

Hongxun Hui

Research Assistant Professor
State Key Laboratory of Internet of Things for Smart City
Department of Electrical and Computer Engineering
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Research Interests

- **Demand Response in Smart Grid:** Modeling, optimization and control of flexible loads to provide regulation services.
- **Communication Technologies and Internet of Things:** Developing non-invasive measurement equipment and smart controllers for data acquisition, load regulation, distributed energy storage and photovoltaic utilization.
- **Electricity Market:** Incentive mechanism design for motivating consumers to participate in demand response.

Education

Ph.D., College of Electrical Engineering, Zhejiang University Supervisor: Prof. Yonghua Song & Prof. Yi Ding	Hangzhou, China 09/2015 – 06/2020
Visiting Scholar, Advanced Research Institute, Virginia Tech Supervisor: Prof. Saifur Rahman	Arlington, USA 10/2018 – 10/2019
Visiting Scholar, CURENT Research Center, University of Tennessee Supervisor: Prof. Fangxing (Fran) Li	Knoxville, USA 06/2019 – 07/2019
B.S., College of Electrical Engineering, Zhejiang University Outstanding Graduates, Overall GPA: 3.88/4.0 (Top 3%)	Hangzhou, China 09/2011 – 06/2015

Working Experience

Research Assistant Professor, University of Macau State Key Laboratory of Internet of Things for Smart City	Macao, China 10/2022 – Present
Post-doctoral Fellow, University of Macau State Key Laboratory of Internet of Things for Smart City	Macao, China 10/2020 – 10/2022
Researcher, Zhuhai UM Science & Technology Research Institute Smart City Research Center	Zhuhai, China 07/2020 – 09/2020

Publications

Books

1. Yi Ding, Yonghua Song, **Hongxun Hui** and Changzheng Shao. Integration of Air Conditioning and Heating into Modern Power Systems. *Springer*, 2019.

Journal Publications (SCI)

2. **Hongxun Hui**, Yi Ding, Zhenzhi Lin, Pierluigi Siano and Yonghua Song, "Capacity Allocation and Optimal Control of Inverter Air Conditioners in Multi-area Power Systems," *IEEE Transactions on Power Systems*, vol. 35, no. 1, pp. 332-345, Jan. 2020.
3. **Hongxun Hui**, Pierluigi Siano, Yi Ding, Peipei Yu, Yonghua Song, Hongcai Zhang and Ningyi Dai, "A Transactive Energy Framework for Inverter-based HVAC Loads in a Real-time Local Electricity Market Considering Distributed Energy Resources", *IEEE Transactions on Industrial Informatics*, Early Access.
4. **Hongxun Hui**, Yi Ding, Tao Chen, Saifur Rahman and Yonghua Song, "Dynamic and Stability Analysis of the Power System with the Control Loop of Inverter Air Conditioners," *IEEE Transactions on Industrial Electronics*, vol. 68, no. 3, pp. 2725-2736, Feb. 2020.
5. **Hongxun Hui**, Yi Ding and Menglian Zheng, "Equivalent Modeling of Inverter Air Conditioners for Providing Frequency Regulation Service", *IEEE Transactions on Industrial Electronics*, vol. 66, no. 2, pp. 1413-23, Feb. 2019.
6. **Hongxun Hui**, Yi Ding, Qingxin Shi, Fangxing Li, Yonghua Song and Jinyue Yan, "5G Network-based Internet of Things for Demand Response in Smart Grid: A Survey on Application Potential," *Applied Energy*, vol. 257, pp. 113972, Jan. 2020. (ESI Highly Cited Paper, Top 1%)
7. **Hongxun Hui**, Yi Ding and Yonghua Song, "Adaptive Time-Delay Control of Flexible Loads in Power Systems Facing Accidental Outages," *Applied Energy*, vol. 275, pp. 115321, Oct. 2020.

