

# Subhashini Rani P

EMBEDDED SOFTWARE DEVELOPER

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## Professional Summary

An embedded software developer with 2.5 years of experience skilled at analyzing problems in detail and finding creative, effective solutions. And have a ability to understand problems from both detailed and high-level perspectives to deliver innovative solutions. Recognized for a strong problem-solving mindset and the ability to dive deep into technical challenges to uncover root causes and deliver efficient, reliable solutions . Proven ability to translate complex requirements into clean, maintainable code . Adept at collaborating with cross-functional teams, adapting to new technologies quickly, and consistently delivering reliable, high-quality software that meets performance and safety standards.

## Professional Skills

### Programming Languages

- Embedded C, C++ - Proficient in developing low-level software for embedded systems with a focus on performance and safety-critical applications. Having good hands on CAPL .
- MISRA C - Experienced in writing code compliant with MISRA guidelines to ensure safety, reliability, and maintainability in automotive and embedded applications.
- Python - Used for scripting, automation, and tool development to support embedded workflows and testing.

### Web Development

- HTML, CSS, JavaScript (Basic) - Applied in creating intuitive and responsive Human-Machine Interfaces (HMIs) for embedded or automotive systems.

### Development Environment

- Linux - Comfortable working in Linux-based environments for development, debugging, and deployment of embedded applications.
- GCC, Makefiles - Skilled in using GNU toolchain for building embedded software and creating custom Makefiles for efficient builds.
- Bash Scripting - Used for automating routine development and testing tasks, improving workflow efficiency.

### Tools & Version Control

- Git, GitDuo - Hands-on experience with version control systems for collaborative development and maintaining code integrity.
- CANoe - Proficient in using CANoe for simulation, analysis, and testing of automotive communication protocols, particularly CAN.

### Project & Workflow Management

- Jira - Familiar with Agile workflows, issue tracking, and sprint planning using Jira.
- CI/CD - Exposure to continuous integration and delivery pipelines, ensuring automated builds and testing processes.

### RF Devices & Communication Protocols

- GPS, CAN, MQTT, HTTP/HTTPS, C-V2X, DCRC - Experience working with a variety of wireless and wired communication protocols for connected vehicles and embedded systems, including:
  - DCRC for radar or RF communication handling
  - C-V2X (Cellular Vehicle-to-Everything) for next-gen automotive communication
  - CAN (Controller Area Network) for vehicle communication
  - MQTT for lightweight messaging in IoT or telematics
  - HTTP/HTTPS for web-based data exchange

## Professional Experience

### CAPGEMINI

ASSOCIATE EMBEDDED SOFTWARE DEVELOPER

NOV 2022 - Present

Working in the Automotive domain under the Connected vehicles sub-module, responsible for code development.

### PROJECTS :

#### V2X :

At Capgemini, I am working in the V2X (Vehicle-to-Everything) domain, focusing on the development of platform-level software for connected vehicle communication systems. My primary responsibilities include implementing V2V (Vehicle-to-Vehicle), V2I (Vehicle-to-Infrastructure), and V2P (Vehicle-to-Pedestrian) communication protocols to enhance road safety and traffic efficiency. I integrate communication stacks like DSRC and C-V2X, and develop algorithms for collision avoidance, lane merging, and traffic signal optimization. I perform Unit Testing (UT) and bench testing to validate communication reliability, message accuracy, and overall system performance .

#### Responsibilities:

- **Protocol Implementation:** Developing and integrating **V2V (Vehicle-to-Vehicle)**, **V2I (Vehicle-to-Infrastructure)**, and **V2P (Vehicle-to-Pedestrian)** communication protocols that enable real-time data exchange critical for collision warning, lane-change assistance, and pedestrian detection.
- **Communication Stack Integration:** Working with industry-standard wireless communication stacks such as **DSRC (Dedicated Short Range Communication)** and **C-V2X (Cellular Vehicle-to-Everything)** to ensure interoperability and low-latency message delivery.
- **Algorithm Development:** Designing and implementing safety-critical algorithms for features like **collision avoidance**, **lane merging assistance**, and **traffic signal optimization**, directly contributing to safer and smarter mobility systems.
- **Testing & Validation:** Conducting **Unit Testing (UT)** and **bench testing** to verify protocol functionality, message consistency, latency, and overall system reliability under various real-world and simulated scenarios.
- **Code Quality & Debugging:** Actively involved in **analyzing**, **debugging**, and maintaining code quality by adhering to industry standards and following best practices. Utilized static analysis tools and **code quality metrics** to ensure compliance with safety and performance guidelines, enhancing overall software reliability and maintainability.
- **Collaboration:** Engaging with cross-functional teams to ensure robust integration and end-to-end system validation.

## Education

Annamacharya Institute of Technology and Science

B.E. in Computer Science Engineering

Rajampeta, India

June. 2018 - June. 2022

Narayana Junior College

Intermediate

Anantapur, India

May. 2016 - May. 2018

Deepthi High School

High School

Hindupur, India

May. 2015 - May. 2016

## Achievements

2014 1<sup>st</sup> place in drawing compition

Hindupur, India

2014 1<sup>st</sup> place, Co co tournament at the annual school sports meet

Hindupur India

2018 2<sup>st</sup> place, Elocution Contest

Rajampeta, India