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WORK EXPERIENCE

Master Thesis System Integration Verification & Validation

[Mar 2023- Current]

KNORR BREMSE AG, Stuttgart, Germany

- Designed a Software in Loop (**SiL**) testing environment using MATLAB-Simulink and Vector CANoe according to V-Model of Model based development.
- Created an interface based on ASAM OSI standard using Google protocol buffer and C++, enabling seamless integration of automotive **ADAS** functions (ACC, AEBS, LDWS, TSR) resulting in a **50%** reduction in simulation setup time.
- Optimizing SiL test scenarios using continuous testing (**CI-CD**) and test automation, resulting in a **25%** increase in test coverage and **40%** reduction in test cycle time.
- Conducting an in-depth evaluation of SiL developed using VECTOR and Hardware in Loop (**HiL**) developed using dSPACE, providing valuable insights for future testing strategies.
- Implemented **SCRUM** Sprint methodology in collaboration with cross-functional teams to complete and document the project in a structured and analytical way within **6** months.

Intern Electronic Development Sensors and Actuators

[Sep 2022- Feb 2023]

VITESCO TECHNOLOGIES GMBH, Regensburg, Germany

- Developed a cost-effective embedded test software to replace LabVIEW with Python and C++ DLLs to analyse the behaviour of CAN, LIN, and SENT protocols for **automotive** sensor communication, resulting in a **30%** increase in test execution speed.
- Designed a flexible, user-friendly GUI using Tkinter, resulting in a more **efficient** user experience.
- Conducted extensive testing and quality assurance measures to ensure the system's reliability and stability, resulting in a **low** error rate.

Work Student Software Development

[Mar 2022- Jun 2022]

WAITKUS ENGINEERING GMBH, Weingarten, Germany

- Successfully implemented communication protocols OPC UA and TCP/IP for remote monitoring of KPI of industrial robots, resulting in improved productivity by **20%** and reduced downtime.
- Conducted simulation and testing of an electronic circuit using LTSpice and LabVIEW, resulting in identifying and resolving design flaws, leading to improvement in the circuit's **performance**.
- Development of Collaborative robot systems (Cobot) by and robot programs using C programming.

SKILLS

Programming: C / C++ / C# / Python / Google Protocol Buffers / CAPL

Communication Protocols: CAN / J1939 / LIN / FlexRay / Ethernet / TCP / IP / OPC UA / MQTT / I2C / SPI

Tools: MATLAB / Simulink / Stateflow / LabView / Vector CANoe / CANalyzer / DYNA 4 / Visual Studio / MS Office / Confluence / PTC Integrity

Standards: ASAM OSI / OpenScenario / OpenDrive / ASPICE / ISO26262

EDUCATION

Master of Science Mechatronics

[Sep 21- Current]

RAVENSBURG WEINGARTEN UNIVERSITY, Germany

Embedded Computing, Autonomous Driving, Simulation and Integration of Mechatronic Systems, Advanced Control Systems, Electrical Drives, Robotics, Computer Vision.

Bachelor of Engineering Mechanical

[Jul 16- Nov 2020]

SAVITRIBAI PHULE PUNE UNIVERSITY, Pune, India

CERTIFICATION

- **Mastering CAN Network: Vector CANoe, CANalyzer, CAPL & Theory**, Udemy
- **CAN and LIN Communication Protocols**, Udemy
- **Autosar Architecture**, Udemy
- **Stateflow Onramp**, MathWorks
- **Simulink Onramp**, MathWorks
- **MATLAB Onramp**, MathWorks

PUBLICATION

“Evaluation of dimensions of a vehicle using Velodyne and Blickfeld LiDAR”

<https://www.ijser.org/onlineResearchPaperViewer.aspx?Evaluation-of-dimensions-of-a-vehicle-using-Velodyne-and-Blickfeld-LiDAR.pdf>

International Journal of Scientific and Engineering Research (IJSER), Volume 12, Issue 12, Dec 21.

PROJECTS

- **Building MCP2515 CAN network using Simulink on Arduino UNO platform with touch sensor as an input device and 7 segment display as output device.**
- **Creating a use case in AUTOSAR environment for automobile radiator cooling fan application.**
- **Generation of area map using I2C Ultrasonic and line sensor.**
 - Utilized ROS environment to process obstacle and wall detection data, to generate a map of the area.
 - Successfully created a detailed and accurate map, enabling the robot consisting Raspberry Pi 3B+, motor driver, DC motors in H-bridge to navigate effectively and autonomously in the environment.
- **Simulation of LabVIEW based Smart washing machine.**
 - Developed a program for the automatic control of the washing machine and integrated it with a user-friendly graphical user interface for easy use.
 - Successfully created a fully functional and reliable smart washing machine simulator that can replicate the operation of a real-world washing machine.
- **Object detection for Industrial robots using a webcam.**
 - Conducted camera calibration and utilized image processing techniques to detect objects accurately.
 - Integrated the system with KUKA robot programming, and simulation on a PC.
 - Finally transmitted the object detection task to the robot and automated the testing process.

LANGUAGES

German: B1 Intermediate level; **English:** Fluent; **Hindi:** Native language; **Marathi:** Mother Tongue

HOBBIES

Gardening, Photography, Football, Volunteer Work.