YI WANG

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APPOINTMENT

Assistant Professor September 2021 -
Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong

Postdoctoral Researcher February 2019 - August 2021
Power Systems Laboratory, ETH Zurich, Switzerland
Supervisor: Prof. Gabriela Hug, *SATW Member*

EDUCATION

Ph.D., Electrical Engineering September 2014 - January 2019
Department of Electrical Engineering, Tsinghua University, China
Supervisor: Prof. Chongqing Kang, *IEEE Fellow*

Visiting PhD Student March 2017 - April 2018
Department of Electrical Engineering, University of Washington
Supervisor: Prof. Daniel Kirschen, *IEEE Fellow*

B.E., Electrical Engineering September 2010 - June 2014
Department of Electrical Engineering, Huazhong University of Science and Technology, China

RESEARCH INTERESTS

IoT for the Power and Energy Systems

Data Analytics and Optimization

Cyber-physical-social Power Distribution Systems

Multiple Energy Systems Coupling

PROJECT PARTICIPATION

Swiss Centre for Competence in Energy Research on the Future Swiss Electrical Infrastructure (SCCER-FURIES) February 2020 - December 2020
Supported by the Swiss Innovation Agency

· Energy forecasting with fine-grained smart meter data
· Online ensemble learning for deterministic and probabilistic energy forecasting

The Role of Gas and the Gas Infrastructure within the Future Energy System - a Techno-Economic Assessment February 2019 - January 2020
Supported by the Swiss Federal Office of Energy

· Modeling and linear approximation of the power ow in the distribution power systems
· Model for gas and distribution system joint planning

Planning and Operation of Power Systems with High Proportion of Renewable Energy September 2016 - January 2019
Supported by the Ministry of Science and Technology of China

· Modeling and analysis of characteristics of load profiles and renewable energy outputs
· Methods and algorithms for probabilistic load and renewable energy forecasting
· Cloud-based platform for load forecasting

Low-carbon and Efficient Multiple Energy Systems for Renewable Energy Integration September 2015 - January 2019
Supported by NSFC Key Collaborative Research Initiative

· Standardized modeling of multiple energy systems including electricity, gas, cooling, and heating systems
· Optimal planning of distinct multiple energy systems
· Development of software for automatic modeling of multiple energy systems

Forecasting of Electricity Consumption at Different Temporal and Spatial Scales September 2015 - December 2016
Supported by China Southern Power Grid Company

· Ensemble load forecasting methods for multiple areas and multiple time scales
· Effect of temperature and humidity on the electricity demand
· Effect of various economic factors on how the electricity demand interact with various economic factors
· Development of middle and long-term load forecasting system and early warning system

Business Models and Market Mechanisms of Energy Internet May 2015 - November 2015
Supported by National Energy Administration of China

· Basic definition of Energy Internet from different perspectives.
· Potential business models and market mechanisms of future Energy Internet
· Roadmap for the development of the Energy Internet

Wind Power Optimization Planning Considering Power Grid Adaptability September 2014 - October 2015
Supported by State Grid Corporation of China

· Planning model for clustered wind farms considering the capacity credit using ordinal optimization theory
· Development of ordinal planning software for multiple wind farms

Power System Uncertainty Analysis September 2014 - December 2017
Supported by National Science Foundation of China

· Uncertainty modeling using copula theory
· High dimensional dependencies analysis and modeling method for power systems uncertainties
· Probabilistic load flow calculation methods for power systems with high penetration of renewable energy

MEMBERSHIP

- Member, IEEE Power and Energy Society
- Member, IET
- Member, International Institute of Forecasters

ACADEMIC SERVICES

Editorial Services

- **Associate Editor**, IEEE Transactions on Smart Grid (January 2022-)
- **Associate Editor**, IEEE Systems Journal (October 2021-)
- **Associate Editor**, IET Renewable Power Generation (August 2019-)
- **Associate Editor**, IET Smart Grid (May 2019- December 2021)
- **Editor**, International Transactions on Electrical Energy Systems (January 2019- December 2021)
- **Subject Editor**, CSEE Journal of Power & Energy Systems (January 2019- December 2021)