8. **Hongxun Hui**, Yi Ding, Yonghua Song and Saifur Rahman, "Modeling and Control of Flexible Loads for Frequency Regulation Services Considering Communication Latency and Detection Error," *Applied Energy*, vol. 250, pp. 161-74, Sep. 2019.
9. **Hongxun Hui**, Yi Ding, Weidong Liu, You Lin and Yonghua Song, "Operating Reserve Evaluation of Aggregated Air Conditioners", *Applied Energy*, vol. 196, pp. 218-228, Jun. 2017.
10. **Hongxun Hui**, Yi Ding, Kaining Luan, Tao Chen, Yonghua Song and Saifur Rahman, "Coupon-Based Demand Response for Consumers Facing Flat-Rate Retail Pricing," *CSEE Journal of Power and Energy Systems*, 2022.
11. **Hongxun Hui**, Peipei Yu, Hongcai Zhang, Ningyi Dai, Wei Jiang and Yonghua Song, "Regulation Capacity Evaluation of Large-scale Residential Air Conditioners for Improving Flexibility of Urban Power Systems," *International Journal of Electrical Power & Energy Systems*, Apr. 2022.
12. Jiayu Hong, **Hongxun Hui***, Hongcai Zhang, Ningyi Dai and Yonghua Song, "Event-triggered Consensus Control of Large-scale Inverter Air Conditioners for Demand Response," *IEEE Transactions on Power Systems*, Early Access, Sep. 2022.
13. Jiayu Hong, **Hongxun Hui***, Hongcai Zhang, Ningyi Dai and Yonghua Song, "Distributed Control of Large-scale Inverter Air Conditioners for Providing Operating Reserve Based on Consensus with Nonlinear Protocol", *IEEE Internet of Things Journal*, vol. 9, no. 17, pp. 15847-57, Sep. 2022.
14. Kang Xie, **Hongxun Hui***, Yi Ding, Yonghua Song, Chengjin Ye, Wandong Zheng and Shuiquan Ye, "Modeling and Control of Central Air Conditionings for Providing Regulation Services for Power Systems," *Applied Energy*, vol. 315, p. 119035, Jun. 2022.
15. Dunjian Xie, **Hongxun Hui**, Yi Ding and Zhenzhi Lin, "Operating Reserve Capacity Evaluation of Aggregated Heterogeneous TCLs with Price Signals," *Applied Energy*, vol. 216, pp. 338-47, Apr. 2018.
16. Qiangqiang Xie, **Hongxun Hui**, Yi Ding, Chengjin Ye, Zhenzhi Lin, Jiadong Cui and Peng Wang, "Use of Demand Response for Voltage Regulation in Power Distribution Systems with Flexible Resources," *IET Generation, Transmission & Distribution*, vol. 14, no. 5, pp. 883-92, Jan. 2020.
17. Kang Xie, **Hongxun Hui** and Yi Ding, "Modeling and Control Strategy of Thermostatically Controlled Loads for Virtual Energy Storage System," *Protection and Control of Modern Power Systems*, Oct. 2019.
18. Yi Ding, Dunjian Xie, **Hongxun Hui**, Yan Xu and Pierluigi Siano, "Game-Theoretic Demand Side Management of TCLs for Smoothing Tie-line Power of Microgrids," *IEEE Transactions on Power Systems*, vol. 36, no. 5, pp. 4089-4101, Sep. 2021.
19. Wenqi Cui, Yi Ding, **Hongxun Hui**, Zhenzhi Lin, Pengwei Du, Yonghua Song and Changzheng Shao, "Evaluation and Sequential Dispatch of Operating Reserve Provided by Air Conditioners Considering Lead-Lag Rebound Effect," *IEEE Transactions on Power Systems*, vol. 33, no. 6, pp. 6935-50, Nov. 2018.
20. Ge Chen, Hongcai Zhang, **Hongxun Hui** and Yonghua Song, "Fast Wasserstein-distance-based Distributionally Robust Chance-constrained Power Dispatch for Multi-zone HVAC Systems," *IEEE Transactions on Smart Grid*, vol. 12, no. 5, pp. 4016-4028, Sep. 2021.
21. Ge Chen, Hongcai Zhang, **Hongxun Hui**, Ningyi Dai and Yonghua Song, "Scheduling Thermostatically Controlled Loads to Provide Regulation Capacity Based on a Learning-based Optimal Power Flow Model," *IEEE Transactions on Sustainable Energy*, vol. 12, no. 4, pp. 2459-2470, Oct. 2021.
22. Ge Chen, Hongcai Zhang, **Hongxun Hui** and Yonghua Song, "Chance-constrained Regulation Capacity Offering For Hvac Systems Under Non-gaussian Uncertainties With Mixture-model-based Convexification," *IEEE Transactions on Smart Grid*, Jun. 2022.
23. Yongzhu Hua, Qiangqiang Xie, **Hongxun Hui**, Yi Ding, Weiran Wang, Huibin Qin, Xiangrong Shentu and Jiadong Cui, "Collaborative Voltage Regulation by Increasing/decreasing the Operating Power of Aggregated Air Conditioners Considering Participation Priority," *Electric Power Systems Research*, vol. 199, pp. 107420, Jun. 2021.
24. Tao Chen, Meng Song, **Hongxun Hui** and Huan Long, "Battery Electrode Mass Loading Prognostics and Analysis for Lithium-ion Battery-based Energy Storage Systems," *Frontiers in Energy Research*, vol. 9, p. 754317, Oct. 2021.
25. Tao Chen, Ciwei Gao, **Hongxun Hui**, Qiushi Cui and Huan Long, "A Generalized Additive Model-based Data-driven Solution For Lithium-ion Battery Capacity Prediction and Local Effects Analysis," *Transactions of the Institute of Measurement and Control*, Nov. 2021.
26. Yi Ding, Wenqi Cui, Shujun Zhang, **Hongxun Hui**, Yiwei Qiu and Yonghua Song, "Multi-state Operating Reserve Model of Aggregate Thermostatically-Controlled-Loads for Power System Short-term Reliability Evaluation," *Applied Energy*, vol. 241, pp. 46-58, May 2019.
27. Xinran Zhuang, Chengjin Ye, Yi Ding and **Hongxun Hui**, "Data-driven Reserve Allocation with Frequency Security Constraint Considering Inverter Air Conditioners," *IEEE Access*, Aug. 2019.

