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08 – June – 1988

Indian

# Nagarajan Jeyakumar

**Technical Lead / Product Owner**

No 19, Maruthi Avenue, Maha Nagar, Saravanampatti, Coimbatore – 641035, Tamil Nadu, India.

**PROFESSIONAL SUMMARY**

* 10+ years of experience in Embedded Software Development using C with proficiency in the safety-oriented software development process in an automotive domain.
* Experience and Complete knowledge in experience in V- model based SDLC in Electrical Power Assisted Steering Control Unit: - Requirement Engineering, System Impact Analysis, Design, Coding, Unit & System Testing and Software Integration, Function development, BSW Tests, IO Test.
* Experience in developing Cyber Security concepts according to ISO/SAE 21434 for EPAS Systems.
* Valuable experience in configuring and integrating AUTOSAR BSW (OS, DEM, Memory Stack, EcuM, BswM, CAN Communication Stack) and RTE for various customer and platform projects.
* Good understanding about various process standards (ISO 26262) and coding guidelines followed during Automotive Software development (MISRA, Secure Coding guidelines, C++ Core guidelines)
* Experience in customer specification analysis, decomposition, and architecture design
* Well versed in handling various developments and testing tools used in automotive vehicle software industry
* Possess technical skills together with the ability to work out complex problems and situations.
* Ability to perform under pressure, delivers results against deadlines and mentor development team.

**AREAS OF EXPERTISE**

Automotive Industry – Power Steering (EPS), Functional Safety (ISO-26262), Cyber Security (ISO/SAE 21434), AUTOSAR, Architectural Design, ASPICE, Safety/Security Analysis (Feature/System/Software/Hardware)

**TECHNICAL SKILLS**

**Architecture :** DOORS, Enterprise Architect and dSpace System Desk and Axivion

**Protocols :** UART, CAN, XCP, I2C, SPI, Near Field Communication (NFC).

**Test Automation :** Jenkins, CANalyzer, CANoE, CANape, and INCA

**RTOS :** Electro bit Auto Core OS, Safety – OS, RTA-OS, µCOS – II, µCOS – III

**Configuration Mgmt. :** JIRA, GIT, Bit Bucket, Source Tree, Clear Case, Clear quest, Tortoise SVN

**Languages :**  Embedded C, ASSEMBLY, C#, Python and CAPL

**IDE/ Compilers :**  IAR Embedded Workbench, Green Hills Studio Eclipse, ARM GCC, Keil.

**Testing Tools :** ASTREE, Tessy, CTC++, Q - more, QAC, Coverity and polyspace and N-Unit Framework.

**Microcontrollers :** Renesas RH850, V850, ARM7 Based, ARM Cortex M- Series based, Renesas R8C

**Debuggers** : Lauterbach, Segger J link Ultra for ARM, IAR I-Jet, IAR I-Scope,

**Logic Analyzers** :Saleae Logic Pro16, Intronix Logic Analyzer and Digilent AnalogDiscovery 2

**WORK EXPERIENCE**

## **Bosch Global Software Technologies Private Limited.,** [**https://www.bosch-softwaretechnologies.com/**](https://www.bosch-softwaretechnologies.com/)

Project : AS Mainpath Platform Software Location: Coimbatore

### **Role : Product Owner / Technical Lead (January 2020 - Present)**

* Acting as a Product Owner for Platform Infrastructure Software Team, Handling topics
  + Secure Flash Bootloader with Cyber security (Security GEN2)
  + State Management, Error Management includes Fault Management and designing Memory Layout Configuration and System Availability concepts required for EPS and SWA systems
    - Fast Restart for 700 FIT systems
    - Emergency operation Handler for 100 FIT systems.
* Acting as the primary point of contact for all stakeholders and Actively Managing and prioritizing the product backlog
* Expertise in Handling multiple Reference Architectural Variants like 700FIT, 100FIT and 10 FIT EPS Systems and Steering Rack Actuator and Steering Wheel Actuator.
* Involved in Specifying Requirements for Secure Flash Bootloader with Product Security for various

reference architecture in Electric Power steering

* Defining architecture for System safety Concepts to increase the availability of the EPS system in-case of random failures / Single Point systematic Software Faults.
* Negotiating/discussing with the customer teams about the feature requirements and technical concepts
* Investigated system issues and implemented resolutions to increase the robustness of the EPS systems.
* Providing technical solutions to implement the customer requirements in the supplier’s platform
* Designed support structure needed to confirm scalable application rollouts.
* Training and continuous mentoring for new developers in the team as well the business unit.

