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Bikrant Poudel, Ph.D.

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Professional Profile

Dr. Poudel has training and specialization in power systems, grid integration of renewable resources, utility transmission and distribution system protection, power electronics, and electric machine design/optimization. He is skilled in finite element analysis and power systems simulation tools.

Dr. Poudel is experienced in analyzing utility power systems, consumer electronics, and electrical appliances and performing specialized testing to determine the cause of failures. He has investigated incidents involving consumer electronics, electrical appliances, transformers, generators, data centers, solar panels, and wildfires to determine the root cause of failures. He is also experienced in using machine learning and optimization tools to design, analyze, and optimize power systems and electric machines.

Dr. Poudel has worked on several projects, including power system protection analysis for wildfire events, data center power system and harmonics analysis, generator and transformer failure analysis, solar panel failure analysis and recreation testing, battery failure analysis, battery management system safety testing, consumer electronics safety assessment and fault testing, PCB design review, residential fire inspection, and residential flooding inspection.

Academic Credentials & Professional Honors

Ph.D., Engineering and Applied Science, University of New Orleans, 2022

M.S.E., Engineering, University of New Orleans, 2017

B.E., Electronics and Communication Engineering, Tribhuvan University, Nepal, 2013

Tau Beta Pi, Engineering Honor Society

Academic Appointments

Instructor, Engineering Software Tools and Circuits Laboratory, Department of Electrical and Computer Engineering, University of New Orleans, 2021-2023

Prior Experience

Graduate Research Assistant, Power Energy and Research Lab, University of New Orleans, 2015-2022

Graduate Teaching Assistant, University of New Orleans, 2015-2022

Professional Affiliations

Institute of Electrical and Electronics Engineers

Languages

Nepali

Publications

Huynh H., Khatiwada A., Poudel B., Amiri E., Quinteros M. I., Field T. E., and Rastgoufard P. (2024). Experimental Analysis of Transmission Line Protection Functions in Grid-Connected IBR. IEEE Transactions on Industry Applications.

Poudel B, Amiri E and Alsamman A. R., Learning Based Design Framework for Hybrid Permanent Magnet Machines, 2023 IEEE International Electric Machines & Drives Conference (IEMDC), San Francisco, CA, USA, 2023, pp. 1-5, doi: 10.1109/IEMDC55163.2023.10238870.

A. Khatiwada et al., Electromagnetic Transient Analysis of Differential Protection Function in Grid-Connected IBR, 2023 IEEE Kansas Power and Energy Conference (KPEC), Manhattan, KS, USA, 2023, pp. 1-5, doi: 10.1109/KPEC58008.2023.10215401.

Poudel B and Amiri E, Deep Learning Based Design Methodology for Electric Machines: Data Acquisition, Training and Optimization. IEEE Access, vol. 11, pp. 18281-18290, 2023

Poudel B. Machine Learning Based Design Methodology for Electric Machines, Ph.D. Dissertation, University of New Orleans, 2022.

Poudel B, Amiri E, Rastgoufard P. Analytical Investigation and Heuristic Optimization of Surface Mounted Permanent Magnet Machines with Hybrid Magnetic Structure. IEEE Open Journal of Industry Applications 2022; 3: 152-163.

Basnet M, Poudel B, Amiri E, Rastgoufard P. Optimization Framework to Determine Optimal Location and Sizing of Photovoltaic Energy Sources in Electric Grids. 2022 IEEE Kansas Power and Energy Conference (KPEC); 1-6.

Poudel B, Amiri E, Xiros N, Rastgoufard P. Design Optimization of Dual-Pole Permanent Magnet Machine. 2022 IEEE Kansas Power and Energy Conference (KPEC); 1-4.

Poudel B, Amiri E. An Optimization Framework for Minimizing Cogging Torque in Surface Mounted Permanent Magnet Machines. 2022 IEEE 31st International Symposium on Industrial Electronics (ISIE); 492-498.

Rimal B.P, Kong C, Poudel B, Wang Y, Shahi, P. Smart Electric Vehicle Charging in the Era of Internet of Vehicles, Emerging Trends, and Open Issues. Energies 2022; 15:1908.

