, Personal journals