Robin CR

*Chennai, Tamil Nadu*

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# Personal Profile

4+ years experienced Embedded Software Developer with proven success in building algorithms. Highly adept at C++ application development, firmware development, ADAS, Design Patterns and multi-threading. Passionate engineer with the ability to apply techniques and algorithm development to solve real world problem.

# Work Experience

**Automotive Robotics India (ARi)** *Chennai, Tamil Nadu*

Senior Software Engineer *January 2025 – Present*

**Client:** **CATERPILLAR (Onsite)**

**LIDAR Perception for Surface Hauling truck**

* Playback tool developer.
* Rangeimage to point cloud converter for various lidars.
* Amenders for lidar logs.
* Parsers for ROS node communication.
* Developed APIs to work on multi-threaded application using modern C++.
* Integrated third-party libraries (Point Cloud) into C++ project.
* Publisher and subscriber channels in ROS2 Noetic modules.

**Bosch Global Software Technologies** *Coimbatore, Tamil Nadu*

Embedded Software Engineer *August 2022 – December 2024*

**Interior Monitoring System (IMS) Project**

* Developed algorithms for driver drowsiness module in C++ following design patterns and clean code.
* Able to handle real world bugs which require proper strategies, Problem Solving and analytical skills.
* Developed internal tools for simulating driver behaviors for debugging the issues without hardware.
* A proper research and contributor for technical problems raised by client.
* Modules implementations such as interfaces, precondition handlers, error handlers, schedulers etc.
* Successfully addressed and resolved Level 8 and 9 QAC++ warnings in the codebase, adhering to

MISRA coding standards.

**Instrument Cluster Project**

* Worked in all phases of Agile Scrum methodology (Requirement - Design - Coding - Testing).
* Issue reproduction based on scenarios (Bugs and Change Requests).
* Functionality testing based on all dependent modules.
* Writing unit tests and performing testing to ensure software functionality.
* Implemented an algorithm that will modify the fixed parameters in RTE layer into a configurable in application layer.
* Base level knowledge on Diagnostics, Bootloader and RTE layer is gained.
* Cmake integration to the modules.

**Gadgeon Systems Pvt Ltd** *Kochi, Kerala*

Embedded Software Developer *July 2021 ‑ August 2022*

* Developed codecs for different sensors using C programming language in a Linux OS environment. (Gateway Programming)
* Developed custom protocols to communicate with different sensors in embedded C.
* Platform dependent and independent code development on different ARM based microcontrollers.
* Interfaced accelerometer, gyroscope, and GPS sensors (Bare metal programming).

# Projects

## [Calendar and Clock](https://github.com/Robin005cr/Calendar-and-Clock) *Self*

* A project which addresses all the problems related to calendar and clock.

[**CPU-GPU Selector**](https://github.com/Robin005cr/CPU-GPU_Selector)

* Implemented a system that decides the model training to be done on CPU, GPU, or GPU on cloud.

# Skills

* **Programming language**: Proficient in Embedded C, C++
* **Microcontrollers**: ARM Cortex M3 LPC1768, ESP8266
* **Protocols**: UART, I2C, SPI, CAN
* **Programming IDE**: Visual Studio Code, VS Professional, Eclipse IDE
* **Requirement Software**: IBM Rational DOORS
* **Design**: Enterprise Architecture, PlantUML
* **Debugger**: Valgrind, GDB, Lauterbach Trace32
* **Automotive testing tools**: CANoe
* **Project Manager**: Gerrit, RTC workflow manager, JIRA
* **Unit Testing**: Gtest, Excel UT automation, BOOST
* **Version control system**: Git, RTC, BitBucket
* **OS**: Ubuntu

# Competencies

## Data Structures

Array, Linked list, STL library.

* **Embedded C programming**

State machine, Bit wise programming, handshaking mechanisms.

* **C++ Application development**

Move Semantics, Smart Pointers, Templates, Functional Programming, Atomics.

# Certifications

**Embedded System Professional**

TransIot, Kochi

* Solid foundation on basics of embedded C programming.
* Completed the projects based on EEPROM and display systems.
* Working knowledge on resource utilization, shared memory, and schedulers.
* Proper understanding of Linux Fundamentals (System calls, Booting, file system) is gained.

**Professional C++ and Clean code**  Bosch, Coimbatore

* Leveraged the OOPs and SOLID principles with examples.
* Discussed common pitfalls in C++ for embedded software development.
* Covered Design Patterns explaining their roles in code reusability and scalability.
* Clean coding guidelines and commons practices were addressed.

# Education

## Rajagiri School of Engineering and Technology *Kochi, Kerala*

Bachelor of Technology in ECE *Aug 2017 ‑ Jul 2021*

*Completed with a GPA of 8.2*