28. Qingxin Shi, Wenxia Liu, Bo Zeng, **Hongxun Hui** and Fangxing Li, “Enhancing Distribution System Resilience Against Extreme Weather Events: Concept Review, Algorithm Summary, and Future Vision,” *International Journal of Electrical Power & Energy Systems*, vol. 138, p. 107860, Jun. 2022.
29. Shuyang Xu, Xingying Chen, Jun Xie, Saifur Rahman, Jixiang Wang, **Hongxun Hui** and Tao Chen, “Agent-based Modelling of Electricity Market with Residential DR,” *CSEE Journal of Power and Energy Systems*, vol. 7, no. 2, pp. 368-380, Mar. 2021.

Journal Publications (in Chinese)

30. Yi Ding, **Hongxun Hui**, Zhenzhi Lin, Menglian Zheng, Xinyao Qu and Wenqi Cui, “Design of Business Model and Market Framework Oriented to Active Demand Response,” *Automation of Electric Power Systems*, vol. 41, no. 14, Jul. 2017. **(TOP 5 Highly Cited Papers of this Journal in 3 Years)**
31. Xunhu Yin, Yi Ding, **Hongxun Hui**, Minglei Bao, Lizhong Xu, Xueyong Tang and Maosheng Sang, “Design of Demand Response Mechanism in Initial Electricity Spot Market Considering Response Behaviors of Customers,” *Automation of Electric Power Systems*, Early Access, Jun. 2021.
32. Yi Ding, Kaining Luan and **Hongxun Hui**, “Energy Saving and Emission Reduction From the Glowworm Project—Coupon-based Demand Response Demonstration in Flat Rate Market,” *IEEE Spectrum*, vol. 78, pp. 76-78, Jan. 2019. **(Invited Paper)**
33. Han Wang, Xiaoyuan Xu, Zheng Yan, **Hongxun Hui** and Xiaotao Fang, “Theoretical Methods and Application Prospects for Uncertainty Quantification in Distribution Network Operation Under the Influence of Stochastic Source-load,” *Journal of Global Energy Interconnection*, vol. 5, no. 3, pp. 233-244, May. 2022.
34. Sheng Wang, Jian Tan, Wenbo Shi, Fenghua Zou, Guang Chen, Linyu Wang, **Hongxun Hui** and Lei Guo, “Practices of the New Power System in the UK and Inspiration for the Development of Provincial Power Systems in China,” *Integrated Intelligent Energy*, vol. 44, no. 7, pp. 19-32, Jul. 2022. **(Excellent Paper Award of the Integrated Smart Energy Conference)**
35. Taoyi Qi, **Hongxun Hui**, Lizhong Xu, Xiang Ma and Yi Ding, “Modeling and Control of Generalized Demand Response in Micro-grids Based on GridLAB-D,” *Distribution & Utilization*, vol. 37, no. 7, pp. 3-10, Aug. 2020.
36. Kang Xie, Kaijie Zhang, Kaining Luan, **Hongxun Hui**, Yishuang Hu and Yi Ding, “Exploration of Demand Response Score Scheme Under Electric Power System Reform,” *Power Demand Side Management*, vol. 21, no. 3, May 2019.
37. Zhenyu Chen, Wenqi Cui, **Hongxun Hui**, Bin Yang, Kaining Luan and Yi Ding, “Research and Practice of Interruptible Load in the Market Environment (II),” *Power Demand Side Management*, vol. 19, no. 1, Jan. 2017.
38. Zuofeng Li, Wenqi Cui, Zhenyu Chen, **Hongxun Hui**, Kaining Luan, Bin Yang and Yi Ding, “Research and Practice of Interruptible Load in the Market Environment (I),” *Power Demand Side Management*, vol. 18, no. 6, Nov. 2016.
39. Weidong Liu, **Hongxun Hui**, Lijun Zhang, Chenbo Xu, Yikai Sun and Yi Ding, “Analysis on Peak Load Regulation Potential and Evaluation Model of Residential Loads,” *Southern Power System Technology*, vol. 10, suppl. 1, pp. 256-263, Dec. 2016.
40. Yi Ding, Huahua Wu, **Hongxun Hui** and Jun Zhang, “Analysis and Related Suggestions on Power Market Mechanism of Demand Side Response in China,” *Southern Power System Technology*, vol. 10, no. 3, pp. 24-31, Mar. 2016.
41. Kaijie Zhang, Guofeng Ding, Ming Wen, **Hongxun Hui**, Yi Ding, Min He, Jiefeng Chu, Kang Xie, Chutian Yu and Lijun Zhang, “Review of Optimal Dispatching Technology and Market Mechanism Design For Virtual Power Plants,” *Integrated Intelligent Energy*, vol. 44, no. 2, pp. 60-72, Feb. 2022.

