ROHAN P PANDIT

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# PROFILE SUMMARY:

* A highly skilled professional with 7 years of overseas experience (USA, India) in the following industries- Automotive and consumer electronics
* Software Testing expertise with profound knowledge in Python and Vector tools.
* Adept at functional/regression testing, unit testing, integration testing, test stand automation sequence development and test reports customization
* Sound cognizance in developing Python, LabVIEW, TestStand applications for a Software test automation framework using the vast and robust Test Stand sequential process model and LabVIEW software design patterns.
* Sound cognizance in CAPL scripting, and building a test automation framework using Vector VT systems, Vector CANoe, Vector VtestStudio.
* Adept at software test and development life cycle, version control using GitHub and other Atlassian Tools-Source Tree & Confluence
* Efficient in researching system architecture documents, system level requirement’s, source code and other static testing methods
* Efficient in dynamic testing methods and test automation to improve the quality of Software code.
* Expertise in HIL systems design and development- designing, installing, and testing National Instruments Software test bench systems and framework in various projects, using PXI and CDAQ National Instruments embedded controllers
* A dedicated individual with analytical abilities, problem-solving, decision-making, and interpersonal skills

# TECHNICAL SKILLS:

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| **Hardware** | National Instruments PXI embedded controllers | Compact DAQ-9178 | PXI6345 Analog Input | PXI 6738 Analog Output | PXI 7851R reconfigurable IO | NI 9403 | NI 9401 | NI 9264 | Test bench tools- harnesses | breakout boxes | Function generators | oscilloscopes | power supplies | VN1640ACAN/LIN interface | Renesas flash Programmer v3 | ST-Link/v2 | J-Link base compact Segger tool-programmer  and debugger/ STM32 |
| **Operating Systems** | Windows |
| **Programming/Software** | C, Python 3.9, LabVIEW 2020, Test Stand 2019, Vector tools- CANoe, VtestStudio, CANAPE,  CANAlyzer |
| **Protocols** | CAN, LIN, UDS |
| **Tools & Utilities** | Confluence, Jira, GitHub, Source tree, Git Bash, IBM doors |
| **Domain and product Knowledge** | Consumer Electronics, Automotive, Powertrain, Infotainment, Communication protocols CAN/LIN/UDS, Powertrain, Infotainment, Transmission systems and gearbox, electronic power  steering. |

**CERTIFICATIONS:**

* Certified LabVIEW Architect - Id: 100-521-10034
* Certified Test Stand Developer- Id: 200-922-10102

# EDUCATION:

## Master of Science (M.S) in Electrical & Computer Engineering from State University of New York, Binghamton, USA - May 2017

* **Bachelor of Engineering (B.E)** in **Electronics & Communication** from Shri Ramdeobaba College of Engineering and Management, **Nagpur University**, India - Jun 2013

# WORK EXPERIENCE:

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| **Organization** | **Designation** | **Duration** |
| ZF | HIL Specialist/Software test development | Aug 2023- present |
| TATA Elxsi | HIL Test engineer/HIL Specialist | Sep 2022- Aug 2023 |
| Tech Mahindra | Sr. Software Test Engineer | Sep 2020 – 26th Sep 2022 |
| Pi-Square Technologies LLC | Software Test Engineer | Aug 2017 - Feb 2020 |
| Accenture | Associate Software Engineer | Jan 2014 - May 2015 |

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| **Project Name** | EP400-Construction machinery- Industrial applications |
| **Organization & Role** | ZF Group | Specialist/HIL Test Engineer |
| **Duration & Team Size** | Aug 2023 – present| 20+ |

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| **Module** | Transmission control unit and gearbox |
| **Software** | Vector CANoe, CANAlyzer, CANApe, GitHub, Softcar, dSPACE, Control Desk |
| **Programming** | EXAM tool, Python |
| **Tools** | GitHub, Source Tree, Git Bash, IBM Doors, Clearcase |

## Responsibilities:

* Making critical testing decisions through static testing methods- reviewing system level requirements, technical manuals, system and software architecture/model, source code and automated test scripts.
* Extensive functional testing of the functional requirement under test using a set of Vector tools– CANoe, CANAlyzer and CANApe integrated with a HIL/SIL platform developed in dSPACE Control Desk
* Creating different test plans and test procedures using a set of identified test conditions which provides full coverage of the functional requirement under test.
* Extensive dynamic testing using EXAM automation tool to detect defects and improve the quality of software code.
* Used Pytest and robot framework to develop reusable and scalable scripts for the following tasks- initializing test fixtures for SIL/HIL, importing JSON, XML and system configuration files, executing pre and post conditions and initializing CAN communication channels.
* Using EXAM tool (which uses framework of Python) to develop test cases, test scripts using different programming constructs and datasets of python: - lists, tuples, dictionaries, looping, conditional statement's, list indexing and slicing, file I/O and OOPS.
* Expertise in different test level’s- unit, component, system, functional, regression, confirmation, performance and stress.
* Proficiency in version control management using Github, Gitbash and Source tree.
* Proficiency in test/requirement’s management tools- IBM DOORS, JIRA, PTC Integrity.
* Proficiency in Test bench setup and maintenance – using NI (National instruments) and Vector tools platforms.
* Working with cross functional teams and different projects to get critical insights on test development tools and methodologies, functional understanding of requirement’s, dynamic testing methods and knowledge sharing on different product variants and software modules.
* Active participation in the work product formal review process.

