PRADEEP KUMAR JAYARAJ

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WORK EXPERIENCE

06.2023 - present

Position: **Software Developer**
Company: Bertrandt Engineering Services GmbH, Munich

Tasks:
- Automation of Sys.4 and Sys.5 HiL testing.
- Development of software tools for testing and debugging.
- Execution of Point on Target (PoT) tests.
- Analysis of reflectivity of the targets used in Point on Target testing.
- Development and testing of ADAS systems and AI algorithms.

04.2022 – 09.2022

Position: **Project Intern**
Company: Porsche Engineering, Mönsheim, Germany.
Projects: Automation of the HiL-Framework with UR5-Robot

Tasks:
- Programming of the universal robot UR5 with Python for the automation of the HiL framework.
- Design, modeling and 3D printing of tools.
- Manual flashing and testing of control units with Vector Tools.

09.2019 – 03.2020

Position: **Research Intern**
Company: 6S Mechatronics Inc, Coimbatore, India.
Projects: Spritzbot

Tasks:
- Team leader and performed technical calculations for the project "Spritzbot" (wall painting robot)
- Responsible for the 3D modelling of the robot with CREO parametric.
- Technical documentation of several of the company's IOT projects.

EDUCATION

10.2020 - 04.2023

Master's Degree in Automation and Robotics (M.Sc.)
Technical University of Dortmund, Dortmund, Germany
Focus:
Computer Vision, Robotics, Machine Learning

08.2016 - 04.2020

Bachelor's Degree in Mechatronics Engineering (B.E.)
Sri Krishna College of Engineering and Technology, Coimbatore, India.
Focus:
Embedded systems, Automotive engineering

QUALIFICATIONS AND SKILLS

Languages	• German - Very good in spoken and written (B1) • English - Fluent in spoken and written (C1) • Tamil - Mother tongue
programming Languages	• C, C++, R, Rust, SQL - Basic knowledge • Python, MATLAB - Advanced knowledge
Python Libraries	• NumPy, Pandas, Scikit-learn, SciPy, PyTorch, TensorFlow, OpenCV
Software and tools	• Microsoft Office: Word, Excel, PowerPoint - Advanced knowledge • Microsoft PowerBI - Basic knowledge • AWS - Basic knowledge • Docker - Basic Knowledge • PostgreSQL - Basic Knowledge • CREO Parametric -Advanced knowledge • ROS - Basic knowledge • Eagle - Advanced knowledge • NI LabVIEW -Advanced knowledge • ABB automation Builder, CODESYS - Advanced knowledge
Certifications	• Advanced **C++**, **AWS**, **Langchain**, **Docker** mastery, **Scrum** methadolgies, **Rust** crash course through Udemy (06.2024 - 07.2024). • "**Deep Learning Specialization**" through Coursera (01.2024 - 05.2024) • "**Machine Learning** " through Coursera (01.2020 - 04.2020). • "**Robotics**" through NPTEL (07.2019 - 09.2019). • "**PLC, SCADA, HMI and DCS**" by Prolific systems Pvt Ltd, Coimbatore,India (01.2018 - 05.2018).

MASTER THESIS

10.2022 - 04.2023	**3D Multi-Modal Object Detection by an End-to-End Trainable Raw Sparse Lidar and Pseudo-Lidar Point Cloud Fusion Architecture:** Development of an end-to-end deep learning framework consisting of a monocular depth estimation model and a 3D object recognition model. The generated pseudo-LiDAR point cloud from monocular images was fused with sparse LiDAR to achieve efficient and cost-effective means for 3D object recognition in autonomous driving.

PROJECTS

10.2021 - 07.2022	**Event-triggered Distributed Model Predictive Control (DMPC):** DMPC is applied to a quadrotor that can reach the target while maintaining formation constraints and obstacle avoidance constraint.
08.2019 - 04.2020	**Spritzbot:** Successfully designed and fabricated an autonomous, low-cost wall painting robot that can paint walls up to 5 feet high without human interaction.
05.2019 - 07.2019	**Autonomous machine for the production of sweets (Ladoo):** Designed and fabricated an autonomous conveyor-based machine to produce multiple sweets and participated with the model in the Smart India Hackathon (2019).
08.2018 - 04.2019	**Folgianbot**: Successfully designed and fabricated an automated shopping trolley (prototype) to assist customers with their shopping needs.

PUBLICATIONS

Journal Title :	Spritzbot-An Autonomous Wall Painting Robot
Publisher :	International Journal of Research in Engineering and Management(IJREM) , Vol 4, 2020,pp. 17-27
Reference:	IJREM A-22