

Shiva Poudel

PH.D. CANDIDATE

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Professional Summary

- A highly organized and detail-oriented research assistant with over 4 years of experience with expertise in power system simulations and computations as evidenced by more than 10 publications.
- Excellent relationship builder and solutions-oriented with history of success contributing to reliable and resilient operation of distribution system.
- Knowledgeable innovator with advanced skills in power system modeling and optimization.

Experience

Washington State University

Pullman, WA, USA

GRADUATE RESEARCH ASSISTANT

Aug. 2016 - PRESENT

- Develop an optimal, scalable and robust framework to enhance power delivery system resilience.
- Plan a decentralized distribution grid by optimally placing distributed generators (DGs) and distribution automation technologies to improve system recovery and assist with the formation of a self-sustained islanded grid.
- Measure resilience as a function of the response, recovery process and the extent of decentralization in infrastructures.

Electric Power Research Institute (EPRI)

Palo Alto, CA, USA

GRADUATE RESEARCH INTERN

May 2019 - Aug. 2019

- Study the energization optimization for optimal black capability.
- Designed an improved network model to generate computationally efficient restoration sequence
- Develop a generalized framework for optimal black start incorporating cost and timing.

Mitsubishi Electric Research Laboratories

Cambridge MA, USA

GRADUATE RESEARCH INTERN

May 2018 - Aug. 2018

- Developed an efficient and robust approach for outage detection in power distribution system during natural disaster.
- Proposed an effective restoration scheme for power delivery system during an extreme event utilizing renewables and energy storage system.

South Dakota State University

Brookings, SD, USA

GRADUATE RESEARCH ASSISTANT

Aug. 2015 - Aug. 2016

- Studied application of unsupervised learning approaches in cascading failures for power grid security.
- Developed an efficient algorithm for contingency analysis through electrical distance approach.
- Developed a real-time Cyber-Physical System (CPS) test-bed for security and control experiments.

South Dakota State University

Brookings, SD, USA

GRADUATE TEACHING ASSISTANT

Aug. 2014 - Aug. 2016

- Taught different power system problems like power flow, series and shunt compensation, contingency analysis through simulation of different benchmark in PowerWorld Simulator
- Designed electronic circuits (various amplifier and oscillator circuits) and lab manual for practical
- Assigned group project for students to design a specific electronic circuit

Winrock International

Kathmandu, Nepal

JUNIOR ASSISTANT (INTERN)

Dec. 2013 - Jun. 2014

- Field visit in remote areas of Nepal to find need and potential of renewable energies
- Data collection as well as preparing reports for distribution and installation of solar panels, PV water pumping, and improved cooking stove

LOCUS 2013, Institute of Engineering, Central Campus

Kathmandu, Nepal

ELECTRIC EVENT COORDINATOR

Jan. 2013 - May. 2013

- Assisted freshman and sophomore students in developing basic electrical projects.
- Demonstration of working principle of hydro power plant, relays, and transformers.

Education

Washington State University

Pullman, WA, USA

PH.D IN ELECTRICAL ENGINEERING

Aug. 2016 - PRESENT

- Adviser: Dr. Anamika Dubey
- Research: Enhancing and Quantifying Distribution System Resilience
- Cumulative GPA: 3.81 on a 4.00 scale
- Relevant Coursework: Power System Analysis, Power Electronics, Electromagnetics, Power System Stability and Control, Power System Protection, Power System Operation and Control, Power Quality

South Dakota State University

Brookings, SD, USA

M.S. IN ELECTRICAL ENGINEERING

Aug. 2014 - Aug. 2016

- Adviser: Dr. Zhen Ni
- Thesis: Cascading Failures and Contingency Analysis for Smart Grid Security
- Cumulative GPA: 3.96 on a 4.00 scale
- Relevant Coursework: Advanced Power System, Advanced Power Electronics, Power System Dynamics, Photovoltaic Engineering, Model/Control of Power Electronics System, Computational Intelligence

Institute of Engineering, Central Campus

Kathmandu Nepal

B.E. IN ELECTRICAL ENGINEERING

Dec. 2009 - Dec. 2013

- Adviser: Dipesh Lamsal
- Senior Design Project: Speed control of Slip Ring Induction motor using IGBT
- Cumulative GPA: 3.95 on a 4.00 scale
- Relevant Coursework: Basic Electrical, Electronic Circuits, Digital Logic, C, C++, Microprocessor, Electric Machines, Signal Analysis, Digital Signal Processing, Control System, Power System Analysis

Skills

Programming Languages Python, C/C++, LaTeX

Simulation Application MATLAB, PowerWorld, MATPOWER, PSCAD, OpenDSS, GridLAB-D

Honors & Awards

2018	Awardee , Harold and Dianna Frank Electrical Engineering Fellowship Fund from Washington State University	Pullman, WA
2018	2nd Place , Best paper award at North American Power Symposium	Fargo, ND, U.S.A
2017	Awardee , Travel grant to attend National Science Foundation (NSF) Workshop at Texas A&M University	Texas, U.S.A
2017	Awardee , Travel grant from Power and Energy Society to attend US-CA IEEE PES Student Congress	Boston, U.S.A
2013	Awardee , Tribhuvan University merit scholarship for exceptional performance in academia	Kathmandu, Nepal
2010	Awardee , Batch topper shield by Free Students Union	Kathmandu, Nepal

