

Nishant Kumar Bharali

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EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, VA
Master of Science in Computer Engineering

August 2023 - Present

Vellore Institute of Technology, Vellore, TN, India
Bachelor of Technology in Electronics and Communication Engineering

2018 – 2022
(CGPA: 3.33 / 4.00)

WORK EXPERIENCE

Product Development Engineer | Mahindra & Mahindra Limited | Chennai, TN, India

August 2022 – July 2023

R&D Engineer - Electrical & Electronics - CAN BUS Analysis of Electronic Control Units [Automotive Product Development]

- **Projects:** Worked on the infotainment and cluster software architecture for ICE & BEV vehicles; Mahindra Scorpio N Z6/Z8 variants, XUV700 & XUV400 EV, providing bench-level as well as vehicle level environmental testing and production.
- Collaborated with cross-functional teams like ADAS, HMI and wiring harness to incorporate architecture changes.
- Led and completed 2 core Android Auto certifications for mentioned projects with software testing on various levels - PCTS Verifier, QSuite, UX, GPS/Navigation, sensor logging and final software validation.
- Prepared SRD (Software Requirements Definition) as a combined activity with the supplier; Improved data management processes and boosted team productivity by **12%**.
- Authored technical documentation, design specifications, test plans, & streamline project development; Integrated OTA updates, GPS benchmarking and connectivity features for enhanced user experiences.
- Experienced in writing test cases from system requirements and customer use cases.
- Collaborated with tier 1 suppliers and 3PL partners Visteon and Harman International for software validation; Received green light from Google for Android Auto deployments with ~ **93.5%** rectification of bugs and issues in the initial release; **Efficiency improvements** by **2%** each cycle.
- Strong foundations in CAN, Diagnostics, Android and QNX architecture; Diagnostics tools like CANalyser, CANoe, Garuda 2.0.

Software Engineer Intern | Oracle Cerner | Bangalore, Karnataka, India

Jan 2022 – July 2022

- Collaborated with cross-functional teams to develop and deploy healthcare software solutions.
- Designed and implemented secure and scalable software components using Java (spring boot), Python, React, and JavaScript.
- Conducted code reviews, debugging, and testing, **reducing** software defects by **20%**.
- Employed machine learning to cluster suppliers using medical device data, saving the team 10 work hours per week.
- Gathered requirements from healthcare professionals and ensured compliance with regulations.
- Actively participated in Agile methodologies with practical exposure to machine learning for client data.
- Assignment of beds and nurses to patients in different units done through web application with Spring Security in backend.
- **95%** average unit test coverage for the mainstream application using Mockito framework and Jest/enzyme framework.
- **DevOps:** CI/CD of the product upon Jenkins with pipeline staging scripts for automation, integration and deployment.
- Efficiently reduced size of MySQL database by **7%** with scripts; **improving** the product function by ~ **20%**.

PROJECTS / PUBLICATIONS

Autonomous Navigation with Collision Avoidance using ROS | ROS - SLAM, GMapping, Odometry, Laser Scan, GazeboSim

- Designed an obstacle avoidance algorithm for which we used ROS GMapping in our 2 wheeled robot to generate a map using SLAM technique; Used the robot Laser Scan and Odometry data to generate this map.
- Performed high fidelity simulation on Gazebo to develop test algorithms and design; path planning was incorporated

Idea Repository API | Spring boot, Redux Saga, Postman API, JSON, Git, Jenkins, MySQL, Oracle Database, React Framework

- An API for a full-stack web application to establish user security - authorization and authentication at the backend with Redux-based UI focus on frontend. Published as a technical paper - web application improved test user satisfaction ratings by 15%
- Emphasis on using redux-saga middleware instead of Thunk - faster web page response; improved scrolling efficiency by 10%

SKILLS

Technical Skills: Python, Java, MATLAB, SQL, CAN, LIN, HTML, CSS, React, CI/CD, Linux bash, RESTful API, Redux-saga, Spring Framework, SciKit-Image, Git, Jupyter, Microcontroller 8051

Framework and Tools: Vector CANalyzer, CANoe, Wireshark, Android and QNX architecture, OpenCV, Pillow, Postman, GitHub, Jenkins, Microservices, PCTS Verifier - Android Auto testing tool, ROS, Visual Studio, Gazebo, MySQL

Other: Agile, Scrum, JIRA, Product & Project Management, Microsoft Office Suite, eLMS