

DEVADAS VIJAYAN SHEELA

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📍 Rothenburger Straße, Nuremberg, Germany 🌐 Portfolio 📄 LinkedIn

Summary

Robotics and AI research assistant with 1.2 + years of research-driven experience, complemented by 3 years of hands-on technical operations experience. Currently completing a Master's degree in Electromobility with a growing focus on Robot learning.

Education

- Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)** March 2023 - Expected Oct 2026
M.Sc. Electromobility – GPA: 2.0 (German grading scale) Erlangen, Bavaria
- Coursework: Robotic Frameworks (ROS), Robotics, Robot Mechanism and User Interface, Machine Learning, Python, MATLAB, Human-computer Interaction, Automotive Engineering, Mechatronics.
- TKM College of Engineering** Jun 2014 – May 2018
B.Tech. Mechanical Production Engineering Kollam, Kerala, India
- Coursework: Computer programming, Mechanics of solids-Fluids, Thermodynamics, CAD,

Experience

- University of Technology Nuremberg (UTN)** Sep 2025 – Present
Student Research Assistant / Hiwi – Robotics & AI Nuremberg, Germany
- Collaborated with doctoral researchers in implementing and evaluating research methods on robotic manipulators.
 - Conducted literature reviews and contributed to benchmark state-of-the-art bin-picking algorithms.
 - Executed experiments on the Franka Emika Research 3 and contributed to research publications.
 - Developed teleoperation pipelines for the Franka Emika to collect interaction data for tuning VLA models.
 - Designed and configured multiple robotic hardware setups for different experimental scenarios
 - Supported hardware integration through robot setup, CAD design, and 3D printing
- Factory Automation & Production Systems (FAPS), FAU** Jul 2024 – Present
Student Thesis Work – Robotics & Automation Erlangen, Germany
- Executed CAD-to-URDF workflows to generate dynamically stable custom robot simulation models.
 - Developed autonomous navigation pipelines for mobile robots in Isaac Sim to improve sim-to-real consistency.
 - Researching on mobile manipulation using RL and navigation using VLA in Isaac Lab.
- Fraunhofer Institute IVI** Jul 2024 – Jan 2025
Student Research Assistant – Robotics & Autonomous Systems Ingolstadt, Germany
- Contributed to the development drone systems for research projects and conducting real-world flight experiments
 - Implemented object detection algorithms using onboard Intel RealSense cameras for collision avoidance
 - Documented experimental results and performance for iterative improvement of autonomous flight behavior
- Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)** Apr 2024 – Jul 2024
Teaching Assistant / HiWi – MATLAB Laboratory Erlangen, Germany
- Assisted professors in MATLAB laboratory courses and evaluated student assessments
- Boostmysites** May 2019 – Sep 2023
Technical Operations Engineer Bangalore, India
- Maintained system operations, monitored data pipelines, and coordinated with cross-functional teams to ensure reliable deployment and performance of AI/SaaS services

Apollo Tyres
Mechanical Maintenance Intern

Nov 2018 – Feb 2019
Kerala, India

- Performed preventive maintenance and inspection of industrial machinery supporting production operations.

Thesis & Projects

Master's Thesis II Dec 2025 – Present
Factory Automation & Production Systems (FAPS) Germany

- **Title:** VLA Guided Navigation and RL-based Object Manipulation for a Custom Assistive Robot.
- **Concept & Tools:** ROS 2, Vision–Language–Action models, Reinforcement Learning, Isaac Lab.

Master's Thesis I (Project Thesis) May 2025 – Dec 2025
Factory Automation & Production Systems (FAPS) Germany

- **Title:** Isaac Sim-based Multibody Dynamic Simulation of a Human-Centered Assistive Robot and its Autonomous Navigation in Indoor Complex Environment.
- **Concept & Tools:** ROS 2, Navigation2 Stack, Isaac Sim, Autodesk Fusion 360, ZED depth camera.

Bachelor's Project Jan 2017 – May 2018
TKM College of Engineering India

- **Title:** Designed and fabricated a multi-utility hybrid electric vehicle.

Technical Projects

Hardware Prototyping for Robotics and AI Integration

- Built autonomous robotic prototypes using Arduino, ESP32, motor drivers, and 3D-printed mechanical components.
- Integrated Jetson Nano with ZED Mini for stereo depth perception and edge AI experimentation.

JetBot Autonomous Navigation System

- Deployed ROS 2 and the Navigation2 (Nav2) stack on NVIDIA JetBot for autonomous navigation and localization.
- Validated simulation-to-hardware workflows using Gazebo, teleoperation, and remote SSH-based debugging.

Image Segmentation for Robotic Grasping

- Implemented interactive image segmentation using SAM-2 to generate binary masks for robotic grasping tasks.
- Integrated Python, PyTorch, and OpenCV to support vision-based object selection and manipulation pipelines.

Machine Learning and Deep Learning Projects

- Developed machine learning and deep learning models for regression and classification using Python.
- Built end-to-end ML pipelines with data preprocessing, evaluation, and visualization using scikit-learn and pandas.

Technical Skills

- **Programming:** Python, C++, MATLAB
- **Autonomy & Robotics:** ROS 2, Navigation2 (Nav2), SLAM, Motion Planning, Mobile Robots, Manipulators
- **Perception:** Object Detection (YOLO, OpenCV), Segmentation (SAM-2), Stereo & Depth Sensing (ZED 2i, Intel RealSense)
- **AI / Machine Learning:** Machine Learning, Deep Learning, Reinforcement Learning, Vision–Language–Action (VLA) Models, PyTorch
- **Robotic Simulation:** Isaac Sim, Isaac Lab, Gazebo, MuJoCo, CARLA
- **Systems & Hardware:** Linux (Ubuntu), NVIDIA Jetson, Franka Emika Research 3, ESP32 Development Boards, 3D Printing
- **Modeling & CAD:** Autodesk Fusion 360, Onshape
- **Tools & Workflow:** Git, GitHub, GitLab, VS Code