

## Yifan Zhou

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CONTACT INFORMATION	Department of Electrical and Computer Engineering Stony Brook University Stony Brook, NY, 11790, USA Email: <a href="mailto:yifan.zhou.1@stonybrook.edu">yifan.zhou.1@stonybrook.edu</a> Homepage: <a href="https://yifanzhou.info/">https://yifanzhou.info/</a>
RESEARCH INTERESTS	AI-Driven Smart Grids, Quantum Computing in Power Grids, Networked Microgrids, Power System Stability and Control, Formal Analysis.
CURRENT APPOINTMENTS	<b>Stony Brook University</b> Sep. 2022 – Present Assistant Professor in Department of Electrical and Computer Engineering.
PROFESSIONAL PREPARATION	<b>Stony Brook University</b> Sep. 2019 – Aug. 2022 Postdoc in Department of Electrical and Computer Engineering. Advisor: Prof. Peng Zhang <b>Tsinghua University</b> Sep. 2014 – Jul. 2019 Ph.D. in Electrical Engineering. GPA: 92.0/100, Rank: 5/58 Advisor: Prof. Yong Min. Thesis: Integrated Power and Heat Dispatch Methodology Based on Operational Flexibility <b>Harvard University</b> May. 2018 – Oct. 2018 Visiting Scholar in School of Engineering and Applied Sciences. Advisor: Prof. Na Li <b>University of Birmingham</b> Apr. 2016 – Jul. 2016 Visiting Scholar in Department of Electronic, Electrical and Systems Engineering. Advisor: Prof. Xiao-Ping Zhang <b>Tsinghua University</b> Sep. 2010 – Jul. 2014 B.S. in Electrical Engineering. GPA: 93.1/100, <b>Rank: 1/132</b>
PUBLICATIONS	<b>Peer-Reviewed Journals</b> Students supervised are <u>underlined</u> ; corresponding author marked by *.  29. <u>Sijia Yu</u> , <b>Yifan Zhou*</b> , “Quantum-Enabled Distributed Transient Stability Assessment of Networked Microgrids”, <i>IEEE Transactions on Power Systems</i> , under review, May. 2023.  28. Fei Feng, <b>Yifan Zhou*</b> , Peng Zhang, “Neuro Dynamic State Estimation for Networked Microgrids”, <i>IEEE Transactions on Industry Applications</i> , under review, Feb. 2023.  27. <u>Qing Shen</u> , <b>Yifan Zhou*</b> , Peng Zhang, “Physics-Aware Neural Dynamic Equivalence of Power Systems”, <i>IEEE Transactions on Power Systems</i> , under review, Jan. 2023.  26. Lizhi Wang, Songyuan Zhang, <b>Yifan Zhou*</b> , Chuchu Fan, Peng Zhang, Yacov A. Shamash, “Physics-Informed, Safety and Stability Certified Neural Control for Uncertain Networked Microgrids”, <i>IEEE Transactions on Smart Grid</i> , accepted, Aug. 2023.

25. Fei Feng, Peng Zhang\*, Mikhail Bragin, **Yifan Zhou**, “Novel Resolution of Unit Commitment Problems through Quantum Surrogate Lagrangian Relaxation,” in *IEEE Transactions on Power Systems*, vol. 38, no. 3, pp. 2460-2471, May 2023.
24. **Yifan Zhou**, Peng Zhang\*, “Noisy Intermediate-Scale Quantum Electromagnetic Transients Program,” in *IEEE Transactions on Power Systems*, vol. 38, no. 2, pp. 1558-1571, Mar. 2023.
23. Fei Feng, **Yifan Zhou**, Peng Zhang\*, “Noise-Resilient Quantum Power Flow,” in *iEnergy*, vol. 2, no. 1, pp. 63-70, Mar. 2023.
22. Fei Feng, Peng Zhang\*, **Yifan Zhou**, Lizhi Wang, “Distributed Networked Microgrids Power Flow,” in *IEEE Transactions on Power Systems*, vol. 38, no. 2, pp. 1405-1419, Mar. 2023.
21. **Yifan Zhou**, Peng Zhang\*, “Noise-Resilient Quantum Machine Learning for Stability Assessment of Power Systems,” in *IEEE Transactions on Power Systems*, vol. 38, no. 1, pp. 475-487, Jan. 2023.
20. Fei Feng, Peng Zhang\*, **Yifan Zhou**, Zefan Tang, “Quantum Microgrid State Estimation,” in *Electric Power Systems Research*, vol. 212, pp. 108386, Nov. 2022.
19. Dmitrii A. Etingov, Peng Zhang\*, Zefan Tang, **Yifan Zhou**, “AI-Enabled Traveling Wave Protection for Microgrids,” in *Electric Power Systems Research*, vol. 210, pp. 108078, Sep. 2022.
18. **Yifan Zhou**, Zefan Tang, Nima Nikmehr, Pouya Babahajiani, Fei Feng, Tzu-Chieh Wei, Honghao Zheng, Peng Zhang\*, “Quantum Computing In Power Systems,” in *iEnergy*, vol. 1, no. 2, pp. 1-18, Jul. 2022.
17. Fei Feng, Peng Zhang\*, **Yifan Zhou**, “Authentic Microgrid State Estimation,” in *IEEE Transactions on Power Systems*, vol. 37, no. 2, pp. 1657-1660, Mar. 2022.
16. **Yifan Zhou**, Peng Zhang\*, “Neuro-Reachability of Networked Microgrids,” in *IEEE Transactions on Power Systems*, vol. 37, no. 1, pp. 142-152, Jan. 2022.
15. Lizhi Wang, **Yifan Zhou**, Wenfeng Wan, Peng Zhang\*, “Eigenanalysis of Delayed Networked Microgrids,” in *IEEE Transactions on Power Systems*, vol. 36, no. 5, pp. 4860-4863, Sept. 2021.
14. **Yifan Zhou**, Fei Feng, Peng Zhang\*, “Quantum Electromagnetic Transient Program,” in *IEEE Transactions on Power Systems*, vol. 36, no. 4, pp. 3813-3816, Jul. 2021.
13. Fei Feng, **Yifan Zhou**, Peng Zhang\*, “Quantum Power Flow,” in *IEEE Transactions on Power Systems*, vol. 36, no. 4, pp. 3810-3812, Jul. 2021.
12. **Yifan Zhou**, Peng Zhang\*, “Reachable Dynamics of Networked Microgrids with Large Disturbances,” in *IEEE Transactions on Power Systems*, vol. 36, no. 3, pp. 2416-2427, May. 2021.
11. **Yifan Zhou**, Peng Zhang\*, “Reachable Power Flow: Theory to Practice,” in *IEEE Transactions on Power Systems*, vol. 36, no. 3, pp. 2532-2541, May. 2021.
10. **Yifan Zhou**, Peng Zhang\*, “Reachable Eigenanalysis,” in *IEEE Transactions on Power Systems*, vol. 35, no. 6, pp. 4936-4939, Nov. 2020.
9. **Yifan Zhou**, Peng Zhang\*, “Reachable Power Flow,” *IEEE Transactions on Power Systems*, vol. 35, no. 4, pp. 3290-3293, Jul. 2020.

