

Osama Aslam Ansari

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Summary

- Power systems researcher with 4+ years of experience in sustainable electric power systems, power systems reliability, and energy storage systems
- Experienced in teaching undergraduate courses, supervising undergraduate research interns, and writing research proposals
- Author of 9 journal and conference papers, including 5 first-author papers

Education

University of Saskatchewan Saskatoon, Canada

Doctor of Philosophy (**Ph.D.**) candidate in Electrical Engineering Expected Dec. 2020

- **Thesis:** Operational Reliability Assessment Frameworks for Renewables-Integrated Sustainable Energy Systems
- Advisor: Dr. C. Y. Chung, Ph.D., P.Eng., FIEEE, FEIC, FIET, FHKIE

GPA: 96.5%

University of Saskatchewan Saskatoon, Canada

Master of Science (**MSc.**) in Electrical Engineering Dec. 2017

- **Thesis:** Compressed Air Energy Storage: Modeling and Applications for Sustainable Electric Power Systems
- Advisor: Dr. C. Y. Chung, Ph.D., P.Eng., FIEEE, FEIC, FIET, FHKIE

GPA: 96.25%

National University of Sciences and Technology (NUST) Islamabad, Pakistan

Bachelor of Electrical Engineering (**BEng.**) Jun. 2015

GPA: 3.95/4.00

Experience

**Smart Grid and Energy Network (SMARTGEN) Laboratory,
University of Saskatchewan** Saskatoon, Canada

Senior Graduate Researcher Jan. 2018 - Present

- Proposed and developed novel frameworks for quantitative risk assessment of power systems with wind generation; improved computational performance and accuracy
- Investigated the impacts of wind generation on the operational risk indices of power systems using machine learning techniques; analyzed large datasets of wind power to develop probabilistic models using Bayesian learning models
- Delivered presentations and prepared monthly research progress reports sharing research results with the industrial partners including SaskPower, and Saskatoon Light and Power

- Prepared proposals for research grants (> \$1M) and supervised 6 undergraduate research interns
- Collaborated with researchers from National Renewable Energy Laboratory (NREL), U.S., and Brookhaven National Laboratory (BNL), U.S.

**Smart Grid and Energy Network (SMARTGEN) Laboratory,
University of Saskatchewan**

Saskatoon, Canada

Graduate Researcher

Jan. 2016 - Dec. 2017

- Designed and developed accurate mathematical models of compressed air energy storage (CAES); integrated the models in common power system tools, such as unit commitment
- Developed a novel approach for optimal planning of energy storage in power systems considering dynamic thermal line ratings
- Performed statistical analysis on dataset and results using MATLAB, Python, and Excel
- Managed ordering for lab equipment and services; assisted in lab organization and management
- Developed lab's website for the online presence of the lab to attract prospective students

Teaching Experience

University of Saskatchewan

Saskatoon, Canada

Teaching Assistant, EE342 Transmission of Electrical Energy

Jan. 2020 – Apr. 2020

Teaching Assistant, EE342 Transmission of Electrical Energy

Jan. 2019 – Apr. 2019

Teaching Assistant, EE342 Transmission of Electrical Energy

Jan. 2018 – Apr. 2018

Teaching Assistant, EE343 Power Electronics

Sep. 2016 – Dec. 2016.

National University of Sciences and Technology (NUST)

Islamabad, Pakistan

Teaching Assistant, CS113 Introduction to Programming

Feb. 2015 – May 2015

Teaching Assistant, EE221 Digital Logic Design

Sep. 2014 – Jan. 2015

Publications

1. **O. A. Ansari**, Y. Gong, W. Liu, And C. Y. Chung, "Data-driven operation risk assessment of wind-integrated power systems via mixture models and importance sampling," *Journal of Modern Power Systems and Clean Energy*, vol. 8, no. 3, pp. 437-445, May 2020.
2. **O. A. Ansari**, and C. Y. Chung, "A hybrid framework for short-term risk assessment of wind-integrated power systems," *IEEE Transactions on Power Systems*, vol. 34, no. 3, pp. 2334-2344, May 2019.
3. J. P. Zhan, **O. A. Ansari**, and C. Y. Chung, "An accurate bi-linear cavern model for compressed air energy storage," *Applied Energy*, vol. 245, pp. 752-768, May 2019.
4. **O. A. Ansari**, S. M. Mazhari, Y. Gong, and C. Y. Chung, "Short-term reliability evaluation of generating systems using fixed-effort generalized splitting," in *2020 IEEE PES General Meeting, Montreal*, Aug. 2020. (Selected as one of the "**Best Conference Papers**")

5. **O. A. Ansari**, S. Bhattarai, R. Karki, and C. Y. Chung, "Reliability evaluation of bulk power systems considering compressed air energy storage," in *2017 IEEE Electrical Power and Energy Conference (EPEC)*, Saskatoon, Oct. 2017.
6. N. Safari, **O. A. Ansari**, A. Zare, and C. Y. Chung, "A novel decomposition-based localized short-term tidal current speed and direction prediction model," in *2017 IEEE PES General Meeting, Chicago*, Jul. 2017.
7. **O. A. Ansari**, N. Safari, and C. Y. Chung, "Reliability assessment of microgrid with renewable generation and prioritized loads," *2016 IEEE Green Energy and Systems Conference (IGESC)*, Long Beach, Nov. 2016.
8. N. Safari, **O. A. Ansari**, and C. Y. Chung, "A predictive direct power control technique for transformerless grid connected PV systems application," in *2016 IEEE Electrical Power and Energy Conference (EPEC)*, Ottawa, Oct. 2016.
9. D. Hameed, S. Hamayoon, A. A. Malik, and **O. A. Ansari**, "Solar grid tied inverter with battery back-up for efficient solar energy harvesting," in *2016 IEEE Smart Energy Grid Engineering (SEGE)*, Oshawa, Aug. 2016.

