

MUHAMMAD HAMMAD UDDIN

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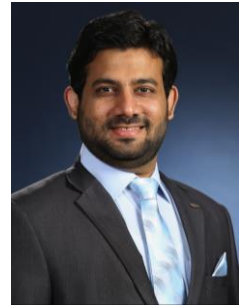
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[Muhammad Hammad Uddin - Google Scholar](#)

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Education

Ph.D. scholar in Electrical Engineering,	2019-2024 expected
Worcester Polytechnic Institute (WPI), Massachusetts, U.S.A.	
Completed 6 Graduated courses, University of Arkansas, USA	2017 - 2018
Master of Engineering (M.Eng.), Electrical Power Systems	2012 - 2015
NED University of Engineering & Technology, Karachi, Pakistan	
Thesis: Design & comparative study of maximum power point tracking for solar power system	
Bachelor of Engineering (B.E.), Electrical Engineering	2008-2011
Thesis: Small-scale biogas power plant and its conversion to electricity	
NED University of Engineering & Technology, Karachi, Pakistan	
Bachelor of Science (B.Sc.) in Chemistry, Mathematics, and Physics	2005-2006
University of Karachi, Karachi, Pakistan	

Professional Experience

Assistant Professor in Electrical Engineering Department, NED University from 2018 to date

Lecturer in Electrical Engineering Department, NED University from 2013 to 2018

- Organizer and co-convener in the 1st Electrical Engineering Congress (IEEC 2016), Karachi
- Taught undergraduate and graduate courses on the power system, instrumentation, and renewable energy
- Received ISO feedback from students rating “Very Good” and “Excellent” in theory courses.
- Served as a lab in charge of electrical machines lab for 4 years, maintenance of lab machinery, managing instruments, records sheets, and lab reports to be provided for internal and external audit
- Acted as internal advisor of final year projects based on electric power systems optimization and improvements of standards, application of renewable energy, power electronics converters, and problems of the power systems.
- Worked on simulation software for research such as MATLAB, Simulink, Psim, Office, and Visio.

Trainee Engineer in K-Electric (Distribution Department) for 1 year in 2012-2013

- Understand the K Electric billing procedure and consumer data in the SAP management system
- Worked at the LT underground and overhead cable maintenance, testing, laying, and jointing
- Observe the substation system and PMT maintenance and installation PMT and its protection
- Analyzed aggregate and technical losses and suggested remedies

Interned at AREVA T&D for a month in June 2010

- Observed the installation and maintenance of the HV line bay at Grid Substation.
- Worked at the assembling and testing of Medium Voltage and High Voltage panels

Projects

- Lithium-Ion Battery State of charge Estimation techniques January 2020 to present.
- Worked on differential power processing for photovoltaic applications, January 2019- December 2019
- Designed control for traction inverter based on multilevel space vector PWM, August 2017 to December 2018

Academic Awards

- Travel grant for the Fulbright Association conference, DC, USA 2019
- Fulbright Scholarship Grant for Ph.D. studies at WPI, Massachusetts, USA, 2017-2022
- Project grant worth 34,000 PKR on “Design of MPP controller for photovoltaic application”
- Travel grant from BUIITEMS, Quetta in IEEE International Conference trip
- 75% Fee waiver for Master of Engineering from NED University (2012-2015)
- Full scholarship for Bachelor of Engineering from Bhaimia Foundation (2008-2010)

Research Publications

Journal Publications:

Riaz Uddin, A.S. Alghamdi, **Muhammad Hammad Uddin**, Ahmed Bilal Awan, and Syed Atif Naseem, "Ethernet-based Fault Diagnosis and Control in Smart Grid: A stochastic analysis via Markovian Model Checking " Journal of Electrical Engineering & Technology, 2019, Springer

Muhammad Hammad Uddin and Saad Ahmed Qazi, "Impact of uninterruptible power supply charging on electricity demand study for Karachi, Pakistan," NED University Journal of Research, vol. 15, no. 2, 2017.

