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

- 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.

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
2017	**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

Publications

Journals

- **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
- **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**, 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," *Submitted to IEEE Systems Journal.*
- A. Gandluru, **S. Poudel**, and A. Dubey "Joint Estimation of Operational Topology and Outages for Unbalanced Power Distribution Systems," *Submitted to IEEE Transactions on Power Systems.*

Conferences

- **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.
- 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** 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
- **S. Poudel**, A. Dubey, and A. Bose "Probabilistic Quantification of Power Distribution System Resilience," *accepted to appear in 2019 IEEE Power & Energy Society General Meeting*, Atlanta, GA, 2019
- **S. Poudel**, H. Sun, D. Nikovski, and J. Zhang "Resilient Restoration of Power Distribution System Based on Minimum Spanning Forest," *accepted to appear in 2019 IEEE Power & Energy Society General Meeting.*
- **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", *submitted to 2019 North American Power Symposium (NAPS).*

References

Dr. Anamika Dubey

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Dr. Anjan Bose

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