Nishant Kumar Bharali

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EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, VA   Anticipated Graduation (05/25)
Master of Science in Computer Engineering

Vellore Institute of Technology, Vellore, TN, India   2018 – 2022
Bachelor of Technology in Electronics and Communication Engineering,   (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; resulting in **15%** improvement in sales.
- Prepared SRD (Software Requirements Definition) as a combined activity with the supplier; Improved data management processes by **12%.**
- Authored technical documentation, design specifications, test plans, & streamline project development; Integrated OTA updates, GPS benchmark 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

Information Data Hiding using Steganography Techniques | OpenCV, Pillow, SciKit-Image, NumPy, Matplotlib
- Presented Comparative Image analysis between the two data hiding techniques are made on the reconstructed image to conclude which Steganography method achieves better results, Least Significant Bit (LSB) or Discrete Cosine Transform (DST)
- Automated the generation and evaluation of ~25,000 images, achieving an 87% pose detection accuracy from the model

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, Jupyter, Java, MATLAB, SQL, CAN, LIN, HTML, CSS, React, CI/CD, Linux bash, RESTful API, Redux-saga, Spring Framework, SciKit-Image, Git
Framework and Tools: OpenCV, Pillow, Postman, GitHub, Jenkins, Microservices, ROS, Visual Studio, Gazebo, MySQL, PCTS Verifier - Android Auto testing tool, Vector CANalyzer, CANoe, Wireshark, Android and QNX architecture, Simulink, CAD
Other: Agile, Scrum, JIRA, Product & Project Management, eLMS