Presentations

1. Advanced Monte-Carlo simulation techniques for short-term risk assessment of power systems, at the Department of Electrical Engineering, University of Saskatchewan, Canada, Apr. 2020.
2. Engineering and Entrepreneurship: From senior design projects to start-ups, at 2020 IEEE Illumination Conference, Saskatoon, Canada, Feb. 2020 (**Invited**).
3. Active distribution systems and microgrids: An overview and implications for remote communities in Canada, at the Department of Geology, University of Saskatchewan, Canada, Jan. 2020 (**Invited**).
4. Introduction to smart electric grids and renewable energy, at Marion M. Graham Collegiate, Saskatoon, Canada, Jun. 2019 (**Invited**).
5. Operational risk assessment of wind-integrated power systems at SaskPower, Regina, Canada, May 2018.
6. Large-scale energy storage options for Saskatchewan: A short presentation to CEO SaskPower and CEO SaskEnergy, University of Saskatchewan, Canada, Mar. 2017.
7. Compressed air energy storage: Modeling and applications, at SaskPower, Regina, Canada, Mar. 2016.
8. Indigenous production of pneumatic lithotripter in Pakistan, British Broadcasting Center (BBC) Urdu, Dec. 2014 (**Invited**).

Honors and Awards

1. Included in the "Top 25 under the age of 25 in Pakistan" in 2015
2. Conference paper selected in the "Best Conference Paper" session at the 2020 IEEE PES General Meeting, Montreal.
3. Russell William Haid Memorial Scholarship in 2018

4. Departmental Devolved Scholarship, University of Saskatchewan (received twice, 2016, 2018)
5. Saskatchewan Innovation and Opportunity Scholarship in 2016
6. 2nd prize at 1st IEEE PES Green Entrepreneurship Competition, Brazil in 2018
7. IEEE PES General Meeting Student Travel Award (received twice)
8. NUST Rector's High Achievers in 2014 and 2015
9. NUST Semester Scholarships, received in 6 out of 8 semesters.
10. Ranked 3rd in the batch of 147 students in the undergraduate program
11. Commendation Award at Hong Kong Polytechnic University (PolyU) Global Student Challenge in 2015
12. Best Community Service Award at NUST, Pakistan
13. Best Industry-Adjudged Final Year Project at NUST, Pakistan
14. 2nd Prize at Mobilink-NUST Business Plan Competition
15. 1st Prize at Finding Innovative and Creative Solutions (FICS) Competition, NUST, Pakistan
16. 1st Prize at National Entrepreneurship Competition at PIEAS, Pakistan

Skills

Technical Skills: MATLAB, Python, Java, GAMS, PSCAD, DIgSILENT Power Factory, Siemens PSS/E, Microsoft Office

Language Skills: English (Fluent, IELTS General Training: 8.5), Urdu (Fluent, Native Language)

Leadership Activities

University of Saskatchewan IEEE PES Student Branch Chapter	Saskatoon, Canada
Chair	Aug. 2017 – Jun. 2020

- Established the student branch chapter of IEEE Power and Energy Society (PES) at the University of Saskatchewan
- Led a team in organizing multiple technical seminars, talks, workshops, and tutorials on power systems and smart grids
- Collaborated with local and international power industry professionals to arrange talks
- Represented the University of Saskatchewan at the 2018 IEEE PES Student Congress in Brazil

University of Saskatchewan Residence	Saskatoon, Canada
Resident Assistant	Aug. 2016 – April 2017

- Counseled students at the University of Saskatchewan residence regarding personal and academic concerns
- Arranged educational and community events to develop a supportive community

Professional Services and Memberships

Reviewer:

- IEEE Transactions on Power Systems
- IEEE Transactions on Smart Grids
- IEEE Transactions on Sustainable Energy

- Applied Energy
- IET Generation, Transmission, and Distribution
- 2020 IEEE PES General Meeting
- 2020 IEEE Electric Power and Energy Conference (EPEC)

Assistant to Senior Editor, IEEE Transactions on Power Systems

- Assisted the Senior Editor in developing the resource site of IEEE Transactions on Power Systems, which serves to provide key and useful information to authors, reviewers, and editors of the journal

Consultancy Services to an Electric Distribution Company

- Provided consultancy to an Electric Distribution Company on evaluating reliability metrics of their distribution networks

Engineer-in-Training (EIT), Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS)

References:

Available on request.