Sumukha M

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# Professional Experience

**Terralogic Software Solutions Pvt Ltd |** Bengaluru**, (02/2025- Present)**

Software Engineer I

* Worked on Python scripting for automation with Selenium and SQL.
* Exploring Robot Framework for advanced test automation.

## Continental Automotive Components (India) Pvt Ltd | Bengaluru, (04/2023 – 12/2024)

Software Test Engineer & System Test Engineer

* Contributed to the development and validation of **embedded C, C++ software modules**, ensuring robust code quality and functionality.
* Developed and validated **Rhapsody** design models for SW modules, ensuring compliance with requirements and reducing design flaws by **25%.**
* Executed comprehensive testing for automotive modules using **TESSY**, achieving **100% MC/DC coverage,**

and reducing defect rate by **30%.**

* **Automated Unit Testing [TDE]** methodologies using **Python.**
* Experienced in utilizing **CANoe**, **PC diag**, and **EB Tresos** for **system testing, diagnostics, and AUTOSAR configurations**, enhancing overall efficiency and reliability in system development.
* Executed **airbag system testing** for **Honda** vehicles, ensuring compliance with functional and safety requirements.
* **Led cross-BU audits and customer audits**, demonstrating compliance with **SWE.4 and SWE.6** processes for airbag products prior to delivery, ensuring process transparency and customer confidence.
* **Developed and tested** real-time embedded applications on **STM32 microcontrollers using ATMEL Studio** and

**FreeRTOS**, ensuring optimized performance, system stability, and real-time functionality.

Python Automation and Validation Intern

* **Developed and implemented dataset tools utilizing Python**, achieving a **40%** reduction in data processing time for automotive standards compliance.
* **Verified and validated ADAS** camera functionalities, delivering a defect-free system with **99%** accuracy.

# Internship Experience

1. **Rapsol Technologies** | Bengaluru, AI and Data Management Intern **(07/2022 – 09/2022)**
   * Partnered with industry experts to refine machine learning models, achieving an increase in model training efficiency and enabling faster deployment of solutions to meet business needs.
   * **Managed data processing by using Python, Pandas**, and **OpenPyXL** to convert JSON to Excel, ensuring uniformity, applying statistical insights with **NumPy**, and streamlining data handling by **30%.**
2. **UnScript.ai |** Bengaluru, Front End Development Intern **(04/2022 – 05/2022)**
   * Utilized HTML5, CSS, and JavaScript for front-end development, creating responsive websites.
   * Enhanced user experience with Django's templating.

# Technical Skills

* + **Programming Languages:** Embedded C, Python, CAPL, C++
  + **Microcontrollers & RTOS:** STM32, TIVA series, FreeRTOS, RTOS
  + **Testing & Validation:** Black Box Testing, AUTOSAR Validation, Unit Testing, Component Testing
  + **Communication Protocols:** CAN, LIN, UDS, UART, I2C, SPI
  + **Tools & Frameworks:** TESSY, CANoe, PC diag, IMS Integrity, GitHub, Jenkins, IBM Rational Rhapsody, IBM Rational DOORS, Citrix Workspace, EB Tresos.

# Education

Bachelor of Engineering in Electronics and Communication. **(06/2019 – 05/2023) Global Academy of Technology,** Bengaluru

Cumulative GPA**:** 8.8

# Projects/Paper

## Airbag Safety Software for AUDI, BMW, VW:

* + **Achieved 100% functional compliance by performing both development and unit testing using TESSY.**
  + Developed and maintained over **100+ unit test file revisions** weekly, streamlining version control and enhancing team collaboration using IMS Integrity Client and Git.
  + Verified continuous integration (CI) results using **Jenkins**, ensuring alignment with project requirements and standards.
  + Designed modular, scalable software using **IBM Rational Rhapsody** for reliable airbag safety systems.
  + Conducted performance and fault injection testing, ensuring compliance with **ISO-26262** safety standards.

## Airbag System Testing for Honda:

* + **Validated airbag functionalities and crash response times,** ensuring safety compliance.
  + Conducted in-vehicle **ECU** tests using **CANoe** and diagnostic tools, verifying communication protocols, and enhancing diagnostic accuracy by **15%.**

## ADAS Camera Validation and Testing:

* + Conducted **smoke testing** and **regression testing** for ADAS cameras (MFC527 & MFC525), focusing on **Traffic Sign Assist (TSA)** and **lane detection** features.
  + Verified camera algorithms for TSA and lane recognition, achieving a **99% defect-free rate**.

1. **Robotic Arm** (**May 2023**): Collaborated on a color-sorting robotic arm project, developed an advanced algorithm, and executed prototype development and testing.
2. **Inventory management Robot** (**Jun 2022**): Developed an algorithm for inventory management, found vacant spaces using OpenCV, and published a research paper.

# Courses

* + ***Systems Engineering: MathWorks - via Coursera. (July 2024)***
  + ***AI for Everyone***
  + ***Internet of Things and Embedded Systems***
  + ***Python for Beginners***
  + ***Introduction to Cybersecurity Tools & Cyberattacks.*** *(In-progress)*

# Workshops

* + **VOIS (Vodafone Idea Foundation:** Hands-on Training: Fundamentals of Linux, Data Analytics.
  + **Perfect Plan B E-Learning Private Limited:** Completed Master Class on Google Colab Machine Learning App.