

Dharub Kumar

Senior Engineer

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Detail-oriented Verification and Validation Engineer with approximately 7 years of expertise in Hardware-in-the-Loop (HiL) system integration. Proficient in designing, executing, and optimising HiL systems to ensure system functionality, reliability, and compliance with industry standards. Adept at troubleshooting, test automation, and collaborating with cross-functional teams to deliver high-quality results within tight deadlines. Demonstrates strong analytical skills, a proactive mindset, and a passion for continuous improvement in complex system environments.

EMPLOYMENT HISTORY

Senior Engineer | Daimler Trucks Innovation Centre India (DTICI) | Mercedes Benz Special trucks, Bengaluru Dec 2022 - Present

Project: Building Cluster HiL on dSPACE

Timeline: Mar, 2024 to Present

- Building dSPACE integration Hardware-in-Loop (HiL) systems for Hydraulic Systems and Head Unit (including 6 ECUs) for Mercedes Benz Special Trucks.
- Led implementation and testing of hydraulic features, including Basic Hydraulic Fan, Hydraulic Tipper, Working Hydraulics (Float Mode, Proportional Mode), and HVAC functionalities.
- Conducted HiL commissioning activities by preparing ECU Harnesses, commissioning relays, ECU loads/actuators, and simulating linear and nonlinear sensors while ensuring circuit safety.
- Developed ECU I/O models using dSPACE Configuration desk and MATLAB SIMULINK, leveraging MATLAB libraries and objects, including TOI, Model Port block and RTICANmm.
- Collaborated on feature understanding, aligned test cases, and automated tests using PROVEtech, similar to dSPACE Automation and Control desk.
- Managed logistics and Bill of Materials (BoM) records for HiL systems to ensure smooth operations.

Project: Integration HiL testing

Timeline: Dec, 2022 to Mar, 2024

- Served as the Single Point of Contact for System Integration Hardware-in-Loop (HiL) including 34 ECUs for Mercedes Benz Special Trucks deputed in Woerth am Rhein, Germany.
- Conducted comprehensive test releases for Mercedes Benz Special Trucks, overseeing all phases from planning and preparation to test closure.
- Led the HiL testing efforts for Hydraulic Systems, Brake Systems, and Advanced Driver Assistance Systems (ADAS).
- Executed commissioning activities by preparing test benches, including ECU wiring harness setup, vehicle circuit diagram analysis, and ensuring safety compliance for new implementations.
- Authored new test specifications to enhance test scope and automate test case execution.
- Managed Vehicle Summer testing, including vehicle preparation (software flashing, ECU calibration, and DTC resolution) and feature testing for Body and Hydraulic Systems on the vehicle.
- Prepared and delivered detailed HiL reports to stakeholders to facilitate effective stakeholder management.
- Coordinated all logistics arrangements and managed Bill of Materials (BoM) for HiL systems.

Senior Engineer | Bosch Global Software Technologies (BGSW) | OshKosh, Bengaluru Dec 2021 - Dec 2022

- Conducted vehicle-level requirement analysis for features including Predictive Safety, Autonomous Emergency Braking, HBA, and Brake Pre-fill.
- Developed comprehensive vehicle-level test scenarios utilising the DNG tool for multiple features.
- Applied various test case design techniques, including Boundary Value Analysis, Equivalence Partitioning, Error Guessing, and Condition Coverage, to enhance testing effectiveness.

System Engineer | Tata Consultancy Services Pvt. Ltd. | Jaguar Land Rover, PIVI systems, Bengaluru Jun 2018 - Dec 2021

- Conducted HiL regression testing for ECUs, including Infotainment and IPC, utilising NI TestStand on PXIe systems.
- Executed software testing across various carlines for features such as 4x4, Heated Seats, Radio DAB/AMFM etc.
- Managed firmware flashing and software updates for diverse ECUs, effectively diagnosing and resolving related issues.
- Led cross-functional testing for successive intermediate releases, documenting defects via JIRA while providing DLT

logs, CAN traces, and Serial/Video logs.

- Navigated the complete test life cycle, from test planning to defect tracking and management.
- Compiled and updated management presentation slides for weekly execution status and defect reports.
- Delivered project-specific training and guidance, supporting peers and onboarding new team members.
- Conducted Robustness testing (Rig-farm) on Infotainment ECUs to assess feature stability.

SKILLS

HiL Commissioning | Hydraulic Systems | Body Control Module | ADAS | Infotainment System | CAN/LIN | UDS- ISO 14229 | Vehicle Testing | Test Management | Test Case Writing | Python (Basics) | Plant Modeling (Basic IO Modeling/ Linear Models) | Release Management

SOFTWARE/TOOLS

Vector CANoe | vFlash | Vector CANape | NI TestStand | DTS Monaco | PROVETech (similar to dSAPCE control and Automation desk) | Putty | WinScp | IBM DOORS Next Generation | JIRA | ALM | dSPACE Configuration desk | MATLAB/ SIMULINK | JLR Corvus | DLT Viewer

EDUCATION

Bachelors of Technology | SRM Institute of Science & Technology **May 2014 - May 2018**

Electrical & Electronic Engineering
CGPA: 9.38 with distinction

12th | Punjab School Education Board **Mar 2013 - Mar 2014**

Percentage: 78.3

10th | Central Board of Secondary Education **Mar 2011 - Mar 2012**

GPA: 9.0

LANGUAGES

English | Hindi | Punjabi

CERTIFICATIONS AND ACCOMPLISHMENTS

- ISTQB-FL certification - CTFL 135707 INDIA
- **Bronze Award (2023 - DTICI)** for test scope improvement on integration HiL bench and timely delivery of test report for the test campaign.
- **Certificate of Appreciation (2023 - BGSW)** for the consistent effort and contribution to the company.
- **The Learner Award (2022 - BGSW)** for agility in taking up new modules and delivering test cases with good productivity.
- **Spot Award (Tata Consultancy Services Pvt. Ltd.)** for support in unblocking various test activities and office support during Covid lockdowns to ensure seamless test execution.