8. **Yifan Zhou\***, Wei Hu, Le Zheng, Yong Min, Lei Chen, Zongxiang Lu, Ling Dong, “Power and Energy Flexibility of District Heating System and Its Application in Integrated Power and Heat Dispatch,” in *Energy*, vol. 190, Jan. 2020.
7. **Yifan Zhou**, Wei Hu, Yong Min\*, Yuanhang Dai, “Integrated Power and Heat Dispatch Considering Available Reserve of Combined Heat and Power Units,” in *IEEE Transactions on Sustainable Energy*, vol. 10, no. 3, pp. 1300-1310, Jul. 2019.
6. **Yifan Zhou**, Wei Hu\*, Yong Min, Le Zheng, “Active Splitting Strategy Searching Approach Based on MISOCP with Consideration of Island Stability,” in *Journal of Modern Power Systems and Clean Energy*, vol. 7, no. 3, pp. 475-490, May 2019.
5. **Yifan Zhou**, Wei Hu\*, Yong Min, Xialing Xu, Yong Li, “Modeling and Optimization of Multitype Power Sources Stochastic Unit Commitment Using Interval Number Programming,” in *Journal of Energy Engineering*, vol. 143, no. 5, 2017.
4. Wei Hu\*, Yong Min, **Yifan Zhou**, Qiuyu Lu, “Wind Power Forecasting Errors Modelling Approach Considering Temporal And Spatial Dependence,” in *Journal of Modern Power Systems and Clean Energy*, vol. 5, no. 3, pp. 489-498, Jan. 2017.
3. **Yifan Zhou**, Wei Hu\*, Yong Min, “Peak Regulation Compensation Price Decision for Combined Heat and Power Unit and Profit Allocation Method,” in *Proceedings of the Chinese Society for Electrical Engineering*, vol.39, no.18, pp. 5325-5335+5579, 2019.
2. **Yifan Zhou**, Wei Hu\*, Yong Min, Ling Dong, Yanhe Li, “Coordinated Power and Heat Dispatch Considering Peak Regulation Initiative of Combined Heat and Power Unit,” in *Automation of Electric Power Systems*, vol.43, no.19, pp. 42-51, 2019.
1. **Yifan Zhou**, Wei Hu\*, Yong Min, *et al*, “Dynamic Comprehensive Evaluation of Chinese Power System Development Level Based on Provincial Data,” in *Automation of Electric Power Systems*, vol.40, no.18, pp. 76-83, 2016.

