WENJIE ZHANG

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Education

2015-2019 NATIONAL UNIVERSITY OF SINGAPORE (NUS), SINGAPORE

Doctor of Philosophy in Electrical and Computer Engineering, August 2019

Supervisor: Prof. Dipti Srinivasan, IEEE Fellow

2011-2015 HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY (HUST), WUHAN, CHINA

Bachelor of Engineering in School of Artificial Intelligence and Automation, June 2015

Research Interest

Multimodal data analytic for energy forecasting and management in smart energy system, AIoT-based building energy disaggregation and management, and interpretable graph neural network

Academic Experience

2020 03-NOW Adjunct Research Fellow (part-time), Industrial Mentor (part-time), National University of Singapore

- Supervised undergraduate and graduate students in RIPS project (Research in Industrial Projects for Students)
- Developed advanced multimodal solar forecasting techniques and AIoT

2018 12-2019 03 Visiting Scholar, Stanford University

- Developed deeper neural networks for electrical load and renewable energy forecasting

2015 12-2019 12 Teaching Assistant, National University of Singapore

- Tutored EE4511 Sustainable Energy System (class size: 100) and mentored its final projects
- Tutored EE2028 Microcontroller Programming and Interfacing

2014 09-2014 12 Research Assistant, University of Houston

- Researched on the optimization of electric vehicle wireless charging on the road in the context of smart cities

Industrial Experience

2019 08-NOW Lead Data Scientist in Grab (leading digital payment, ride hailing, and food delivery in south east Asia)

- Built forecasting platforms on user demand and supply changes

- Developed FinTech projects based on graph neural network learning.

2018 08-2018 09 Research Intern in Robotic Inspection Center - China Southern Grid

- Developed deep learning based defect auto-detection in transmission lines (using images captured by drones)
- Explored deep learning inference acceleration at edge devices

Journal Publications

- As the first or corresponding author (marked with *), published 10 journal papers.

1. **Zhang, W.**, Liu, S., Gandhi, O., Rodrguez-Gallegos, C. D., Quan, H.*, & Srinivasan, D. (2021). Deep Learning Based Probabilistic Estimation of Solar PV Soiling Loss. *IEEE Transactions on Sustainable Energy (IF=8.31 in 2021)*
2. **Zhang, W.***, Luo, Y., Zhang, Y., & Srinivasan, D. (2021). SolarGAN: Multivariate Solar Data Imputation Using Generative Adversarial Network. *IEEE Transactions on Sustainable Energy (IF=8.31 in 2021)*
3. **Zhang, W.**, Gandhi, O., Quan, H.*, Rajagopal, R., Tan. C., & Srinivasan, D. (2020). Improving probabilistic load forecasting via skip connections. *IEEE Transactions on Smart Grid (IF=8.96 in 2020)*
4. **Zhang, W.***, Quan H., & Srinivasan, D. (2018). An improved quantile regression neural network for probabilistic load forecasting. *IEEE Transactions on Smart Grid (IF=10.49 in 2018)*
5. **Zhang, W.***, Gandhi, O., Rodrguez-Gallegos, C. D., Quan, H. & Srinivasan, D. (2018). A Multi-agent Based Integrated Volt-var Optimization Engine for Fast Vehicle-to-Grid Reactive Power Dispatch and Electric Vehicle Coordination. *Applied Energy (IF=8.43 in 2018)*
6. **Zhang, W.***, Quan, H., & Srinivasan, D. (2018). Parallel and reliable probabilistic load forecasting via quantile regression forest and quantile determination. *Energy (IF=5.54 in 2018)*
7. Gandhi, O., Rodrguez-Gallegos, C. D., **Zhang, W.***, & Reindl, T., Srinivasan, D.(2022). Levelised Cost of PV Integration for Distribution Networks. *Renewable and Sustainable Energy Reviews* (Accepted, Corresponding author, *IF=16.79 in 2021*)
8. Quan, H., Lv, J., Guo, J., **Zhang, W.**,* (2022). Investigation of Spatial Correlation on Optimal Power Flow with High Penetration of Wind Power: A Comparative Study. *Applied Energy* (Corresponding author, *IF=9.75 in 202*1)
9. Gandhi, O., **Zhang, W.**,*, Rodriguez-Gallegos, C. D., Bieri, M., Reindl, T., & Srinivasan, D. (2022). Effects of 'Invisible' Energy Storage on Power System Operation. *Journal of Energy Storage* (Corresponding author, *IF=8.91 in 202*1)
10. Quan, H., Lv, L., **Zhang, W.***, Wang. T. (2021). Spatial Correlation Modeling for Optimal Power Flow with Wind Power: Feasibility in Application of Superconductivity. *IEEE Transactions on Applied Superconductivity* (Corresponding author, *IF=1.95 in 2020*)
11. Gandhi, O., **Zhang, W.**, Rodriguez-Gallegos, C. D., Verbois, H., Sun H., Reindl, T., & Srinivasan, D. (2018). Local reactive power dispatch optimisation minimising global objectives. *Applied Energy*
12. Gandhi, O., **Zhang, W.**, Rodriguez-Gallegos, C. D., Bieri, M., Reindl, T., & Srinivasan, D. (2018). Analytical Approach to Reactive Power Dispatch and Energy Arbitrage in Distribution Systems with DERs. *IEEE Transactions on Power Systems*