International Conference

42. **Hongxun Hui**, Peipei Yu, Hongcai Zhang, Ningyi Dai, Wei Jiang and Yonghua Song, “Regulation Capacity Evaluation of Large-scale Heterogeneous Residential Air Conditioning Loads,” *IEEE Sustainable Power and Energy Conference (iSPEC)*, Nanjing, China, pp. 1-6, Nov. 2021. **(Best Paper Award)**
43. **Hongxun Hui**, Qifan Yang, Ningyi Dai, Hongcai Zhang, Yi Ding and Yonghua Song, “Anticipatory Control of Flexible Loads for System Resilience Enhancement Facing Accidental Outages,” *13th International Conference on Power System Technology (PowerCon 2021)*, Haikou, China, pp. 1-6, Nov. 2021.
44. **Hongxun Hui**, Yi Ding, Shihai Yang, “Modeling and Analysis of Inverter Air Conditioners for Primary Frequency Control Considering Signal Delays and Detection Errors,” *Energy Procedia*, vol. 158, pp. 4003-4010, Feb. 2019.
45. **Hongxun Hui**, Yi Ding, Yonghua Song and Saifur Rahman, “Modelling and Dynamic Performance Analysis of the Power System Under Unit Contingency Shutdown Accidents Considering DR,” *Energy Proceedings*, vol. 3, pp. 1-6, Aug. 2019.
46. **Hongxun Hui**, Yi Ding, Kaining Luan and Daoqiang Xu, “Analysis of 815 Blackout in Taiwan and the

Improvement Method of Contingency Reserve Capacity Through DLC,” *IEEE PES General Meeting*, Portland, USA, 2018.