Poudel B, Amiri E, Rastgoufard P, Mirafzal B. Toward Less Rare-Earth Permanent Magnet in Electric Machines: A Review. IEEE Transactions on Magnetics 2021; 57:1-19.

Poudel B, Bhandari B, Amiri E, Rastgoufard P, Field T. E, McCanne R. A. Interconnection Study and Optimization of Grid Connected Photovoltaic System Using Electromagnetic Transient Program. 2021 IEEE Kansas Power and Energy Conference (KPEC); 1-6.

Poudel B, Amiri E, Ramamurthy J. R, Leevongwat I, Field T. E, Rastgoufard R, Rastgoufard P. Hardware-in-the-Loop Testing of Dynamic Grid Voltages for Static Var Compensator Controllers with Single-Phase Induction Motor Loads. IEEE Open Access Journal of Power and Energy 2020; 7: 307-319.

Poudel B, Shiwakoti R, Amiri E, Rastgoufard P, Field T. E, Ramamurthy J.R. Aggregate Model of Single Phase Induction Motors. 2019 IEEE International Electric Machines & Drives Conference (IEMDC); 1373-1378.

Shiwakoti R, Poudel B, Amiri E, Divandari M, Damaki A. Design and analysis of modular axial flux switched reluctance motor. 2019 IEEE International Electric Machines & Drives Conference; 1521-1525.

Poudel B, Amiri E, Charalampidis D. Design improvement of dual pole synchronous reluctance motor. 2018 IEEE Energy Conversion Congress and Exposition (ECCE); 5403-5407.

Amiri E, Poudel B, Aliabad A. D, Ghoroghchian F, Dobzhanskyi O. The emergence of dual pole line start synchronous motors. 2018 IEEE Energy Conversion Congress and Exposition (ECCE); 1656-1660.

Poudel B, Amiri E, Rastgoufard P. Design and analysis of line start synchronous reluctance motor with dual saliency. 2018 IEEE Transportation Electrification Conference and Expo (ITEC); 385-388.

Poudel B, Amiri E, Aliabad A. D, Ghoroghchian F. Line start synchronous motor for multi-speed applications. 2017 IEEE International Electric Machines and Drives Conference (IEMDC); 1-6.

Ghoroghchian F, Aliabad A. D, Amiri E, Poudel B. Line start permanent magnet synchronous motor with dual magnetic polarity. 2017 IEEE International Electric Machines and Drives Conference (IEMDC); 1-6.

Poudel B. Line Start Permanent Magnet Synchronous Motor for Multi Speed Application. Master's Thesis, University of New Orleans, 2017.

Poudel B, Amiri E, Rastgoufard P. Surface-climbing Planar Induction Motor. 2016 IEEE 25th International Symposium on Industrial Electronics (ISIE); 216-220.

Published Abstracts and Presentations

2023 IEEE International Electric Machines & Drives Conference (IEMDC)

2022 8th International Conference on Sustainable Energy and Environment (SEE)

2022 IEEE Kansas Power and Energy Conference (KPEC)

2022 IEEE 31st International Symposium on Industrial Electronics (ISIE)

2021 IEEE Kansas Power and Energy Conference (KPEC)

2019 Innovate UNO: University of New Orleans research symposium

2019 Distributech Conference

2019 IEEE International Electric Machines & Drives Conference (IEMDC)

2019 IEEE International Electric Machines & Drives Conference (IEMDC)

2018 IEEE Energy Conversion Congress and Exposition (ECCE)

2018 IEEE Energy Conversion Congress and Exposition (ECCE)

2018 IEEE Transportation Electrification Conference and Expo (ITEC)

2017 IEEE International Electric Machines and Drives Conference (IEMDC)

2016 IEEE 25th International Symposium on Industrial Electronics (ISIE)

Peer Reviews

IEEE Transactions on Energy Conversion

IET Electric Power Applications

IEEE Access

IEEE Power and Energy Technology Systems Journal

IEEE Open Access Journal of Power and Energy

MDPI World Electric Vehicle Journal

MDPI Energies Journal