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| **Project Name** | EPS-Power steering |
| **Client** | Nexteer Automotive |
| **Organization & Role** | TATA Elxsi | Specialist/HIL Test Engineer- Electric mobility |
| **Duration & Team Size** | Sep 2022 - Till Date | 50+ |
| **Module** | EPS |
| **Software** | Vector VTestStudio, Vector CANoe, Python, PTC Integrity, IBM Doors |
| **Programming** | Vector VTestStudio, Vector CANoe |
| **Tools** | Confluence, GitHub, Source Tree, Git Bash, PTC Integrity |

## Responsibilities:

* Reviewing customer requirements, Analysis of customer requirements and architecture for the features of Integrated Power Converter.
* Developing new test case scenarios and test case reviews- Setting up of test benches for Validation of ECU’s.
* Creation of test cases for System Integration (SYS.4) and System qualification (SYS.5) level system features based on customer requirements/architecture.
* Functional, regression, unit testing and integration testing for every feature according to the documented High voltage test plan.
* Test Bench setup - Creation of test panels for CAN signals for ease of simulation using Vector VTestStudio
* Setting up of CAN based simulation and CAPL scripts for different vehicle ECUs which are taking input and giving output to the ECU.
* Development of Test automation software framework & Test sequences using Vector VTestStudio and CAPL editor
* Test Cases execution- Testing and validation of Sys-4 and Sys-5 level test cases for its features.
* Maintaining a Requirement Traceability Matrix for requirements, test cases and test results.
* Flashing and calibration of ECUs to achieve bench performance, creating Python test scripts.
* Understanding of Pytest automation framework and executing critical test requests for certain functionalities.
* Defect Logging- Analysis, creation of test reports and reporting to customer for Success/Failure of performed test cases
* Performing Test Point Modification of ECU for Sys-4 level testing purposes.
* Customer discussions and planning meetings, status meetings with the customer, Daily Scrum meetings with the team.
* Status reports to customer and Tata Elxsi supervisors.
* Plan the functional system tests and update the module with latest SW available, setup test bench to collect logs using Vector tools.

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| **Project Name** | GEIDC Testing and diagnostics |
| **Client** | GE Appliances |
| **Organization & Role** | Tech Mahindra | Sr. Software Test Engineer |
| **Duration & Team Size** | Sep 2020 – Sep 2022 | 50+ |
| **Module** | Refrigeration - Sprout & Multidoor program |
| **Software** | LabVIEW 2019 & TestStand 2019 |
| **Hardware** | Compact DAQ-9178, NI 9403, NI 9401, NI 9264, NI 9201 |
| **Programming** | LabVIEW, TestStand, Python, SQL |
| **Tools** | Confluence, GitHub, Source Tree, Git Bash |

## Responsibilities:

* Efficiently handling GitHub & ZenHub boards, linked relevant feature tickets to Epics/stories and managed requirements traceability & coverage
* Proactively involved in extensive study & analysis of SW design requirements for QA tickets and efficiently developed necessary Test plans & test case scenarios for manual/automation QA tickets for every feature
* Analyzing & debugging Embedded C software code for every release to understand SW requirement implementation and examine new test scenarios
* Playing a significant role in the following:
* LabVIEW Soft Load box application development: Developing Soft Load box LabVIEW application framework for test monitoring and control using Advanced LabVIEW software architectures, Producer consumer design patterns, Queues, Notifiers, Arrays, User events, Semaphores, OOPS concepts, QMH and Actor framework
* Test Stand Automation Sequence development: Developing Automation Sequences for every Epic and feature, including dynamically calling LabVIEW code modules, Test reports customization, data logging by using NI Test Stand software framework, programming constructs and process model
* Acquiring profound knowledge of Pytest automation framework using selenium web drivers and using QA manual testing for implementing critical test requests for certain functionalities for Sprout
* Skillfully generating Python test scripts for testing selected features & integrating them with Test stand through Python Step types
* Using CPython interpreter for data conversion between Python & TestStand variables and using object references for storing data
* Attaining expertise in LabVIEW OOPS concepts for adding extra functionality to the framework and debugging Embedded C/C++ code for proper understanding of SW requirement’s implementation.
* Sound cognizance of SW engineering processes, LabVIEW and Test Stand best code review and development practices, Software test life cycle, version control using GitBash and Linux.
* Collaborating with cross-functional teams like development, mechanical and electrical to resolve critical open issues and for a complete understanding of the product architecture