Presentation

IEEE Power and Energy Society General Meeting

Chicago, IL, USA

PAPER PRESENTATION

Jul. 2017

- A Robust Approach to Restoring Critical Loads in a Resilient Power Distribution System

IEEE Power and Energy Society General Meeting

Portland, OR, USA

POSTER PRESENTATION

Aug. 2018

- A Graph-theoretic Framework for Electric Power Distribution System Service Restoration

Academic Showcase, Washington State University

Pullman, WA, USA

POSTER PRESENTATION

March 2018

- A Graph-theoretic Framework for Electric Power Distribution System Service Restoration

IEEE Power and Energy Society General Meeting

Atlanta, GA, USA

POSTER PRESENTATION

Aug. 2019

- Probabilistic Quantification of Power Distribution System Resilience

IEEE Power and Energy Society General Meeting

Atlanta, GA, USA

PAPER PRESENTATION

Aug. 2019

- Resilient Restoration of Power Distribution System Based on Minimum Spanning Forest

Professional Service and Activities

Professional Society Membership

- Student Member, IEEE, 2014 - Present
- Student Member, IEEE Power and Energy Society (PES), 2014 - Present

Peer Review Service

- Reviewer, IEEE Transactions on Smart Grid
- Reviewer, IEEE Transactions on Power Systems
- Reviewer, IEEE Systems Journal
- Reviewer, IEEE Power and Energy Society General Meeting (PESGM)

Publications

Journals

- **S. Poudel**, A. Dubey, A. Bose, and Kevin P. Schneider, "Leveraging Distributed Generation Resources for Reliable and Resilient Power Distribution System," *Submitted to IEEE Transactions on Sustainable Energy*.
- **S. Poudel**, A. Dubey, and A. Bose, "Risk-based Probabilistic Quantification of Power Distribution System Resilience," *Revised and submitted to IEEE Systems Journal*.
- A. Gandluru, **S. Poudel**, and A. Dubey "Joint Estimation of Operational Topology and Outages for Unbalanced Power Distribution Systems," *IEEE Transactions on Power Systems*, Aug. 2019
- **S. Poudel** and A. Dubey, "Critical Load Restoration Using Distributed Energy Resources for Resilient Power Distribution System," *IEEE Transactions on Power Systems*, vol. 34, no. 1, pp. 52-63, Jan. 2019.
- **S. Poudel**, Z. Ni, and W. Sun, "Electrical distance approach for searching vulnerable branches during contingencies," *IEEE Transactions on Smart Grid*, vol. 9, no. 4, pp. 3373-3382, July 2018.
- **S. Poudel**, Z. Ni, and N. Malla, "Real-time cyber physical system testbed for power system security and control," *Int. J. Electr. Power Energy Syst.*, vol. 90, pp. 124-133, Sep. 2017

Conferences

- **S. Poudel**, A. Dubey, and A. Bose "Probabilistic Quantification of Power Distribution System Resilience," *2019 IEEE Power & Energy Society General Meeting*, Atlanta, GA, 2019, pp. 1-5.
- **S. Poudel**, H. Sun, D. Nikovski, and J. Zhang "Resilient Restoration of Power Distribution System Based on Minimum Spanning Forest," *2019 IEEE Power & Energy Society General Meeting*, Atlanta, GA, 2019, pp. 1-5.
- **S. Poudel**, H. Sun, D. Nikovski, and J. Zhang "Distributed Average Consensus Algorithm for Damage Assessment of Power Distribution system," *submitted to 2019 IEEE Global Communications Conference*.
- A. Gandluru, **S. Poudel**, and A. Dubey, "A Non-Exhaustive Search Algorithm to Identify Distribution Grid Operational Topology," *2019 North American Power Symposium (NAPS)*, pp. 1-6, IEEE, 2019
- **S. Poudel** and A. Dubey, "A Graph-theoretic Framework for Electric Power Distribution System Service Restoration," *2018 IEEE Power & Energy Society General Meeting*, Portland, OR, 2018, pp. 1-5.
- **S. Poudel**, M. Mukherjee, and A. Dubey, "Optimal Positioning of Mobile Emergency Resources for Resilient Restoration", in *2018 North American Power Symposium (NAPS)*, pp. 1-6, IEEE, 2018
- M. Mukherjee, **S. Poudel**, A. Dubey, and A. Bose, "Distributed Generator Sizing for Joint Optimization of Resilience and Voltage Regulation", in *2018 North American Power Symposium (NAPS)*, pp. 1-6, IEEE, 2018
- A. Dubey and **S. Poudel**, "A Robust Approach to Restoring Critical Loads in a Resilient Power Distribution System," *2017 IEEE Power & Energy Society General Meeting*, Chicago, IL, 2017, pp. 1-5.
- N. Malla, **S. Poudel**, N. Gyawali, N. R. Karki, "Resilience of Electric Power Delivery System in Response to Natural Disaster", *2017 7th International Conference on Power Systems (ICPS)*, Pune, 2017, pp. 806-811.
- **S. Poudel**, Zhen Ni, T. M. Hansen and R. Tonkoski, "Cascading failures and transient stability experiment analysis in power grid security," *2016 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT)*, Minneapolis, MN, 2016, pp. 1-5.
- **S. Poudel**, Z. Ni, X. Zhong and H. He, "Comparative studies of power grid security with network connectivity and power flow information using unsupervised learning," *2016 International Joint Conference on Neural Networks (IJCNN)*, Vancouver, BC, 2016, pp. 2730-2737.

References

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Dr. Anjan Bose

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Dr. Zhen Ni

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