#### Peer-Reviewed Conference Proceedings

13. Sijia Yu, **Yifan Zhou\***, “Distributed Quantum Machine Learning in Power System Transient Stability Assessment”, submitted to *Power Systems Computation Conference*, Aug. 2023.
12. Qing Shen, **Yifan Zhou**, Huanfeng Zhao, Peng Zhang, Qiang Zhang, Slava Maslennikov, Xiaochuan Luo, “Powering the Future: Harnessing Neural Dynamic Equivalence for Enhanced Power System Applications”, 2023 CIGRE Next Generation Network (NGN), May. 2023. **Top 10 in the NGN Paper Competition.**
11. Sijia Yu, Zefan Tang, Zimin Jiang, **Yifan Zhou\***, “Scalable and Lightweight Distributed Local Routing for Quantum Network-Based Microgrids”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2023.
10. Lizhi Wang, Songyuan Zhang, **Yifan Zhou\***, Chuchu Fan, Peng Zhang, Yacov A. Shamash, “Learning-Based, Safety and Stability-Certified Microgrid Control”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2023.
9. **Yifan Zhou**, Peng Zhang\*, “Neural Electromagnetic Transients Program”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2022.

8. Zefan Tang, Peng Zhang\*, **Yifan Zhou**, “Quantum Renewable Scenario Generation”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2022.
7. **Yifan Zhou**, Peng Zhang\*, Yue Meng “An ODE-Enabled Distributed Transient Stability Analysis for Networked Microgrids”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2020.
6. **Yifan Zhou\***, Wei Hu, Yong Min, *et al*, “A Semi-Supervised Anomaly Detection Method for Wind Farm Power Data Preprocessing”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2017.
5. Le Zheng, Wei Hu, **Yifan Zhou\***, *et al*, “Deep belief network based nonlinear representation learning for transient stability assessment”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2017.
4. **Yifan Zhou\***, Wei Hu, Yong Min, *et al*, “MILP-based Splitting Strategy Searching Considering Island Connectivity and Voltage Stability Margin”, *IEEE Power and Energy Society General Meeting (PESGM)*, 2016.
3. **Yifan Zhou\***, Wei Hu, Yong Min, *et al*, “A Novel Active Splitting Strategy Search Method with Modularity-based Network Partition”, *IEEE Innovative Smart Grid Technologies - Asia (ISGT ASIA)*, 2015.
2. **Yifan Zhou\***, Wei Hu, Yong Min, *et al*, “Coherency Feature Extraction based on DFT-based Continuous Wavelet Transform”, *IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)*, 2015.
1. **Yifan Zhou\***, Wei Hu, Yong Min, *et al*, “Modelization and Optimization of Multi-Type Power Generators Joint Scheduling based on Improved PSO”, *IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)*, 2014.

## AWARDS

### Faculty Awards

- 2023 Young Academic Inventor’s Award from the National Academy of Inventors (NAI) Stony Brook University Chapter 2023  
Recognized for her ”**fundamental work in quantum computing techniques for large-scale power system problems**”

### Reviewer Awards

- Outstanding Reviewer for IEEE Transactions on Power Systems 2021

### Student Awards — Tsinghua University

- Outstanding Graduate of Tsinghua University (**1.5%**) 2014
- Tsinghua First-Class Scholarship for Integrated Excellence 2015,2013,2012
- Outstanding Graduate of Beijing 2014
- Outstanding Thesis Award, Tsinghua University 2014

INVITED TALK  
AND LECTURES

- Naval Postgraduate School: “Formal Verification of Microgrids: Model-Driven and Data-Driven Approaches” May. 2023
- Distributed Quantum Processing (DQP) workshop: “Quantum Machine Learning in Power System Stability Assessment” Nov. 2022
- IEEE PES Publications Webinar Series: “Quantum Computing in Power System Analytics” Oct. 2022
- University of Wisconsin-Madison Rising Star Seminar: “Learning-Based, Verifiable Smart Grids” Apr. 2022
- Stony Brook University CPS & Verification Seminar: “Reachability Analysis of Networked Microdots” Oct. 2021

SERVICE

**Ph.D. Degree Committee**

- Marzieh Ajirak, (SBU, Electrical and Computer Engineering, Role: Member)
- Shouvik Roy, (SBU, Computer Science, Role: Member)

**Editorial and Review Services**

- Editor of Energy Reports (August 2021 - present).
- Reviewer of IEEE Transactions on Power Systems, IEEE Transactions on Smart Grid, IEEE Transactions on Sustainable Energy, IEEE PES Letters, Scientific Reports, Energy, Applied Energy.

TEACHING

• **Fall 2022 - Summer 2023**

Fall 2022, SBU, ESE586 - Microgrids (Evaluation: 5.0/5.0).

Fall 2022, SBU, ESE352 - Electromechanical Energy Converters (Evaluation: 5.0/5.0).

Fall 2022, SBU, EEO425 - Electromechanical Energy Converters (Evaluation: 4.8/5.0).

Fall 2022-Spring 2023, SBU, Senior Design Project (SDP) - The Effect of Data Encoding in Quantum Machine Learning.

• **Fall 2021 - Summer 2022**

Spring 2022, SBU, ESE586 - Microgrids (Evaluation: 4.3/5.0).

Jun. 2022, New York's Offshore Wind Training Program, Three lectures on offshore wind power systems.

Mar. 2022, New York State Master Teacher Program, A lecture on "Grid Integration of Offshore Wind Energy Systems: An Introduction".

• **Fall 2020 - Summer 2021**

Spring 2021, SBU, ESE586 - Microgrids (Evaluation: 4.7/5.0).

Jul. 2021, New York's Offshore Wind Training Program, Three lectures on offshore wind power systems.