

# DHARNISH GIRI

Hörigstr.4, Dortmund • +49 151 11227434 • vgdharnishkumar@gmail.com

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## SUMMARY

Motivated and detail-oriented Robotics and Automation Engineer with hands-on experience in industrial robot programming (KUKA, ABB, Mitsubishi) and academic expertise in ROS-based robot control, motion planning, and path navigation. Skilled in gripping mechanisms, robot hardware evaluation, and automation of assembly processes. Passionate about mechatronic innovation, gripper technologies, and applying structured benchmarking frameworks. Strong teamwork, problem-solving, and documentation abilities, with proficiency in Python, C++, ROS, and sensor integration.

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## EDUCATION

**Master of Science in Automation and Robotics**

**Oct 2024 - Present**

Technical University of Dortmund

**Bachelor of Engineering in Robotics and Automation**

**Aug 2019 - Apr 2023**

PSG College of Technology

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## ACADEMIC PROJECTS

**Mobile Robot Navigation and Path Planning in ROS2**

**Jun 2025 - Jul 2025**

- Developed and simulated a complete navigation stack for a TurtleBot3 in a Gazebo environment using ROS2 Humble.
- Implemented and benchmarked various path planning algorithms (RRT, PRM, TEB), analyzing their performance based on path length and computation time.
- Gained experience with core ROS2 concepts including nodes, topics, services, and the tf2 transformation system while troubleshooting data flow and timing issues.
- Technical Skills: ROS2, Gazebo, TurtleBot3, Python, C++, rclpy, tf2, Navigation2 Stack

**Robot Motion Control in ROS1**

**Jan 2025 - Feb 2025**

- Used UR10.urdf to generate robot .
- Performed point to point motion and Trajectory control via Action Server and Client.
- Plotted graph between joint states and joint variables.

**Vision Based Attendance System**

**Aug 2022 - Nov 2022**

- Leveraging computer vision and facial recognition algorithms, an automated attendance system was developed to identify and detect student faces for attendance recording.
  - Local Binary Pattern Histogram (LBPH), OpenCV, and Haar cascade were utilized to implement face detection and recognition.
  - Designed a QT-based GUI application for training, attendance tracking, and data management.
  - Optimized the system to handle multiple faces simultaneously and improved accuracy under varying lighting and motion blur conditions.
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## WORK EXPERIENCE

**Robotics Engineer, Titan Engineering and Automation Limited**

**Aug 2023 - Aug 2024**

- Worked on the automation of Cylindrical Battery Pack Assembly and Deep Groove Ball Bearing Assembly lines.
- Programmed Mitsubishi and ABB robots for various tasks including pick and place, dispensing, and vision-guided operations.
- Focused on improving cycle time and ensuring precise handling of components in high-throughput environments.

- Contributed to the automation of TCU Assembly Line and MET HVAC Assembly Line by programming KUKA robots for specialized manufacturing operations.
  - Tasks included pick and place, palletizing, and negative validation for the TCU line, as well as screwing operations for HVAC components.
  - Focused on enhancing process reliability and ensuring compliance with quality standards.
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## **SKILLS**

### **Robotics & Simulation**

- ROS2 (Humble), ROS1, Gazebo, RViz, Navigation2, Motion Planning (RRT, PRM, TEB), Robot Kinematics, Trajectory Planning, Gripper Technologies, End-Effector Strategies

### **Programming & Libraries**

- Python (rclpy, OpenCV, NumPy, Pandas), C++, MATLAB, Git, GitLab, VS Code, Linux (Ubuntu)

### **Industrial Automation**

- KUKA (WorkVisual), ABB (RobotStudio), Mitsubishi (RT ToolBox), Rc+07 Epson, Universal Robot
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## **LANGUAGE SKILLS**

- Mother Tongue: Tamil
- Other Language: English (IELTS - 7.0), German (A1 - Actively studying towards A2)

Place: Dortmund

Date : 29/08/2025