

NAGARAJ H

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Career Objective: Experienced software engineer skilled in C++, Adaptive AUTOSAR, and simulation frameworks like SIL/HiL. Passionate about developing reliable, real-time embedded and cross-platform applications with a strong focus on testing and quality. Eager to contribute to innovative projects that create real-world impact.

Technical skills with overall Experience:

- **Experience** : 3.5+ experience
 - **Programming** : C++, C, Multithreading, IPC, Restful API, Full Stack Development, Mobile Application Development.
 - **Operating Systems** : RTOS(QNX), Embedded Linux, Windows
 - **Embedded Tools** : Vector Canoe, Davinci Developer, QNX Momentics, GDB, Wireshark, Unity
 - **SoCs & Platforms** : Qualcomm 8295P, 8155P.
 - **Protocols** : CAN.
 - **Methodologies** : Agile (Jira, Confluence)
 - **Build Systems** : Cmake, Bazel.
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Organization : **NVIDIA** [Feb 2025 – June 2025]

Project : NDAS

Position : Software Engineer

Technologies : C++, QC console, GMock, Gtest, LCOV

Description: NDAS Project (Automotive ADAS on dwdrive Chip)

A robust driver-assistance system built around the dwdrive automotive chip, focusing on planning and control functionalities. The project included rigorous unit testing with GTest/GMock, code coverage analysis via LCOV, and builds orchestrated through Bazel. Daily test pipelines were monitored in NVIDIA's Quality Console and Jenkins, ensuring defect resolution and automation reliability. Simulation-based workflows were iterated upon collaboratively with developers to enhance system maturity and stability.

Responsibilities :

- ❖ Monitored and analyzed daily test regressions using **NVIDIA's Quality Console**, reproducing failures locally or tracing root causes in **Jenkins CI pipelines**.
- ❖ Diagnosed issues in test logic and build flows by debugging logs and configurations in the **Bazel-based build system**.
- ❖ Measured and reported **unit test code coverage** for the **Planning and Control module** of the NDAS system using **LCOV**.
- ❖ Collaborated with developers to resolve bugs in **automation workflows** and **simulation-based testing environments**, improving test stability and execution reliability.

Organization : Aptiv Components [Sept 2024 – Jan 2025]

Project : RESIM

Position : Software Engineer

Technologies : C++, Plastic SCM, Vector Tools (Canoe),

Description: A Software-in-the-Loop (SiL) framework designed for real-time simulation and validation of automotive functions. The system integrates RESIM and Bordnet tools to decode and process CAN signals, extract structured data, and support real-time analysis. The framework includes a custom stream decoder for RESIM and a data extraction pipeline that outputs XML and CSV formats for further validation.

Responsibilities:

- ❖ Contributed to the RESIM project across SiL, HiL, and Virtual Validation environments.
- ❖ Analyzed and understood the C++ codebase to trace signal flow and functional behavior.
- ❖ Designed and implemented a custom decoder and data extractor for Bordnet, converting CAN files into XML and CSV formats.
- ❖ Developed the RESIM stream decoder to enable real-time data processing within the SiL environment.
- ❖ Created and executed unit tests using GTest/GMock with a 1:3 test ratio, achieving over 90% code coverage.
- ❖ Set up and maintained a modular CMake-based build system from folder to application level.
- ❖ Configured the SiL simulation environment using Bordnet tools for accurate model integration.
- ❖ Used Plastic SCM for version control, including branching, merging, and conflict resolution.

Organization : Aptiv Components [Aug 2023 – Aug 2024]

Project : HPC Cluster - Adaptive Autosar

Position : Software Engineer

SOC : Qualcomm 8295P & Qualcomm 8155P

Technologies : C++,Gerrit-GIT ,Vector Tools (Canoe),Davinci Developer Adaptive, QFIL, fast boot ADB, Renesas, QNX Momentics IDE, QNX, Wireshark, GDB

Description: Adaptive AUTOSAR - HPC - C (High Performance Computing - Cluster) for Mahindra & Mahindra XEV BE 6 & 9E- A project based on Adaptive AUTOSAR where applications are developed for ADAS, ARHUD & HMI to display Augmented Navigation maneuvers, Drive Assist features, Call & Media, DOMS etc., on the windshield, and Android features on CID, DID HMI for navigation purposes, etc.

Responsibilities :

- ❖ Implemented C++ Adaptive autosar applications for HPC-C(Cluster). - Implemented Warning and Chime Application.
- ❖ Adding new features based on the customer requirement (SRS).
- ❖ Modeling various data types, Machine Configurations, Execution Configurations, Machine & Execution Manifest, and Design Application.
- ❖ Testing the features implemented in both vehicle and bench setup
- ❖ Source Code Generation with ARXML by using Vector Davinci Configurator.
- ❖ Implementation of Skeleton and Proxy Code for Adaptive Services
- ❖ Debugging the software using QNX Momentics IDE, log analysis, performance profiling to optimize system response and stability, tracelogger kev file analysis.
- ❖ Performed CAN/Ethernet data analysis using Vector tools to validate vehicle communication protocols.
- ❖ Triaging customer defect issues and integrating Adaptive AUTOSAR applications with the QNX platform stack.

Organization : Hyconsoft India [Jan 2022 – July 2023]

Project : Physiosight

Position : Software Engineer

Technologies : Unity, C#, Crossplatform Development, Mediapipe

Technologies(Frontend) : Web Development, Mobile App Development.

Description: Physiosight is an internal project by Actevia that delivers virtual physiotherapy using posture tracking and real-time motion feedback. It leverages computer vision and biomechanical analysis to monitor body alignment and detect incorrect movements during rehabilitation exercises. The system provides live corrective cues to ensure proper form and progress. Designed for remote physiotherapy, it supports interactive sessions via mobile or desktop platforms, enhancing accessibility and treatment adherence.

Responsibilities:

- ❖ Analyzed functional and technical requirements for virtual physiotherapy use cases, including posture correction and motion tracking.
- ❖ Conducted in-depth research on a key physiotherapy requirement by gathering insights from online medical sources and consulting professional physiotherapists.
- ❖ Planned and evaluated appropriate technologies, including selecting a suitable **ML model** for human pose detection (e.g., **MediaPipe Pose**) and identifying the best **cross-platform mobile development frameworks** (like **Unity** with real-time feedback logic for enhanced patient engagement and correction).
- ❖ Performed rigorous testing using both mobile simulators and real devices to validate performance, responsiveness, and user experience across platforms.

Education :

- ❖ St, Joseph Engineering College Vamanjoor Mangalore, Karnataka.
 - B.Tech in Computer Science and Engineering (2015 – 2018)
 - ❖ Govt. Polytechnic Karwar, Karnataka
 - Diploma in Computer Science and Engineering (2012 – 2015)
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