47. **Hongxun Hui**, Xing Jiang, Yi Ding, Yonghua Song and Li Guo, “Demonstration of Friendly Interactive Grid Under the Background of Electricity Market Reform in China,” *EEEIC/I&CPS Europe*, pp. 1-5. *IEEE*, Milan, Italy, 2017.
48. **Hongxun Hui**, Weidong Liu and Yi Ding, “Quantitative Analysis of Air Conditioner Aggregation for Providing Operating Reserve,” *Energy Procedia*, vol. 104, pp. 50-55, Dec. 2016.
49. Peipei Yu, **Hongxun Hui***, Hongcai Zhang*, Chao Huang and Yonghua Song, “Frequency Regulation Capacity Offering of District Cooling System based on Reinforcement Learning,” *IEEE PES General Meeting*, Denver, USA, 2022.
50. Yanqi Liu, **Hongxun Hui**, Hongcai Zhang and Liang Gao, “Risk Assessment of Offshore Wind Farm Outages Under Typhoon Conditions,” *IEEE PES General Meeting*, Denver, USA, 2022.
51. Xinyao Qu, **Hongxun Hui**, Yi Ding and Kaining Luan, “Optimal Control of Intelligent Electricity Consumption for Residential Customers Considering Demand Response,” *Energy Procedia*, vol. 145, pp. 510-515, Jul. 2018.
52. Sheng Wang, **Hongxun Hui**, Yi Ding and Chengzhi Zhu, “Cooperation of Demand Response and Traditional Power Generations for Providing Spinning Reserve,” *Energy Procedia*, vol. 421, pp. 2035-2041, Dec. 2017.
53. Xinyao Qu, **Hongxun Hui**, Shengchun Yang, Yaping Li and Yi Ding, “Price Elasticity Matrix of Demand in Power System Considering Demand Response Programs,” *IOP Conf. Series: Earth and Environmental Science*, vol. 121, no. 5, Feb. 2018.
54. Wenqi Cui, Yi Ding, **Hongxun Hui** and Maozhen Li, “Two-stage Payback Model for the Assessment of Curtailment Services Provided by Air Conditioners,” *Energy Procedia*, vol. 142, pp. 2050-2056, Dec. 2017.
55. Haiyue Yu, Kang Xie, **Hongxun Hui**, Yi Ding, “Review of Flexible Loads for Participating in Frequency Regulation,” *IEEE Conf. on Energy Internet and Energy System Integration*, Wuhan, China, pp. 1-5, Oct. 2020.

Invited Talks

1. Distributed Control of Large-scale Thermostatically Controlled Loads for Improving Flexibility in Urban Power Systems, *Southeast University*, Nanjing, China, Aug. 15, 2022.
2. Regulation Capacity Evaluation of Large-scale Heterogeneous Residential Air Conditioning Loads, *IEEE Sustainable Power and Energy Conference (iSPEC)*, Nanjing, China, Dec. 23, 2021.
3. Anticipatory Control of Flexible Loads for System Resilience Enhancement Facing Accidental Outages, *International Conference on Power System Technology (POWERCON)*, Haikou, China, Dec. 8, 2021.
4. Real-time Local Electricity Market Considering High-Penetration Distributed Energy Resources, *the 13th International Conference on Applied Energy (ICAE 2021)*, Thailand, Nov. 29, 2021. (Panel Speaker)
5. Adaptive Control of Flexible Loads for Enhancing the Power System Resilience Facing Accidental Outages, *the 5th IEEE Conference on Energy Internet and Energy System Integration (EI2 2021)*, Taiyuan, China, Oct. 2021.
6. How to Write an Academic Paper, *Southeast University*, Nanjing, China, Jul. 28, 2021.
7. Control of Thermostatically Controlled Loads for Providing Regulation Services in Power Systems, *International Conference on Renewable Energy*, Rome, Italy, Nov. 2020. (Plenary Speaker)
8. Equivalent Modeling and Control of Inverter Air Conditioners for Providing Frequency Regulation Service, *the 4th IEEE Conference on Energy Internet and Energy System Integration (EI2 2020)*, Wuhan, China, Oct. 2020. (Outstanding Presentation)
9. Modelling and Dynamic Performance Analysis of the Power System Under Unit Contingency Shutdown Accidents Considering DR, *International Conference on Applied Energy*, Västerås, Sweden, Aug. 2019.
10. Modeling and Analysis of Inverter Air Conditioners for Primary Frequency Control Considering Signal Delays and Detection Errors, *International Conference on Applied Energy*, Hong Kong, China, Aug. 2018.
11. Demonstration of Friendly Interactive Grid Under the Background of Electricity Market Reform in China, *IEEE EEEIC17 and I&CPS Europe*, Milan, Italy, Jun. 2017.
12. Electricity Distribution Pricing Mechanism in China. *IEEE PES General Meeting*, Boston, USA, Jul. 2016.
13. Quantitative Analysis of Air Conditioner Aggregation for Providing Operating Reserve, *Low-carbon Cities & Urban Energy*, Jinan, China, Jun. 2016.