13. Gandhi, O., Rodrguez-Gallegos, C. D., **Zhang, W.**, Srinivasan, D., & Reindl, T. (2018). Economic and technical analysis of reactive power provision from distributed energy resources in microgrids. *Applied Energy*

14. Utkarsh, K., Srinivasan, D., Trivedi, A., **Zhang, W.**, & Reindl, T. (2018). Distributed Model-predictive Real-time Optimal Operation of a Network of Smart Microgrids. *IEEE Transactions on Smart Grid*

15. Rodrıguez-Gallegosa, C. D., Gandhia, O., Yangc, D., Alvarez-Alvaradod, M. S., **Zhang, W.**, Reindla, T., & Pandaa, S. K. (2018). A Siting and Sizing Optimization Approach for PV-Battery-Diesel Hybrid Systems. *IEEE Transactions on Industry Applications*

16. Quan, H., Lv, L., **Zhang, W.**,*. A Binary-Coded Fast Learning Approach for Feature Selection in Ensemble Solar Power Forecasting. *Neurocomputing* (Corresponding author, under the second review)

17. **Zhang, W.**, Archana V., Quan, H., Srinivasan D., Automated Solar Generation Loss Estimation using Edge Computing-Based Deep Learning.(2022) *Renewable and Sustainable Energy Reviews* (under the first review)

Conference Publications

- Selected conference papers are shown.

1. **Zhang, W.**, Pritam, D., & Srinivasan, D. (2016). A vehicle-to-grid based reactive power dispatch approach using particle swarm optimization. Paper presented at the Evolutionary Computation (CEC), 2016 IEEE Congress on.

2. **Zhang, W.**, Quan, H., Gandhi, O., Rodriguez-Gallegos, C. D., Sharma, A., & Srinivasan, D. (2018). An ensemble machine learning based approach for constructing probabilistic PV generation forecasting. Paper presented at the Asia-Pacific Power and Energy Engineering Conference (APPEEC), 2017 IEEE PES.

3. **Zhang, W.**, Quan, H., Gandhi, O., Rodrguez-Gallegos, C. D., Srinivasan, D., & Weng, Y. (2018). Dynamic and fast electric vehicle charging coordinating scheme, considering V2G based var compensation. Paper presented at the 2017 IEEE Conference on Energy Internet and Energy System Integration (EI2).

4. **Zhang, W.**, Cheema, F., & Srinivasan, D. (2018, October). Forecasting of electricity prices using deep learning networks. In 2018 IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC) (pp. 451-456). IEEE.

5. **Zhang, W.**, Quan, H., & Srinivasan, D. (2018, May). Prediction Interval Construction for Electric Load and Wind Power via Machine Learning. In 2018 IEEE Innovative Smart Grid Technologies-Asia (ISGT Asia) (pp. 716-721). IEEE.

6. **Zhang, W.**, Quan, H., Gandhi, O., & Srinivasan, D. (2019, February). Reliable Photovoltaic Generation Forecasting via Quantile Determination. In 2019 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT) (pp. 1-5). IEEE.

7. Gandhi, O., **Zhang, W.**, Rodrguez-Gallegos, D., Carlos, Srinivasan, D., & Reindl, T. (2016). Continuous optimization of reactive power from PV and EV in distribution system. Paper presented at the Innovative Smart Grid Technologies-Asia (ISGT-Asia), 2016 IEEE.

8. Rodrıguez-Gallegos, C. D., Alvarez-Alvarado, M. S., Gandhi, O., Yang, D., **Zhang, W.**, Reindl, T., & Panda, S. (2016). Placement and Sizing Optimization for PV-Battery-Diesel Hybrid Systems. Paper presented at the 4th IEEE International Conference on Sustainable Energy Technologies (ICSET 2016).

Academic Service

2017 08-2019 08	IEEE PES Singapore Student chapter, Chair
2018 05	The leader of student volunteer team in IEEE The International Conference on Innovative Smart Grid Technologies, Asia, 2018 (ISGT Asia 2018)

Honors and Awards

2015 08-2019 08	Singapore Government Scholarship
2014	National Outstanding Undergraduate and China Government Scholarship
2013	National scholarship for self-motivated undergraduates (top 10%)
2012 12	Outstanding Prize in C Language Program Design Competition in the Science and Technology Festival (for 1/308 of competitors)
2012 11	China Ping'an Encouragement Scholarship