ENGR. DR. AKBAR ALI KHAN

Assistant Professor,
Institute of Electrical Electronics and Computer Engineering
University of the Punjab, Lahore
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EDUCATIONAL PROFILE

Ph.D. Electrical Engineering **2024**
CGPA: 4.0
Lahore University of Management Sciences (LUMS), Lahore, Pakistan
Thesis: A Low Harmonic, Reduced Common Mode Voltage oriented Multi-Drive System: Investigation and Development.

Visiting Research @ KTH Royal Institute of Technology, Stockholm, Sweden: Investigation of Interleaved Space Vector Based Modulations on Asymmetric Dual Three Phase Induction Motor

MSc (Engg) Electrical Engineering **2017**
University of Engineering and Technology, Lahore, Pakistan
CGPA: 3.75
Thesis: Improvement in Direct Torque Control Scheme using Cascaded H-bridge Multilevel Inverter for Reduction in Torque Ripple

BSc (Engg) Electrical Engineering **2011**
University of Engineering and Technology, Lahore, Pakistan
CGPA: 3.679

RESEARCH WORK & PUBLICATIONS

Khan, A. A., Zaffar, N. A., & Ikram, M. J. (2023). DC-Link Ripple Reduction for Parallel Inverter Systems by a Novel Formulation Using Multiple Space Vector-Based Interleaving Schemes. Electronics, 12(6), 1496

A. A. Khan, N. A. Zaffar and M. J. Ikram, "Comparative Evaluation of DC-link Capacitor RMS Current Stress for Conventional and Reduced Common Mode Voltage SVPWM based Inverters," 2023 IEEE 24th Workshop on Control and Modeling for Power Electronics (COMPEL), Ann Arbor, MI, USA, 2023, pp. 1-7, doi: 10.1109/COMPEL52896.2023.10221179.

A. A. Khan, N. A. Zaffar and M. J. Ikram, " Evaluation of Active Zero Switch PWM for Interleaved Dual Inverter systems, " [accepted] 2024 IEEE 25th Workshop on Control and Modeling for Power Electronics (COMPEL).

A. A. Khan, N. A. Zaffar, M. J. Ikram, " Performance Evaluation of Vector Control Induction Motor Drive with Reduced Common Mode Voltage based PWM schemes", [accepted] 2024 IEEE 25th Workshop on Control and Modeling for Power Electronics (COMPEL).

A. A. Khan, N.A.Zaffar, M. J. Ikram, Yixuan Wu, Luca Peretti "Simultaneous Reduction of DC-link Harmonics and Common Mode Voltage in Interleaved Multi-inverter Systems by Modified SVPWM Schemes", [under review], IEEE Transactions in Industrial Electronics, 2024

PROFESSIONAL EXPERIENCE

1. **July2012 -Todate: Lecturer, Institute of Electrical Electronics and Computer Engineering, University of the Punjab, Lahore.**
   (PhD Study Leaves from Sep'18-14Nov'22)
   a. **Teaching Assignments**
      Courses Taught
      [MSc. (Engg) Electrical Engineering]
      Advance Power Electronics
      Advanced Electric Machines
      Power System Planning
      [BSc. (Engg) Electrical Engineering]
      Digital Logic Design
      Power System Analysis
      Power Distribution and Utilization
      Electrical Machines
      Power Electronics
      Power System Protection
      Calculus
      Linear Algebra
      [Labs Conducted]
      Power Electronics
      Electrical Machines
      Power Distribution and Utilization
      Power System Analysis
      Power Generation and Transmission
      Power System Protection
      Electric Circuits

   b. **Non-Teaching/Administrative Assignments**

      Current Positions/Assignments
      Lab Director, Machines and Power Systems Lab
      In-charge, BSc(Engg) Final Year Project Committee
      Member, OBE implementation committee (includes curriculum revision assignments)
      Member, MSc (Engg) Electrical Engineering Thesis Evaluation Committee
      Departmental Focal Person for PM laptop distribution scheme
      Previous Positions/Assignments
      Member, Departmental Examination Committee (2013-2014)
      In-charge, Electrical Engineering Lab Equipment testing and installation (2014, 2017)
      Member, Board of Faculty (2015-2018)
      Member, Curriculum upgradation committee (2014, 2015)

2. **(Sep 2018-Aug2022) PhD Researcher Mitsubishi Power Electronics Lab, Electrical Engineering, Lahore University of Management Sciences (LUMS), Pakistan**

   Activities/ Projects
   Modelling, Simulations and Optimization of PWM based inverter systems
   Integration of PWM inverters with motor drive systems and multiphase machines for Electric Vehicle Applications

Charging Mechanism and testing of Electric bikes
Modelling and Data Fitting mechanism for integrating Electrical grid/solar load curves with electric vehicle charging load
Modelling of hybrid grid system (such as Grid and PV) and Optimization of costs and losses

3. **(Aug 2022-Nov 2022) Visiting PhD Researcher, KTH Royal Institute of Technology, Stockholm, Sweden**

   Activities/ Projects
   Investigation of modulation techniques for multiphase machines
   Experimental/Simulative work on variable phase-pole machines for electric vehicle applications

AREAS OF INTEREST

Power Electronics	Electric Machines & Drives	Power Systems
Smart Grids	PV Systems	