AMJAD HAIDER

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About Me

Software Developer with 6 years of expertise in machine learning and embedded systems with a background in automotive engineering. I have in-depth knowledge of simulation, and control engineering. I have implemented innovative solutions for mobile robotics and automation in international teams and am now looking for my next challenge in my career.

Work Experience

(Mar. 2025 – Sep. 2025) **RPTU Kaiserslautern-Landau: Department of Electromobility**

Kaiserslautern, Germany *Master's student in control engineering and machine learning*

Master's Thesis: Resource-Aware Pruning in Temporal Difference Model Predictive Control: Enhancing Efficiency While Preserving Stability

Grade: 1,0 (German Scale)

- Analysis of compression techniques (**Pruning, Quantization, Knowledge Distillation, Low-Rank Factorization**) for edge devices (**NVIDIA Jetson, NVIDIA Nano, Raspberry Pi**).
- Development of component-based pruning in **Pytorch**.
- Successful model reduction by 20.1% with minimal loss of performance. **(849.3 vs 858.6 Reward**).

(May 2024 – Nov. 2025) **RPTU Kaiserslautern-Landau**
Kaiserslautern, Germany *Research Assistant*

Main Task: Development of simulation and control software for robotic systems

- Development and testing simulation platforms for sensor and driving data.
- Implementation and integration of control software in **Python**, **C++**, and **Java** for real and simulated robotics applications.
- Design and implementation of IoT architectures with **MQTT** for simulation with **Python** and **Docker**.

(May 2024 – Aug. 2024) **Volkswagen Group**
Wolfsburg, Germany *Intern*

Main Task: Data analysis and software development for navigation systems

- Analysis of large data volumes and data traces using **systemd** services.
- Analysis and evaluation of various navigation approaches in **ICAS3** systems with **PyTorch**.
- Development of user interfaces for desktop applications with the **Qt framework**.

(Nov. 2023 – Apr. 2024) **Volkswagen Commercial Vehicles**
Wolfsburg, Germany *Intern*

Main Task: Safety analysis and performance enhancement of autonomous driving functions

- Safety analysis and performance enhancement of autonomous driving functions with **Amazon AWS**.
- Strategies for analyzing the **Operational Design Domain(ODD)** with **Confluence**.
- Research on **ISO 34503:2023** standards for **autonomous safety**.

(Jan. 2023 – Oct. 2023) **RPTU Kaiserslautern-Landau : Robotics Research Lab**
Kaiserslautern,Germany *Research Assistant*

Main Task: Development of autonomous vehicles with sensor fusion for passenger transport

- Development of the autonomous unmanned surface vehicle (USV) **aStrider** for environmental monitoring and navigation with sensor fusion.
- Development of the **AutoBus** autonomous minibus for safe and easy passenger transport in pedestrian zones and on campus zones.
- Development and integration of sensor interfaces in **C++** using **ROS** for autonomous robot systems.

(June 2018 – Aug. 2021) **Xitadel**
Bengaluru, *India* *Senior Software Developer*

Main Task: Development and automation of software for FEA and mesh generation

- Creation of automation scripts (Python) for **Finite Element Analysis** and dashboards, developed with **Python** and **Qt Framework**.
- Improving the mid-mesh generation process with **ANSA**.
- Implementation and debugging of complex software modules.

Education

(Oct. 2021 – Nov. 2025) **Master of Science (M.Sc.) Commercial Vehicle Technology**
Kaiserslautern, Germany *University of Kaiserslautern (RPTU)*

Grade: 1,9 (German Scale)
Competence: Autonomous Systems, Robotics, Machine Learning, Embedded Systems
Served as **class representative** for Commercial Vehicle Technology Batch 2021

(Sept. 2013 – April 2017) **Bachelor of Technology (B.Tech.) Mechanical Engineering**
Kochi,India *Cochin University of Science and Technology (CUSAT)*

Grade :2,0 (German Grade)
Competence: Mechatronics, Simulation and Control Systems, Mechanical Design
Courses: Autonomous Systems | Autonomous Mobile Robots | Electromobility | Machine Learning

Skills

- **Programming**: Python, C++, Docker, Git, C#, VBA, QT, QML, CI/CD
- **Robotics**: ROS2, Move-it2, CoppeliaSim, Webots, Gazebo, Arduino, Raspberry Pi
- **Language Skills**: German: Conversational, English: Fluent
- **Driver's license class:** AM, B, L (German Driving License)

Publications

- Sundaram, G., Ulmen, J., **Haider, A.** & Görges, D. (2025). Application-Specific Component-Aware Structured Pruning of Deep Neural Networks via Soft Coefficient Optimization. *22nd International Conference on Advanced Robotics (ICAR 2025).*
- Keen, H. E., **Haider, A.** & Berns, K. (2023). Denoising and Segmentation of SONAR Images for Rescue Operations. *Proceedings of the 56th International Symposium on Robotics (ISR Europe 2023)*.

Reference Letters can be provided on request
Kaiserslautern,Germany 12.01.2026 Amjad Haider