

KEIVALYA B. PANDYA

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Experience

Birla Vishvakarma Mahavidyalaya

Robotics Engineer and Full-stack Developer

Vallabh Vidyanagar, Gujarat

December 2023 – August 2024

- Developed a modular, centralized control software using **OPC-UA** communication protocol interfaced with **ROS2** to manage N static stations and M autonomous mobile robots (**AMRs**), enhancing system coordination & reducing operational delays.
- Implemented an **E-commerce** platform using **Django** to host and sell institutional components, and inventory management, which streamlined the sales process and increased online engagement.

Indian Space Research Organisation (SAC/ISRO)

Researcher

Ahmedabad, Gujarat

December 2022 – June 2023

- Developed a **Deep Neural Network (DNN) Architecture** using **Keras**, **PyTorch** and **Tensorflow** model for automated land-use classification, achieving 90% accuracy in satellite imagery analysis, supporting urban planning.
- Engineered a **Digital Twin** for the Thermo-Vacuum Chamber, optimizing quantum payload testing, resulting in a 20% reduction in system validation time and improving simulation accuracy by 17%. Published in Current Science Journal.

IIT Delhi - AIA - Foundation for Smart Manufacturing

Machine Learning Mentor | Researcher

New Delhi, Delhi

June 2023 – December 2023

- Led 44 ML/AI research projects under Prof. Dr. Sunil Jha, Director, focusing on applications in smart manufacturing using **Machine Learning**, Computer Vision, **Robotics**, Digital Twin, AR/VR, and IIoT.
- Mentored 17 interns across diverse academic levels in the Internship, providing guidance on ML/AI projects.

Academic Qualifications

Northeastern University

Master of Science in Robotics | Concentration: Computer Science

May 2026

Boston, Massachusetts

Relevant Coursework: Reinforcement Learning and Sequential Decision Making, Mobile Robotics

Birla Vishvakarma Mahavidyalaya

Bachelor of Technology — GPA: 3.60

June 2023

Vallabh Vidyanagar, Gujarat

Skills

Languages: Python, C/C++, C#, R, JavaScript, SQL, Arduino

Specialization: Machine Learning (ML), Computer Vision (OpenCV/CV), Reinforcement Learning (RL), Artificial Intelligence (AI), Deep Learning (DL), Robot Operating System (ROS), Natural Language Processing

Frameworks/Libraries: Pytorch, Tensorflow, Keras, Stable Diffusion, Transformers

Algorithms implemented: Extended Kalman Filter, Particle Filter, Rao-Blackwellized Particle Filter, FastSLAM

Publications

Research Papers

- Automating Customer Service using LangChain: Building custom open-source GPT Chatbot for organizations
- Application of digital twin in space engineering using AR and IOT technology, November 2023 **ISSN 0011-3891**
- Bare PCB Fault Detection in Real-Time Using YOLOv5, December 2022 **ISSN 2320-088X**

Patents

- IN Patent 356336-001/125869, “**AI-based Prosthetic Limb with EMG sensors**,” January 19, 2023.

Projects

Franka Robot Arm Manipulation using Behavioral Cloning | *Pytorch, MoJoCo*

October 2023

- Leveraged **Relay Policy Learning** for long-horizon task handling and **TD3** for continuous action spaces, integrated with MoJoCo simulation for real-time interaction with a 9-DoF Franka robotic arm.
- Developing a robotic system that autonomously performs cooking-related tasks, using a **Reinforcement Learning** approach trained on **human demonstration data** and refined with sequential decision-making algorithms.

Autonomous Mobile Robot (AMR) | *Robot Operating System*

March 2024 to May 2024

- Developed an **AGV** integrated with a robotic arm from Omron, leveraging **ROS2** for navigation and control.
- Engineered the system for autonomous operation, enabling precise maneuverability and interaction with its environment using SICK company LiDAR and other sensors.