- **Lead Editor**, International Transactions on Electrical Energy Systems Special Section on *Data Analytics and Machine Learning for the Energy Internet* (March 2019)
- **Guest Editor**, International Journal of Electrical Power & Energy Systems Special Section on *Integration of Distributed Energy Resources via Transactive Energy; Towards Energy Internet* (March 2020)

Professional Organization

- Secretary, CIGRE Working Group on Application of 5G Technology to Smart Grids (2022-)
- Secretary, IEEE Customer Systems & Smart Buildings Subcommittee (2021-)
- Secretary, IEEE PES Working Group on Energy Forecasting (2019-)
- Vice-chair, IEEE PES Working Group on Load Aggregator and Distribution Market (2019-)
- Secretary, IEEE PES Working Group on Load Aggregator and Distribution Market (2018-2019)

Conference Organization

- Technical Program Committee (TPC) Member, IET Renewable Power Generation Conference 2020
- Panel Session Chair, Smart Meter Data Analytics in Retail Market, IEEE PES General Meeting 2019
- Panel Session Chair, Probabilistic Energy Forecasting, IEEE PES General Meeting 2019
- Panel Session Chair, Observability and Controllability of Power Distribution System in Big Data Era, IEEE PES General Meeting 2020

Peer Reviewer in Journals

- Proceedings of the IEEE
- IEEE Transactions on Power Systems
- IEEE Transactions on Smart Grid
- IEEE Transactions on Sustainable Energy
- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Industrial Electronics
- IEEE Power Engineering Letters
- IET Smart Grid
- International Journal of Forecasting
- Journal of Forecasting
- Applied Energy
- International Journal of Electrical Power & Energy Systems
- International Transactions on Electrical Energy Systems
- Journal of Modern Power Systems and Clean Energy
- CSEE Journal of Power and Energy Systems
- Electric Power Systems Research
- Journal of Electrical Engineering and Technology
- Proceedings of the CSEE (Chinese Journal)
- Power System Technology (Chinese Journal)
- Automation of Electric Power Systems (Chinese Journal)

AWARDS

- **IEEE Transactions on Smart Grid Top 5 Reviewer**,
  Awarded by the IEEE Transactions on Smart Grid Editorial Broad — December 2021
- **IEEE Transactions on Smart Grid Best Reviewer**,
  Awarded by the IEEE Transactions on Smart Grid Editorial Broad — December 2019
- **The First Prize, Prize for Progress in Science and Technology, 11/15**,
  for the project "Key Technologies and Engineering Applications in Modeling and Optimization of Large-scale Power System Operation and Decision-making,"
  Awarded by the National Ministry of Education — October 2019
- **Outstanding Scientific Paper**,
  for the paper "Electrical Consumer Behavior Model: Basic Concept and Research Framework,"
  Awarded by the China Association for Science and Technology — September 2019
- **Tsinghua Outstanding PhD Thesis**,
  Awarded by Tsinghua University — July 2019
- **Tsinghua Outstanding PhD Graduate**,
  Awarded by Tsinghua University — July 2019
- **Frontrunner 5000 Paper**,
  for the paper "Review and Prospect of Optimal Planning and Operation of Energy Hub in Energy Internet,"
  Awarded by the China Association for Science and Technology — May 2019
- **Gold Medal, International Exhibition of Inventions of Geneva, 6/6**,
  Awarded by the International Exhibition of Inventions of Geneva — April 2019
- **Beijing Outstanding PhD Graduate**,
  Awarded by the Beijing Ministry of Education — January 2019
- **The Second Price, Outstanding Scientific Paper**,
  for the paper "Review and Prospect of Optimal Planning and Operation of Energy Hub in Energy Internet,"
  Awarded by the Chinese Society for Electrical Engineering — December 2018
- **The Third Price, Outstanding Scientific Paper**,
  for the paper "Blockchain Technique in the Energy Internet: Preliminary Research Framework and Typical Applications,"
  Awarded by the Chinese Society for Electrical Engineering — December 2018
- **IEEE Transactions on Power Systems Outstanding Reviewer**,
  Awarded by the IEEE Transactions on Power Systems Editorial Broad — December 2018
- **IEEE Transactions on Smart Grid Best Reviewer**,
  Awarded by the IEEE Transactions on Smart Grid Editorial Broad — December 2018
- **Doctoral National Scholarship**,
  Awarded by the Chinese Ministry of Education — September 2018
- **Siebel Scholar Award**,
  Awarded by Thomas and Stacey Siebel Foundation — September 2018
- **Academic Rookie Nomination**,
  Awarded by Tsinghua University — May 2018
- **IET Best PhD Student Award**,
  Awarded by the Institution of Engineering and Technology (IET) — April 2018
- **IEEE Transactions on Smart Grid Best Reviewer**,
  Awarded by the IEEE Transactions on Smart Grid Editorial Broad — December 2017
- **Doctoral National Scholarship**,
  Awarded by the Chinese Ministry of Education — September 2017