**Project : SDK 3.0 and SDK 2.34 Platform Software Location: Coimbatore**

### **Role : Software Architect (April 2018 – January 2020)**

* Technical Safety Requirements & Software Safety Requirements, Safety Mechanism/Functions design for the Software Architectural level.
* State Management, Error Management includes Fault Management and designing Memory Layout Configuration and System Availability concepts required for EPS and SWA systems
  + - Fast Restart for 700 FIT systems.
* Defined Architecture and Implementation of Failure Injection Software (FIT) to inject the Errors in real time to improve the behavior of the system in worst case scenario and supported vehicle testers to captures the system behavior.
* Analysis: Software Safety Analysis (SA), Dependent Failure Analysis (DFA), Freedom from Interference (FFI), Control & Data Flow Analysis for Client/Servers & Senders/Receivers.
* Proposed Safety Methodology to be implemented at the Software level.
* DOORS Database, Perform Safety Trace Ability Matrix (Along all V-Model)
* Experience in Autosar Configuration of the BSW components such as DEM, NvM and Operating System
* RTE interfacing and signal, task mapping using System DESK
* ARxml /DBC reviews from the supplier side for the Electric Power Steering EPS
* Experience in designing High-Level, Low-level design and Data flow, static, dynamic behavior diagram
* Worked with Cybersecurity for the power steering software

**Project : SDK 2.34 and SDK 2.2 Platform Software Location: Coimbatore**

### Role : Software Developer / Integrator (January 2016 – March 2018)

* Experience in designing and implementing software required for EPS systems and verification against customer requirements.
* Responsible for Platform releases for various Platform Software generations, can be reused by the customer project teams.
* Experience Autosar Configuration of the BSW components such as DEM, NvM and Operating System
* Providing technical solutions to implement the customer requirements in the supplier’s platform
* Developing Jenkins pipeline for automating the integration and build a pipeline for Test Automation.
* Experience in developing Measurement and Calibration concept with ASAM MCD-1 XCP standard.

## **NXP Semiconductors India Pvt. Ltd., (Deputed from Tarang Software)** [**https://www.nxp.com/**](https://www.nxp.com/)

**Project : PN5180 NFC chip Firmware Validation and Verification Location: Bangalore**

### Role : Verification and Validation Engineer (June 2014 – January 2016)

* Firmware Test Code Development using Embedded ‘C’ and C# for Firmware Validation and Verification and Test Automation by using Counterpart Addition.
* Full NFC Forum Compliant, All NFC Modes, Low Power, Standard Performance with Active Peer to Peer and Card Emulation Modes.
* Active Load Modulation, Highest RF Performance and Low Power Card Detection Mode. Rewards & Recognition
* Taking care of Code Quality Measures like Code Coverage, Q-More, Static code Analysis
* Identification of New test cases and improve Code Coverage by using Test well CTC++
* Analyze and avoid Warnings, code Complexity by using Static code analyzers tool.
* Update Test results to the Jenkins and the Test link Servers.

## **PRICOL Limited,** [**https://pricol.com**](https://pricol.com)**/**

**Project : Telematics ECU development Location: Coimbatore**

### **Role : Software Engineer (January 2014 – June 2014)**

* Developing and Software for Telematics ECU with help of GSM and GPS Modules for Mahindra and Mahindra Vehicles.
* HIL and Unit testing performed for the Telematics ECU

## **Vi Microsystems Private Limited,** [**https://www.vimicrosystems.com/**](https://www.vimicrosystems.com/)

**Project : Embedded development boards Location: Coimbatore**

### **Role : Assistant R&D Engineer (August 2010 – December 2013)**

* Development of low-level driver Source code development for Basic I/O accessing to all its peripherals using C language in both windows and Linux platforms for various Microcontrollers.
* Embedded development board Hardware circuit designing and testing.
* Source code development for LPC1769 uC based Data Acquisition by using uC-OS II RTOS and Validation.

**Educational Qualification**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Institute/University** | **Degree** | **Percentage** |
| 2008-2010 | PSG College of Arts & Science,  Coimbatore. | M.Sc. (**Applied Electronics**) | **76.36** |
| 2005-2008 | Sourashtra College, Madurai. | B. Sc (**Electronics& Communication**) | **68.51** |
| 2004-2005 | Madurai Meenakshi Matric Higher Secondary School, Madurai. | Higher Secondary | **73.91** |
| 2002 2003 | Madurai Meenakshi Matric Higher Secondary School, Madurai. | SSLC | **70.54** |

Languages Known

### English

C1 (Advanced)



### Tamil

C2

### Deutsch

A2

**Rewards & Recognition**

* Got Recognition and appreciation for my Problem-Solving abilities by counterparts in Germany.
* “Employee of the Quarter” awarded by Tarang Technologies on (Jan2015 – Mar2015).
* “Employee of the Year” Awarded by VI Microsystems Chennai in 2012.

**Reference**

## **Prakash Jayaraman**

Process Officer - Functional Safety & Cyber Security

VOLVO CARS | POLESTAR

[prakash.jayaraman@volvocars.com](mailto:prakash.jayaraman@volvocars.com)

+46 – 764529120 VB, Assar Gabrielssons väg 9, 418 78 Göteborg, Sweden

## **Tahreem Ahmed Syed**

Software Project Manager,

Robert Bosch Automotive Steering GmbH,

Schwäbisch Gmünd, Germany

**Declaration**

I hereby solemnly declare that the above information is true to the best of my knowledge and belief.

**Place:** Coimbatore

**Date:**  (**Nagarajan. J**)