



Khalid Zia Khan

Nationality: Pakistani **Date of birth:** 01/06/2001 **Gender:** Male

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Home: Block J3 Flat C New Nasheman, 46600 Rawalpindi (Pakistan)

EDUCATION AND TRAINING

BS Engineering (Mechanical Engineering)

National University of Science & Technology (NUST) [02/11/2020 – 14/06/2024]

City: Islamabad | Country: Pakistan

Higher Secondary School (Pre Engineering)

FG SirSyed College Rawalpindi Cantt [15/08/2017 – 24/05/2019]

City: Rawalpindi | Country: Pakistan

WORK EXPERIENCE

Trainee Engineer

Bestway Cement Limited [24/07/2024 – Current]

Country: Pakistan

- Assisted in the maintenance, alignment, and commissioning of packing plant machinery, contributing to efficient operation and reduced downtime in the cement industry
- Participated in a project converting electrostatic precipitators (ESPs) to baghouse filtration systems to enhance efficiency, meet stringent emission standards, and support sustainable engineering.
- Oversaw project scheduling and resource allocation for maintenance using SAP, focusing on efficient execution and timely completion. Responsibilities included managing maintenance notifications and work orders.

Mechanical Engineering Intern

Kohinoor Textile Mill Limited [01/08/2022 – 12/09/2022]

City: Rawalpindi | Country: Pakistan

- I have gained extensive hands-on experience with Wartsila, Niigata, and Jenbacher engines, confidently assisting in their operation and maintenance.
- I have also been part of a team that conducted thorough inspections, troubleshooting, and data analysis to ensure optimal performance.

Mechanical Engineering Intern

Robot Maker Lab, National Center of Robotics and Automation [08/08/2023 – 12/09/2023]

City: Rawalpindi | Country: Pakistan

- Fabricated custom components using CNC laser cutting machines and operated a 3-axis CNC milling machine.
- Developed a line-following robot and gained practical skills in robotics, SolidWorks analysis, laser cutting techniques, and CNC milling processes for complex part manufacturing.

Millennium Fellowship - Millennium Fellow for the Class of 2023

United Nations Academic Impact (UNAI) and the Millennium Campus Network (MCN) [15/09/2023 – 15/12/2023]

City: Rawalpindi

- Collaborating with the United Nations to provide education to orphanages improves learning opportunities for underprivileged children.
- The initiative fosters community engagement, inspiring local participation in educational development.

PROJECTS

[10/09/2023 – 14/06/2024]

Impact Resistance and Damage Tolerance Improvement of Fiber-Reinforced Composites through Hybridization Technique

This project aimed to enhance the impact resistance and damage tolerance of fiber-reinforced composites through the integration of various reinforcement materials, resulting in superior mechanical properties.

In this project, I played a key role by:

- Conducting thorough literature reviews for data and insights gathering. Performing experimental testing and data analysis to evaluate the effectiveness of hybridization techniques. Contributing to the development of innovative solutions to enhance composite material performance.

[01/06/2023 – Current]

Condition Monitoring and Fault Diagnosis of Centrifugal Pump in Nuclear Power Plant by Vibration and Motor Current Signature Analysis

This project aimed to develop advanced techniques for the condition monitoring and fault diagnosis of centrifugal pumps in nuclear power plants using cutting-edge methods such as vibration and motor current signature analysis. I played a key role by:

- Conducting literature reviews and experimental testing, and contributing to innovative solutions to enhance nuclear power plant safety and reliability.

[25/09/2023 – 01/06/2024]

Complex Engineering Problems(CEP)

- Design of Oil Well (4-BAR MECHANISM)

Develop a robust four-bar linkage system for oil well pumps, enhancing operational efficiency and reliability in oil extraction processes

- Line Follower Bluetooth Controlled Robot using Arduino

Construct and program a line-follower robot integrated with Bluetooth control for versatile navigation and remote operation capabilities

- Modal Vibration Testing and Analysis of Two-Story Building

Conduct modal vibration testing and analysis on a two-story building to evaluate its structural integrity and dynamic response under various loading conditions.

