LINWEI SANG

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EDUCATION

Tsinghua University (Advised by Yinliang Xu) — Shenzhen, Guangdong
Ph.D. candidate in Electrical Engineering GPA: 3.90/4.0 — Sept. 2021 - Now

University of California, Berkeley (Advised by Shmuel S. Oren) — California, U.S.A.
Visiting student in Electrical Engineering — May 2023 - May 2024

Southeast University (Co-advised by Zaijun Wu, Huan Long, and Qinran Hu) — Nanjing, Jiangsu
M.Eng. Electrical Engineering (with honors) GPA: 3.7/4.0(7/78) — Sept. 2018 - Jun. 2021

Southeast University (Advised by Zaijun Wu) — Nanjing, Jiangsu
B.Eng. Electrical Engineering (with honors) GPA: 3.9/4.0(5/228) — Sept. 2014 - Jun. 2018

RESEARCH INTERESTS:

Carbon-aware power system operation and control;

Data-driven Distributed energy resource management;

Decision-focused prediction algorithm design;

Power system analytics via fusing machine learning and optimization

PUBLICATION

Journal Papers:

[J11] **Linwei Sang**, Yinliang Xu, and Hongbin Sun, "Encoding Carbon Emission Flow in Energy Management: A Compact Constraint Learning Approach," *IEEE Transactions on Sustainable Energy*, Early Access, 2023.

[J10] **Linwei Sang**, Yinliang Xu, Zhongkai Yi, Lun Yang, Huan Long, and Hongbin Sun, "Conservative Sparse Neural Network Embedded Frequency Constrained Unit Commitment With Distributed Energy Resources," *IEEE Transactions on Sustainable Energy*, Early Access, 2023.

[J9] **Linwei Sang**, Yinliang Xu, and Hongbin Sun. "Ensemble Provably Robust Learn-to-optimize Approach for Security-Constrained Unit Commitment", *IEEE Transactions on Power Systems*, Early Access, 2022.

[J8] **Linwei Sang**, Yinliang Xu, Huan Long, and Wenchuan Wu, "Safety-aware Semi-end-to-end Coordinated Decision Model for Voltage Regulation in Active Distribution Network", *IEEE Transactions on Smart Grid*, vol. 14, no. 3, pp. 1814-1826, May 2023.

[J7] **Linwei Sang**, Yinliang Xu, Huan Long, Qinran Hu, and Hongbin Sun, "Electricity Price Prediction for Energy Storage System Arbitrage: A Decision-focused Approach", *IEEE Transactions on Smart Grid*, vol. 13, no. 4, pp. 2822-2832, Jul. 2022.

[J6] **Linwei Sang**, Qinran Hu, Yinliang Xu, and Zaijun Wu, "Privacy-preserving Hybrid Cloud Framework for Real-time TCL-based Demand Response," *IEEE Transactions on Cloud Computing*, Early Access, 2022.

[J5] Huan Long, **Linwei Sang**, Zaijun Wu, and Wei Gu, "Image-Based Abnormal Data Detection and Cleaning Algorithm via Wind Power Curve," *IEEE Transactions on Sustainable Energy*, vol. 11, no. 2, pp. 938-946, Apr. 2020.

[J4] Z. Wang, **Linwei Sang**, Yinliang Xu, B. Wang, and Hongbin Sun, "Improved Quantile Regression Based Approach for Renewable Power Generation Interval Prediction on Islands" was accepted to *CSEE Journal of Power and Energy Systems*.

[J3] Can Huang, Qinran Hu, **Linwei Sang**, et al. "A Review of Wildfire Mitigation Plans in Power Systems: Datasets, Model, and Industry Practice," *IEEE Transactions on Energy Markets, Policy and Regulation*, Early Access, 2023.

[J2] Y. Wang, Z. Yan, **Linwei Sang**, et al. "Acceleration Framework and Solution Algorithm for Distribution System Restoration based on End-to-End Optimization Strategy," *IEEE Transactions on Power Systems*, Early Access, 2023.

[J1] Zhongkai Yi, Yinliang Xu, H. Wang, and **Linwei Sang**, "Coordinated Operation Strategy for a Virtual Power Plant With Multiple DER Aggregators," *IEEE Transactions on Sustainable Energy*, vol. 12, no. 4, pp. 2445-2458, Oct. 2021

Conference Papers:

[C4] **Linwei Sang**, Yinliang Xu, W. K. V. Chan and Z. Wei, "Carbon-aware Integrated Energy System Operation with

Demand Response," *2022 IEEE 5th International Electrical and Energy Conference (CIEEC)*, 2022, pp. 832-837, **Oral speech, Best Paper Award**.

