ARAVIND PALAKKAL

Contact

Phone
(+491) 17629881418

Email
aravind.jpalakkal@gmail.com

Address
90489 Nürnberg, Bavaria, Germany

LinkedIn
linkedin/aravind-palakkal

Education

October 2024-October 2026
M.Sc. Elektromobilität-ACES
Friedrich-Alexander-Universität Erlangen-Nürnberg - GPA - 1.9

July 2018- September 2022
B.Tech in Mechanical Engineering
Sardar Vallabhbhai National Institute of Technology, Surat - GPA - 2.4

Professional Skills

Programming & Robotics Frameworks:
Python, PyTorch, ROS2, OpenCV, C++.

MLOps & Deployment
Docker, Git, CI/CD pipelines, ROS2 integration, Isaac Sim, real-time inference.

CAD & Simulation
SolidWorks, AutoCAD, Creo, CATIA V5, Ansys Fluent, OpenFOAM,
3D Printing & Rapid Prototyping.

Project Methodologies
Life-cycle analysis, Risk assessment, Performance tracking

Language

English – C1 - Fluent
German – B1 - Intermediate

Projects

- **Development of RNN model for optimization of Airfoils**: it is an ongoing project using OpenFOAM that simulates two airfoils as a system to analyze various stall angles and optimize the design.
- **Haptic Interface for UR Robot**: Developed a Haptic Interface for a 6 Degrees of Freedom Universal Robot for handling delicate objects, showcasing the ability to develop innovative ideas and apply them in the building of prototypes.
- **Machine Learning model for optimization of Auxetic Structures**: Designed and simulated 500+ auxetic structures using Solid-Works and ANSYS Fluent; trained regression models to predict deformation behavior, achieving 96.2% accuracy.
- **SCARA Robotic Arm Concept for 3D Printer**: Created initial designs of a SCARA Robotic Arm for a 3D printer using CATIA, demonstrating early exposure to structured mechanical design and stereo-lithography.
- **Wedge-Based Combat Robot Valyrion Robotics Club**: Drafted concepts through 6 refined rounds of feedback and produced prototypes for a wedge-based combat robot (Valyrion Robotics Club, SVNIT, Surat) using SolidWorks.
- **Sustainable Railway APU Feasibility**: Achieved 27% cost savings with environmental benefits (NO_x/SO_x reduction).

Professional Experience

November 2025– April 2026
JARM.AI GmbH
Werkstudent - Robotics Engineer

- Architected and optimized data flows between Isaac Sim (simulation), MoveIt (motion planning), and ROS2 (Jazzy) for robust end-to-end robotic system validation; scope of activities includes complete low-level driver abstraction and MoveIt integration.
- Refactored ROS2 driver abstraction layer, reducing estimated system bring-up time by 30%; documented technical implementation in internal guides shared with the engineering team.
- Trained and optimized Vision-Language-Action (VLA) models; prepared and validated datasets for model training; evaluated and iterated on model results to improve performance on the S101 robotic arm.
- Designed CAD models for a 7-DOF humanoid robot arm using SolidWorks, including 3D-printed prototype components for fit and assembly validation; progressing toward full simulation and hardware integration.

September 2022–November 2023
Arise Ports & Logistics
Graduate Engineering Trainee (Railway Operations)

- Conducted vibration analysis using Arduino sensors, calibrated test inputs, and documented results for predictive maintenance insights.
- Led data collection and analysis for 120+ maintenance reports, improving decision turnaround by 15%.
- Executed a project for predictive maintenance using Arduino and vibration sensors, thereby predicting constant engine failures and reducing downtime by 47%.
- Worked with the Department of Railway Maintenance on SD40 diesel locomotives (EMD645). Kept track of maintenance schedule activities, received exposure in corrective and preventive maintenance, gained exposure to the program life-cycle via maintenance scheduling and review cycles.
- SMDE (Single Minute Die Exchange) principles implemented for the purposes of quick turnaround time of locomotives, thus reducing maintenance time by 2 hours during predictive maintenance, resulting in a direct improvement of equipment availability by 10%.
- Managed more than 25 overhaul schedules and scheduling of 12+ risk assessments, supporting data-driven decision-making.