Issued Invention Patents

1. **Hongxun Hui**, Yi Ding, Weidong Liu, Lijun Zhang, Yikai Sun and Chenbo Xu, “A Calculation Method of

Aggregated Air Conditioners for Providing Regulation Services for Power Systems,” No. CN201610821647.X, Dec. 2018.

2. **Hongxun Hui** and Chuangxin Guo, “A Self-powered Pinch Meter Based on Micro-generator and SCM,” No. CN201410009920.X, Jul. 2016.
3. **Hongxun Hui** and Chuangxin Guo, “A Dismantling Equipment for Electronic Devices Based on SCM,” No. CN201410010721.0, May 2016.
4. **Hongxun Hui**, Yibai Lu, Lequan Yu, Litong Lv and Hui Sun, “An Electrocardiogram Detection Device Based on Bluetooth Communication,” No. CN201410094326.5, Mar. 2016.
5. Yi Ding, **Hongxun Hui**, Zhenyu Chen, Kaining Luan, Chunyu Xie, Wenqi Cui, Kang Xie, “One Demand Response Method Considering the Total Cost Risk of Power System,” No. CN201811050910.5, Jul. 2020.
6. Yi Ding, **Hongxun Hui**, Yonghua Song, “Hybrid Control Method of Integrated Inverter Air Conditioners for Providing Frequency Regulation Services,” No. CN201910511062.1, Nov. 2020.
7. Yi Ding, **Hongxun Hui** and Yonghua Song, “An Intelligent Meter with Multi-time Scale Electricity Prices,” No. CN201610543375.1, May 2019.
8. Yi Ding, Kang Xie, **Hongxun Hui**, Kaijie Zhang, “Frequency Regulation Controller of Inverter Air Conditioners Considering Incentive Signals,” No. CN201910576119.6, Oct. 2020.
9. Yong Xia, Yi Ding, **Hongxun Hui**, Zhenyu Chen, Kaining Luan, Wenqi Cui and Xinyao Qu, “An Incentive Demand Response Method Based on Coupons,” No. CN201811051906.0, Jul. 2021.

Computer Skills and Software Copyrights

Computer Skills

- Programming languages: Matlab, C, C++, Java, Python
- Professional software: LabVIEW, Altium Designer, OrCAD, Altera Quartus, AutoCAD

Software Copyrights

- **Hongxun Hui**, Yi Ding and Wenqi Cui, “Software for Coupon Computing and Settlement in Friendly Interactive Smart Grid,” No. 2018SR449433, May 2018.
- Yi Ding, Dunjian Xie and **Hongxun Hui**, “Software for Game Theory-Based Collaborative Optimization Control of Thermostatically Controlled Loads,” No. 2019SR0481590, Mar. 2019.
- Dunjian Xie, Yi Ding and **Hongxun Hui**, “Simulation Software for Optimal Coordination of Thermostatically Controlled Loads for Demand Response,” No. 2019SR0450852, Mar. 2019.

Research Projects

- Key technologies and applications of network-load-storage interaction of virtual power station in smart city (2022-2024), Supported by Science and Technology Development Fund, Macao, China, Co-Principal Investigator.
- Regulation Technologies of Large-scale Demand-side Resources in Urban Power Systems Considering High-penetration Renewable Energies (2022-2023), Supported by Key Laboratory of Modern Power System Simulation and Control & Renewable Energy Technology, Ministry of Education (Northeast Electric Power University) (No. MPSS2022-10), Principal Investigator.
- Friendly Interactive Smart Grid Between Supply-Side and Demand-Side (2016-2020), Supported by Ministry of Science and Technology of China (No. 2016YFB0901100).
- Cooperative Control of Flexible Loads in Power Systems with High Penetration of Renewable Energies (2018-2019), Supported by Zhejiang University, Academic Rising Star Program (No. 2018025), Principal Investigator.
- Reliability Analysis and Optimization of Smart Grid Considering the Coordinated Operation of Flexible Resources and Wind Power (2016-2019), Supported by National Natural Science Foundation of China (No. 51577167).
- Control Method and Peak-shaving Capacity Evaluation of Flexible Loads (2016-2017), Supported by State Grid Zhejiang Electric Power Company (No. 5211JY15001S).
- Research and Application of Demand Response (2016-2017), Supported by State Grid Jiangsu Electric Power Company (No. KH20161699).
- Modeling and Regulation Potential Evaluation of Air Conditioners, EVs, and Batteries (2015-2016), Supported by China Electric Power Research Institute (No. DZ71-15-004).