PUBLICATIONS

[2024]

[Design, Modeling and Cost Analysis of 8.79 MW Solar Photovoltaic Power Plant at National University of Sciences and Technology \(NUST\), Islamabad, Pakistan](#)

This research paper details the design, modeling, and cost analysis of an 8.79 MW solar photovoltaic plant at NUST, Islamabad. Highlighting Pakistan's 1600 GW solar potential, it projects a reduction of 20,000 tons of CO₂ over five years, akin to planting 348,754 trees. The PV system achieves an economical electricity cost of 0.0141 US \$/kWh, with high-efficiency components and innovative adaptive tilt angles. Performance indicators demonstrate a Capacity Utilization Factor (CUF) of 15.09% and a Performance Ratio (PR) averaging around 76.6%. The findings underscore the project's potential as a model for sustainable energy initiatives, contributing to Pakistan's commitment to a greener future.

Shabahat Hasnain Qamar, Dawid Piotr Hanak, Majid Ali, Joao Gomes, and Khalid Zia Khan

Solar Photovoltaic Thermal (PVT) System Integration for Sustainable Energy Production in a Dairy Farm in Belgium

Principle in acceptance (Heliyon-2405-8440)

This study explores the integration of Solar Photovoltaic Thermal (PVT) systems for sustainable energy production in a dairy farm in Belgium. The research aims to enhance energy efficiency and sustainability by combining solar photovoltaic and thermal energy systems to meet the energy demands of dairy farming operations. The project evaluates the system's performance, environmental benefits, and economic feasibility, demonstrating significant improvements in energy savings and reduced carbon footprint.

Shabahat Hasnain Qamar, Khalid Zia Khan, and Dr. Joao Gomes

CERTIFICATES

Project Management

Project management certification taught me that effective project management revolves around planning, executing, and managing projects efficiently.

Fundamentals of Renewable Technology

Fundamentals of Renewable Technology certification taught me that the essence of renewable energy revolves around harnessing, converting, and efficiently using sustainable resources.

Vehicle Dynamics

Vehicle dynamics involves understanding how vehicles behave in motion, focusing on the forces and moments that impact stability, handling, and performance.

HONOURS AND AWARDS

[13/05/2024] National University of Science & Technology (NUST)

NUST High Achiever Award

[14/07/2023] JS BANK

Zindagi Prize JS BANK Regional Winner

[10/10/2022] National University of Science & Technology (NUST)

CAD Competition

VOLUNTEERING

[01/01/2021 – Current]

Volunteer- KAAR-E-KAMAL

KAAR-E-KAMAL is a volunteer-driven organization dedicated to inspiring others to positively impact the community through humanitarian efforts. Volunteers actively provide essential supplies such as rations and daily utilities to needy families, aiming to alleviate their hardships

[25/09/2022 – 25/05/2024]

General Secretary - EME Environment Club

As General Secretary of the EME Environment Club, I led initiatives focused on environmental stewardship and community engagement.

Key activities included organizing and leading a successful plantation drive to enhance green spaces and conducting a clean environment rally to raise awareness about environmental conservation

[13/06/2023 – 20/03/2024]

Secretary R&D Group - Digital Empowerment Pakistan

In my role as Secretary of the R&D Group at Digital Empowerment Pakistan, I am responsible for enhancing communication channels within the organization and ensuring effective documentation of all research and development activities.

[28/02/2022 – 02/02/2024]

Director - NustagOfficial

As Director of NustagOfficial, I led a multidisciplinary team in designing, developing, and optimizing ultra-efficient vehicles for the Shell Eco-marathon competition. I coordinated non-technical aspects such as team logistics, sponsorship acquisition, and public outreach, contributing to our sustained success and participation in this prestigious global engineering challenge

[14/07/2022 – 15/08/2022]

Ambassador - Positive Pakistan PPF

In my role as Ambassador for Positive Pakistan PPF, I am dedicated to promoting and marketing the organization's events, with a particular focus on celebrating Pakistan Independence Day.

DIGITAL SKILLS

SolidWorks / AutoCAD / Ansys / MS Excel / PRIMAVERA / Microsoft Office

LANGUAGE SKILLS

Mother tongue(s): Urdu

Other language(s): English