Reza Ar Raffi Birahmatika

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Professional Summary

Test Development Engineer with 8+ years of experience designing, developing, and deploying automation and testing systems across aerospace, automotive, and electronics industries. LabVIEW Developer skilled in LabVIEW RT, TestStand, and Veristand HIL systems, with a strong knowledge of communication protocols (CAN, RS485, Ethernet) and hardware testing tools. Proven ability to design scalable test system, accelerate validation process, and reduce development costs. Experienced in agile and V-model development, mentoring junior engineers, and conducting technical training sessions across Southeast Asia.

Skills

Testing & Development	: Experimental design, structured testing, fixture development (hadrware and software)
Programming	: LabVIEW (Certified Developer), Python, Matlab, TestStand
Data Acquisition & Analysis	: High-speed acquisition (up to 2 MS/s), DIAdem, CANoe, FlexLogger
Communication Protocols	: CAN, RS232/RS485, Ethernet, Modbus, REST API, OPC UA
Databases & Reporting	: SQL, Citadel, structured technical reporting
Other Expertise	: Image/vision systems, basic electronics, multidisciplinary collaboration

Work Experiences

Test Rig Software Engineer - Akkodis / Lilium GmbH, Gauting, Germany
April 2024 – December 2024

- Built test benches using LabVIEW and NI Real Time System, for electric vertical takeoff and landing (eVTOL) aircraft systems as part of the validation and verification.
- Developed control and high-rate acquisition systems (up to 2MS/s), enabling reliable test workflows.
- Designed diagnostic and automated test tools, increasing troubleshooting efficiency by 30%.
- Produced structured test documentation and reports for verification and validation in V-Model development.
- Implemented agile environment using Jira for system development.
- Designed library for managing Electronic Control Unit (ECU) such as High Voltage Distribution Units (HVDU) and Battery Management System (BMS), streamlined integration by 10%.
- Developed diagnostic equipment for fault analysis and performance verification.
- Worked with LabVIEW RT, Python, and NI Real-Time Systems for experimental setups and analysis.

Applications Engineer / Project Leader - Haliatech, Bekasi, Indonesia
February 2020 – March 2024

- Led teams up to 5 engineers for test and control systems project, achieved 85% on-time project delivery,mainly using LabVIEW and Teststand.
- Managed the full product lifecycle (including ssystem design, development, deployment, testing, commissioning and support) ensuring timely delivery and alignment with project goals.
- Designed hardware and software architecture and assigned tasks to team member.
- Translated client technical requirements into engineering specifications.
- Collaborated with sales team to design testing and automation solutions, achieving 30% conversion rate for sales opportunities.
- Designed and constructed testing and control systems that implement multiple communication protocols (GPIB, RS232, CAN, Modbus, and Ethernet) to enable integrated instrument communication.
- Delivered 20+ technical trainings on LabVIEW (Real Time & FPGA), Veristand, RF communications, and testing instrument systems to 100+ engineers across Southeast Asia.
- Worked as consultant engineer for several electronic test equipment such as osciloscope, source measurement unit (SMU), digital multimeter (DMM), and Hipot Tester
- Performed root cause analysis that resolved recurring deployment failures.
- Initiated automated software test systems, achieving a 30% improvement in the software testing process.
- Architected scalable and reusable test software utilizing Object Oriented Programming (OOP).
- Applied continuous improvement (CI) and continuous delivery (CD) strategies to optimize project delivery.

System Engineer Staff - PT. Chroma International, Bandung, Indonesia
Sept 2016 - Sept 2019

- Built control and data acquisition systems using LabVIEW for aerospace and automotive customers across Southeast Asia and North Africa.
- Designed testing procedures, conducted wind tunnel testing, and analyzed product quality metrics.
- Collaborated with customers to gather and define detailed software specifications, ensuring alignment with their objectives.
- Collaborated with mechanical and electrical departments to perform research and build a six-axis aerodynamic load balance.
- Performed sensor calibrations and established robust calibration protocols.

Academic

S.T. (Equivalent to B. Eng) in Engineering Physics, Institut Teknologi Sepuluh Nopember (ITS)
Sept 2011 - Sept 2015
GPA: 3.40/4.00 || Majored in Optics and Photonics

Intern

Visiting Research Student - University of Malaya, Kuala Lumpur, Malaysia
April 2016 – May 2016

- Analyzed feasibility of terahertz time domain spectroscopy to identify milk adulterant inside pack.
- Prepared and tested silica optical waveguide Graphene-Oxide to develop optical logic gate NOR.

Intern at Department of Engineering - PT. PINDAD
Aug 2014 - Sept 2014

- Inspected the quality of military vehicles, in particular Armored Personnel Carrier (APC) vehicles.
- Successfully evaluated vibration response of APC military vehicle on sinusoidal handicap.

Key Projects

Electrical Power System Laboratory – Lilium, Germany

- Developed a Hardware-in-the-Loop (HIL) system using LabVIEW RT and NI PXI Linux RT Controller for test energy and propulsion integration system, resulting in a 30% improvement in troubleshooting efficiency.
- Architected integrated control system to manage all avionics systems in laboratory, including Power Distribution Units, battery management system (BMS) and propulsion system.
- Developed restbus simulation for several Electronic Control Unit (ECU) such as charging controller and battery management system in real-time system.
- Implemented real-time monitoring system capturing 50-sensor data at 2 MS/s sampling rates.

Noise, Vibration, and Harassment (NVH) Acquisition and Analysis System – Hyundai, Indonesia

- Led development of comprehensive NVH Testing System using LabVIEW, integrating sound-vibration analysis with CAN bus acquisition, reducing client costs by 70%.
- Implemented order-frequency analysis for NVH quality assessment in conventional and electric vehicles.

Bridge Structure Health Monitoring using FBG – Suramadu Bridge, Indonesia

- Led team developing LabVIEW bridge monitoring system, integrating REST API for data communication.
- Implemented OPC UA protocol for real-time data publishing and NI-Citadel database integration.
- Used LabVIEW web service and LabVIEW G Web to develop web-based User Interface.

Real Time Fault Detection System – Nuclear Research Center, Indonesia

- Engineered a cutting-edge digital recording system utilizing LabVIEW FPGA controller technology to monitor crucial fault signals within a compact nuclear environment.
- Monitor more than 500 channel digital signal with acquisition rate up to 100 KS/s.
- Manage database for alarm data logging and visualization.

Close Loop Subsonic Wind Tunnel – Aeronautical Research Center, Sudan

- Created control room software using LabVIEW to control wind tunnel testing system. The control room manage all hardware simultaneously using asynchronous method.

Megaphone Arrow Tester – Schneider, Indonesia

- Developed end product automated test system using LabVIEW and TestStand, reducing costs by 50%.
- Integrated MFCC analysis for quality assessment across 60+ device variants with different test sequences.