Additional Information

Professional Services

- **Vice President:** IEEE Industry Applications Society Student Branch Chapter in Zhejiang University (2018-2020)
- **Program Committees:** 2021 International Conference on Power System and Energy Internet
- **Member of a Council:** *IEEE PES China Electric Vehicle Technical Committee, Technical Sub-Committee on Integration of Electric Vehicle and Energy Transportation System*
- **Journal Reviewers:** *IEEE Transactions on Industrial Electronics* (Since 2017), *International Journal of Electrical Power & Energy Systems* (Since 2017), *Applied Energy* (Since 2018), *Journal of Modern Power Systems and Clean Energy* (Since 2018), *IEEE Transactions on Sustainable Energy* (Since 2019), *IEEE Transactions on Power Systems* (Since 2019), *IEEE Transactions on Smart Grid* (Since 2019), *IEEE Access* (Since 2019), *CSEE Journal of Power & Energy Systems* (Since 2019), *Journal of Electrical Engineering & Technology* (Since 2019), *International Transactions on Electrical Energy Systems* (Since 2019), *Renewable & Sustainable Energy Reviews* (Since 2019), *Economic Alternatives* (Since 2019), *IET Energy Systems Integration* (Since 2019), *IEEE Transactions on Industry Applications* (Since 2019), *IEEE Transactions on Circuits and Systems I: Regular Papers* (Since 2019)
- **Conference Reviewers:** *IEEE PES General Meeting*, *International Conference on Applied Energy*, *IEEE Sustainable Power & Energy Conference*, *International Conference on Smart Energy Systems and Technologies*, *IEEE International Conference on Environment and Electrical Engineering* and *IEEE Industrial and Commercial Power Systems Europe*.

Teaching

- Introduction to Internet of Things, Department of Electrical and Computer Engineering, University of Macau, 2022.
- *Power System Operation and Control* (Teaching Assistant of Prof. Yi Ding and Prof. Pierluigi Siano), College of Electrical Engineering, Zhejiang University, 2016.

Selected Honors & Rewards

- Highly Cited Review Paper Award, by the Journal *Applied Energy*, Aug. 2022.
- Excellent Paper Award of the Integrated Smart Energy Conference, Jul. 2022.
- Winning Prize, the 1st China Postdoctoral Innovation & Entrepreneurship Competition, 2022.
- Best Paper Award of the 3rd IEEE Conference on Sustainable Power and Energy, 2021.
- The First Prize and the only Best Innovation Award at a national competition on artificial intelligence (AI) application in power dispatching, Oct. 2021.
- The Second Prize and the only Best Innovation Award at a national competition on artificial intelligence (AI) application in power dispatching, Jan. 2021.
- National Scholarship, 2019. (The first ranking among 58 Ph.D. students in the major of power systems)
- First Batch of the Academic Rising Star Program, ZJU, 2018.
- Wang Guo Song Scholarship, 2019. (The highest honor in College of EE, 4 students among 180 Ph.D. students)
- Tang Lixin Scholarship, 2017. (The first and only winner in College of EE)
- Excellent Postgraduate Students' Award in ZJU and Zhejiang Province, 2020.
- Postgraduate Students' Scholarship, 2020.
- Outstanding Reviewer Award from *Journal of Modern Power Systems and Clean Energy*, 2018.
- Award of Honor for Graduate, 2016, 2017, 2018, 2019.
- Graduate of Merit/Triple A graduate, 2016, 2019.
- Outstanding Graduates of Zhejiang University, 2015.
- Excellent Honor in Edison Class, Zhejiang University, 2015.
- Scholarship for Excellence in Research and Innovation, 2015.
- Bosch Scholarship, 2015.
- Meritorious, Interdisciplinary Contest in Modeling (ICM), Consortium for Mathematics and Its Application, 2014.
- First Price, 7th Science Contest on Energy Saving & Emission Reduction, 2014.
- Fifth (5/149), 9th University Student Robot Contest (My Super Shopper), 2014.
- Best Design Award, 9th University Student Robot Contest (My Super Shopper), 2014.
- Third Price, 7th Intelligent Car Competition of Zhejiang University, 2014.
- Outstanding Student Leader Awards, 2012, 2014.
- Excellent Student Awards, 2012, 2013, 2014.
- First-Class Scholarship for Outstanding Merits/Students, 2012.