Muhammad Ali Raza Mashhadi

Email: aliraza.pg@smme.edu.pk | Phone: +974 71024926

Location: Al Khor, Qatar

Mechanical & Industrial Engineer | Specializing in Engine Testing, Data Acquisition, and Simulation

Objective

Mechanical and Industrial Engineer with hands-on experience in internal combustion engine testing, emissions analysis, sensor integration, and simulation-based modeling. I have worked on diesel and spark ignition engine test setups, developed real-time data acquisition systems, and applied MATLAB and LabVIEW to analyze engine performance. I am eager to contribute to innovative research or development roles involving engine systems, digital modeling, control strategies, or energy system optimization.

Education

- MS Mechanical Engineering | NUST, Pakistan | 2017 2021 CGPA: 3.5 / 4.0 Thesis: Impact of Inlet Manifold Water Injection and EGR on Emissions and Combustion of a Turbocharged Diesel Engine Focused on real-time engine testing, emissions modeling, and MATLAB-based analysis.
 BS Industrial Engineering | UET Taxila, Pakistan | 2012 – 2016
 - CGPA: 3.32 / 4.0 Final Year Project: Impact of Layout Improvement on Productivity Applied ARENA simulation to optimize factory floor design and reduce WIP.

Certifications

• IELTS (Overall Band: 7 | CEFR Level C1) Listening: 8.5, Reading: 7.5, Writing: 6.0, Speaking: 6.5

Professional Experience

- Visiting Lecturer | Mir Chakar Khan Rind University of Technology | 2021 2023
 - Taught undergraduate-level courses in Thermodynamics and Fluid Mechanics.
 - Conducted lab sessions and supervised projects related to energy systems.
 - Encouraged student involvement in practical and project-based learning.
- Content Strategist | SWIFT US Immigration Experts | Dec 2023 July 2024
 Provided technical content and support services in a U.S. immigration consultancy environment.

- Internee Engineer | Pakistan Ordnance Factories | July 2015 Aug 2015
 Observed machining, materials testing, and quality procedures in a high-security defense environment.
- Internee Engineer | Al-Ghazi Tractors Ltd. | June 2014 July 2014
 Assisted in production line operations and observed tractor manufacturing processes.

Research Projects

• MS Thesis

Impact of Inlet Manifold Water Injection and EGR on Emissions and Combustion of a Turbocharged Diesel Engine

- Simulated diesel engine combustion under varying EGR and water injection conditions using MATLAB.

- Analyzed effects on peak cylinder pressure, ignition delay, and NOx reduction.
- Validated results using test data from instrumented test rig.
- Spark Ignition Engine Test Bed for Fuel Blend Injection
 - Developed a data acquisition system for water and fuel blend injection testing.
 - Integrated NI hardware, LabVIEW, and AEM ECU for real-time control.
 - Fabricated custom hardware and sensors for inlet manifold injection.
 - Logged and analyzed data for system behavior and emission trends.

Academic Projects

- Facility Layout Optimization Using ARENA Simulation
 - Simulated multiple layout scenarios to improve throughput and reduce lead time.
 - Results showed a measurable decrease in WIP and better space utilization.
- Hospital Eye Ward Simulation
 - Modeled patient flow and bottlenecks in a public hospital using ARENA.
 - Proposed improvements that reduced average patient waiting time.

Technical Skills

- Simulation & Modeling: MATLAB, ARENA
- Data Acquisition & Control: LabVIEW, AEM ECU
- Design & CAD: SolidWorks, AutoCAD
- Other Tools: Python (basic), Simulink (familiar), MS Office

Relevant Coursework

IC Engine Systems, Engine Tribology, Advanced Instrumentation and Experimental Methods, Production Planning & Control, Operations Research, Supply Chain Management

Leadership & Activities

- Member, Taxilian Character Building Society (UET Taxila)
- Member, IISE Society (UET Taxila)
- Winner, Intra-University Badminton Championship (NUST)

• Winner, Intra-College Table Tennis Tournament

Community Engagement

- Organized local clothes donation campaigns.
- Coordinated ration distribution during community support drives.