Conference Publications

Muhammad Hammad Uddin, Areeba Abid, Usra Inam, Ayesha Urooj, Mahma Rauf Siddiqui, “A Comparative Analysis of Multilevel Inverter Topology Based on Phase Disposition Sinusoidal Pulse Width Modulation.” Eng. Proc. 2023, 46, 30.

Maqsood Ali Mughal, Habeebullah Adua, **Muhammad Hammad Uddin**, Evan Sauter, Stephen Natale, Timothy Lewis, and Jonathan G. Ferreira, “Real-time Prediction Algorithms to Detect Clouds and Forecast Photovoltaic System Performance”, 49th IEEE Photovoltaic Specialists Conference (PVSC 49), Philadelphia, PA, USA June5-10 2022

Iqbal Azeem, Muhammad Ali Baig, **Muhammad Hammad Uddin**, “A Strategy to Evaluate MPPT Techniques”, in IEEE Asian Conference on Energy, Power and Transportation Electrification (ACEPT 2018), Singapore.

Zhongjing Wang, Zhe Zhao, **Muhammad Hammad Uddin** and Yue Zhao “Current Ripple Analysis and Prediction for Three-Level T-type Converters”, IEEE Energy Conversion Congress and Exposition (ECCE), Portland, OR, 2018

Zhongjing Wang, Mohammad Hazzaz Mahmud, **Muhammad Hammad Uddin**, Brice McPherson, Brett Sparkman, Yue Zhao, H Alan Mantooth, John R Fraley, “A Compact 250 kW Silicon Carbide MOSFET based Three-Level Traction Inverter for Heavy Equipment Applications”, IEEE Transportation Electrification Conference and Expo (ITEC), Long Beach, CA, 2018, pp. 1129-1134.

Muhammad Hammad Uddin, Muhammad Ali Baig, Muhammad Ali, “Comparison of ‘Perturb & Observe’ and ‘Incremental Conductance’, Maximum Power Point Tracking Algorithms on Real Environmental Conditions”, in IEEE International Conference on Computing, Electronic and Electrical Engineering (ICE Cube) (2016).

Farah Jalal, **Muhammad Hammad Uddin**, Saad Ahmed Qazi, Hira Hassan, Aliya Batool and Yusra Fatima 'Efficacy Measurements of Commercially Available Ceiling Fans', in 1st International Electrical Engineering Congress (IEEC-2016)

Research Interests

Power Electronics Converters Applications
Renewable Energy Application (PV Solar system)
State Estimation for Batteries
Space Vector PWM Control

Skills

Simulation software experience (MATLAB, Simulink, PSIM)
Management and writing software (SAP, Latex, MS Office, Visio)

Extracurricular Achievements

- Won Gold Medal in basketball in the 15th Sindh game (Provincial Level) at Mirpurkhas, Pakistan, 2012
- Won All Pakistan Intersarsity Final Basketball Championship at Karachi, Pakistan, 2009
- Gold medalist in NED University Inter Dept Basketball for 3 consecutive years (2009-2011)
- Won 1st Prize in the NAAT recitation contest 2019 at NED UET

Graduate Ph.D. Courses:

Discrete-time signal processing
Introduction to Data Science
Mathematical Foundations to Data Science
Multilevel Space Vector Pulse Width Modulation (SVPWM)
Nonlinear control systems
Optimal control system
Numerical analysis using MATLAB
Power Electronics and Motor drives
Switching Mode Power Conversion
Introduction to Power Electronics
Renewable Energy

Courses Taught

Fundamental of Electric Engineering Theory and Lab
Circuit Analysis Theory
Circuit Theory
Instrumentation and Measurement Theory and Lab
Electrical Machines Lab
Electrical Power, Distribution, and Utilization Theory and Lab
Renewable Energy Theory
Power Electronics Lab

Memberships

- Pakistan Engineering Council (PEC)
- IEEE Graduate Student Member
- The Institution of Engineers, Pakistan (IEP) Member