[C3] **Linwei Sang**, Qinran Hu, Y. Zhao, R. Han, Zaijun Wu, and X. Dou, "A Scenario-adaptive Online Learning Algorithm for Demand Response," *2020 IEEE Power Energy & Society General Meeting (PESGM)*, 2020, pp. 1-5.

[C2] Yinliang Xu, W. Shu, J. Chen, **Linwei Sang**, Qinran Hu, and R. Han, "Slow/Fast Charging Pile Configuration in Multi-areas Based on Time-Space Transfer Characteristics of EV," *The proceedings of the 16th Annual Conference of China Electro-technical Society.* Lecture Notes in Electrical Engineering, vol 890. Springer, Singapore, 2022.

[C1] J. Chen, G. Pan, Y. Zhu, **Linwei Sang**, Y. Ge, and Qinran Hu, "Benefits of Using Electrolytic Hydrogen for Offshore Wind on China's Low-carbon Energy," *2021 IEEE Sustainable Power and Energy Conference (iSPEC)*, 2021, pp. 2184-2189.

Patents:

[P1] Zaijun Wu, Jiaming Chen, and **Linwei Sang**, "A multi-terminal differential protection scheme for active distribution network based on amplitude and phase relationship" (**Granted**).

Thesis:

Linwei Sang, "Residential load aggregation for integrated energy system low carbon operation," submitted for the master degree in Southeast University.

Submitted Papers:

[S2] **Linwei Sang**, Yinliang Xu, Hongbin Sun, Q. Wu, and Wenchuan Wu, "Distribution Locational Marginal Emission for Carbon Alleviation in Distribution Networks: Formulation, Calculation, and Implication" submitted to *IEEE Transactions on Smart Grid*.

[S1] **Linwei Sang**, Yinliang Xu, Wenchuan Wu, and Huan Long, "Online Voltage Regulation of Active Distribution Networks: A Deep Neural Encoding-Decoding Approach" submitted to *IEEE Transactions on Power Systems*.

AWARDS

Tsinghua University Excellent Scholarship Second Prize (5%)	Oct. 2022
TBSI excellent scholarship of tomorrow leaders in Tsinghua University (20%)	Jun. 2022
Best student paper award in CIECC (5%)	May 2022
Outstanding graduate student in Southeast University (1%)	Sept. 2021
Graduate national scholarship in Southeast University (1%)	Oct. 2020
Outstanding bachelor student in Southeast University (1%)	Sept. 2018
Ultra high voltage scholarship (1%)	Sept. 2017

PROJECTS

[P7] Shenzhen Science and Technology Program, No. JCYJ20210324130811031	Jun. 2022 - Dec. 2023
[P6] Guangdong Basic and Applied Basic Research Foundation, No. 2021A15150124507	Jun. 2022 - Dec. 2023
[P5] Data and Model-driven Distributed Resource Management supported by NNSF	Jun. 2022 - Dec. 2023
[P4] National Key R&D Program (Island operation)	Jun. 2022 - Dec. 2025
[P3] Chinese Academy of Sciences Consulting Project (Hydro planning)	Jun. 2021 - Dec. 2021
[P2] NSF for Young Scientists of China (Residential demand response)	Sept. 2019 - Jun. 2021
[P1] NSF for Young Scientists of China (Data-driven power system operation and control)	Sept. 2019 - Jun. 2021

PROFESSION EXPERIENCES

Reviewers CSEE, IEEE Trans. on Sustain. Energy, IEEE Trans. on Power Syst., International Journal of Electrical Power and Energy Systems (IJEPES), IET Renewable Generation & Transmission, IET Generation Transmission & Distribution, Power Systems Computation Conference (PSCC), IEEE Power Energy Society General Meeting (PESGM)

INFORMS Student Member May 2022 - Now

IEEE Graduate Student Member May 2019 - Now

Teaching Assistant in Power System Calculation Approach Jan. 2023 - Jun. 2023

Teaching Assistant in Distributed Optimization in Power System Sept. 2022 - Jan. 2023

Intern in GUODIAN NANJING AUTOMATION CO. LTD Sept. 2017 - Jun. 2017

Intern in NARI Sept. 2016 - Jun. 2016

TECHNIQUES

Programming language: Python, Matlab, LaTeX, Julia, C++, SQL, HTML, and Mathematica

Framework: Pytorch (for deep learning), sklearn (for machine learning), opencv (for computer vision), cvxpy (for optimization)

Tools: Linux, git, vim