MARYAM ASGHAR

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EXPERIENCE

LION Smart GmbH — **Munich**, Germany
Mid Level Software Developer **Embedded Development (BMS)** — June. 2024 – till date.

- Managed Scrum tasks in **Agile** development using **(PTC) CodeCompare** and **Python** for efficient sprint planning.
- Led release planning with **GitLab**, **SourceTree**, and **(PTC) CodeCompare** for streamlined version control and merges.
- Debugged customer traces with **CANalyzer** and **PCAN**, implementing solutions to enhance system reliability.
- Delivered end-to-end customer projects, including cabling, commissioning, and customization with **CAPL scripts for rest bus simulations**, **CANalyzer**, PCAN, and **CanExplorer**.
- Executed **commissioning protocol** for internal BMS to ensure quality in customer delivery.
- Authored and reviewed **black-box integration test cases** for external BMS to verify system compliance and performance.

LION Smart GmbH — **Munich**, Germany
Junior Software Developer **Embedded Development (BMS)** — March. 2023 – June 2024.

- Implemented high-side driver software module using **SPI (MC33XS2410)** for enhanced functionality and safety.
- Analyzed and created software modules for **Flash memory (SPI)** and **EEPROM memory (I2C)** and provided memory storage concept.
- Created system architectures for modules. collaborated on defining the **V model** for the company's development process.
- Tested and analyzed **CAN** and **UART (RS485)** drivers for reliable communication and integration with various systems.
- Conducted comprehensive hardware of software modules; Participated in peer code architecture and software requirement reviews.
- Authored best coding practices following **MISRA conventions**.

LION Smart GmbH — **Munich**, Germany
Praktikant in Software **Embedded Development (BMS)** — Sept. 2022 – Feb 2023

- Developing software modules for BMS systems
- Programming in real-time using **C/C++**, **ARM cortex-M**, **NXP development board.**
- Experienced with Communication Protocols (e.g. I2C, SPI, **CAN**)
- Further understanding of Real-Time Operating Systems (**RTOS**), Debugging Tools (GDB, **JLink**), Device Drivers, Networking (**TCP/IP**)

Guardian Technologies Gmbh — **Düsseldorf**, Germany
Werkstudent in **Embedded Systems** — March 2022 – May 2022

- **PCB-Design** on **Ki-cad** and its implementation using **Voltera V-one** using an input Gerber file.
- Printing, Drilling, and Soldering of PCB's using Voltera V-one and then testing the created PCBs.
- Conducted hardware and software co-design of Joystick Motor control.
- Developed hardware prototype of the minimal value product as a proof of concept for investors.

Technische Universität Dortmund — **Dortmund**, Germany
Wiwi – Graduate Teaching Assistant for the Courses '**Embedded Systems**' and '**Intro to Programming C++**' — Sept. 2021 – March 2022

- Delegated weekly assignments on **data flow models** (KPN, SDL, SDF), Petri Nets, **VHDL**, Integer Linear Programming, Programming, WCET & Scheduling in the course 'Embedded Systems'
- Assisted **30 Bachelor's students in understanding Advanced C++** topics such as Pointers, Recursion, Classes, Data Structures, Inheritance, and Virtual Methods.

ACADEMIC

Technische Universität Dortmund — October 2020 – March 2025
Automation and Robotics, Master's in Automation and Robotics, **GPA : 2.6** (german grading system) — **Dortmund**, Germany
Major : Cognitive Sciences and Robotics. **Thesis :** *Adaptive-reliable DNN for edge device(**Python**)*

Bosch – Udacity Program July 2022 — July 2022 – December 2022
Data Engineer for AI Applications Nanodegree Program, Nano Degree — **Dortmund**, Germany
Subjects : Data Modelling, Cloud Data Warehouses , Spark and Data Lakes, Automate Data Pipelines, Message Passing

DHA Suffa University — August 2015 – June 2019
Bachelor's in Electrical Engineering, **GPA 3.86 (with Distinction)** — **Karachi**, Pakistan
Major : Power Engineering. **Thesis :** *Control and Distribution of a Yaw Axis Wind Turbine(**Embedded C**)*

PROJECTS

"Personal portfolio website" — **– CSS, HTML, JS**
"Upper body control strategies of Nao Robots" — **– Matlab, C++**
We have deployed different control strategies to test and record which strategy provides the fastest and safest response.
"2-Dimensional Motor Control With Joystick" (2022) — **– C++**
Controlling two motors to create a 2D effect using a Joystick along with USB peripheral/host controller interface with the **Arduino.**
"Robust Multi-Stage Model Predictive Control" (2022) — **– Python**
Controlling a 2D LTI system with a robust MPC with horizon 1 and 2.
"Deep Learning Based MPC Control of Double Inverted Pendulum" (2021) — **– Python**
Controlling and Stabilizing a double inverted pendulum using deep learning based on an MPC model.

ADDITIONAL SKILLS AND EXPERIENCE

Languages: English (C2- Level), German (B2-Level)
Skills: C++, Python, RTOS, SPI, I2C, UART, SQL, R, MATLAB, KI-CAD, AutoCAD, LabVIEW, CPLEX, Simulink, Design Thinking, Project Management.

PUBLICATIONS

"Mitigating Power Fluctuations for Energy Storage in Wind Energy Conversion System Using Supercapacitors" (2020) **IF: 3.5**
"Energy harvesting using kinetic energy of vehicles" (2020)