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| **Project Name** | FCA dual inverter/Audi HV inverter |
| **Client** | Delphi Technologies |
| **Organization & Role** | Pi-Square Technologies | Systems Design engineer |
| **Duration & Team Size** | Aug 2018 - Feb 2020 | 50+ |
| **Module** | FCA dual inverter |
| **Software** | LabVIEW 2019 | TestStand 2019 | Veri Stand 2019 | Vector CANoe |
| **Hardware** | PXI 6345 Analog input | PXI 6738Analog output | PXI 7851R-reconfigurable I/O | PXI  Analog i/p 4300 | PXI Analog o/p 4322 |
| **Languages** | LabVIEW, TestStand, VeriStand, CANoe, C |
| **Tools** | Confluence, Jenkins |

## Responsibilities:

* Proactively involved in the installation, design & verification of NI Software HIL test benches for Kokomo, Troy and Singapore
* Analyzed the high-level system architecture for the product-including product mechanization documents, Test bench architecture documents that served as the starting phase for gathering requirements of the Software testbench
* Verified the SW Test bench prototype and design at Kokomo by creating regression testing scenarios document
* Designed Test bench architecture document in MS Visio detailing communication interfaces, IO’s, HW and SW interfaces between the product and the test automation system
* Expertise in test bench setup & installation tools like Physical Harnesses, Oscilloscopes, Function generators, Power supplies, Breakout boxes and terminal boxes
* Played a crucial role in designing the test bench as per specific attributes of different IO’s to be tested like Power Moding, Resolver Testing, Analog I/O, Digital I/O, Pickering-variable Resistance, and Fault Triggering
* Skillfully developed a medium-sized LabVIEW application for the test bench featuring State machine design patterns, effective parallel data transfer, event handling, error handling strategy, DAQmx acquisition & measurement, LabVIEW FPGA
* Efficiently used crucial LabVIEW programming constructs to design UI-Design patterns, Clusters, File I/O, Loop Timing, SCTL, Benchmarking VI’s, DAQmx functionality, Array manipulation, etc. User event handling, OOP’s concepts.
* Effectively coordinated the design & development of two other similar Software benches for other client locations (Troy and Singapore team)
* Proactively involved in extensive product testing of a new inverter module for the Audi project on a high voltage testbench
* Acquired extensive knowledge of functional, regression, unit testing and integration testing for every feature according to the documented High voltage test plan
* Scrupulously created shipping documentation for customer units for Audi Luxembourg like Product delivery letters, High voltage certification (HV certification) documents

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| **Project Name** | Lifestyle Audio |
| **Client** | Harman International |
| **Organization & Role** | Pi-Square Technologies | Software Test engineer |
| **Duration & Team Size** | Aug 2017 - Jul 2018 | 50+ |
| **Module** | Ford Sapphire audio amplifier |
| **Software** | LabVIEW 2016 & TestStand 2016 |
| **Hardware** | National instrument HIL systems |
| **Programming** | LabVIEW, TestStand, Python 3.5, MATLAB |
| **Tools** | Confluence, Jira, Git Bash |

## Responsibilities:

* Expertise in two validation/testing platforms like on-bench testing and HIL testing for two-major OEMs, namely Ford & Chrysler
* Generated detailed validation & customer reports for Ford Sapphire variant B&O Play DSP Amplifier being tested
* Meticulously examined & analyzed SW requirements to create tests cases and verification scenarios
* Liaised with cross-functional teams to resolve critical open issues with SW release and for requirement’s analysis & Test coverage
* Profound knowledge of the NI Test Stand development environment, basic Test Stand concepts, control, and execution flow, calling LabVIEW modules, understanding Sequence model, generating HTML reports and best development practices
* Skillfully customized Test Stand sequential process model and software framework according to the SW requirements
* Developed Python scripts (Spyder environment) and test stand sequences for different features and modules in their respective development environment’s
* Sound cognizance in testbench assembly and setup tools like Audio analyzers, oscilloscopes, multimeters, function generators, Vector tools - CANoe
* Played a predominant role in the Software testing of various scenarios of the featured product audio like i/p’s and o/p’s, amp power moding, HW and SW faults, external bus diagnostics, speaker check and diagnostics, Test and vehicle EQ’s, volume of mixed audio, vehicle speed compensation, chimes, and beeps
* Performed extensive diagnostics software testing of the audio DSP module (UDS protocol) using Diagnostic console of Vector CANoe to verify responses, effectively traced requests and responses, and verified supported Data identifiers for the ECU, fault insertion and verification of supported DTC’S (fault codes)
* Hands-on experience in STLC & Test cycle management, including bug tracking, defect analysis and customer requests closure, creating and monitoring test management sprint cycles using Jira