- **Tsinghua Science & Technology Best Paper Awards**,
  Awarded by the Tsinghua Science & Technology Editorial Broad — August 2017
- **Outstanding Reviewer of Electric Power Systems Research**,
  Awarded by the Electric Power Systems Research Editorial Broad — March 2017
- **IEEE Transactions on Power Systems Outstanding Reviewer**,
  Awarded by the IEEE Transactions on Power Systems Editorial Broad — December 2016
- **Doctoral National Scholarship**,
  Awarded by the Chinese Ministry of Education — September 2016
- **Excellent Paper of the Thirteenth National Annual Conference for Doctoral Students**,
  Awarded by China Renewable Energy Society — May 2015
- **Scholarships for Future Scholars**,
  Awarded by Tsinghua University — September 2014
- **Excellent Bachelor Degree Thesis of Hubei Province, China**,
  Awarded by the Hubei Ministry of Education — July 2014
- **Undergraduate National Scholarship**,
  Awarded by the Chinese Ministry of Education — September 2013
- **Undergraduate National Scholarship**,
  Awarded by the Chinese Ministry of Education — September 2012
- **Undergraduate National Scholarship**,
  Awarded by the Chinese Ministry of Education — September 2011

SUPERVISING

Bachelor Thesis

- **Dahua Gan**, Key technologies for probabilistic load forecasting, Tsinghua University, 2018 (co-supervise)
- **Jiawei Zhang**, Topology identification for non-PMU distribution networks with high penetration of renewable energy, Tsinghua University, 2019 (co-supervise)

Semester Thesis

- **Luzian Lebovitz**, Machine learning for power network partition, ETH Zurich, 2019
- **Michele Chamberlin**, Probabilistic building energy demand forecasting, ETH Zurich, 2019
- **Felix Sperr**, Low-carbon multiple energy systems planning, ETH Zurich, 2019
- **Imane Lahmam Bennani**, Bridging smart meter data with socio-demographic information of consumers, ETH Zurich, 2019
- **Leandro Von Krannichfeldt**, Online ensemble energy forecasting, ETH Zurich, 2019
- **Aoife Henry**, A Novel Online Fuzzy K-Means Algorithm for Real-Time Load Profiling, ETH Zurich, 2019
- **Adrian Lang**, Data aggregation point placements for smart sensors in the smart grid, ETH Zurich, 2020
- **Joachim Schaeffer**, Online ensemble learning for short-term load forecasting, ETH Zurich, 2020
- **Can Gokbulut**, Data Markets for Collaborative Wind Power Forecasting, ETH Zurich, 2020
- **Julie Keisler**, Benchmark electric power consumption forecasting algorithms, ETH Zurich, 2020

Master Thesis

- **Jialun Zhang**, Generalized Cost-oriented Energy Forecasting and Its Ensemble Strategy, ETH Zurich, 2020
- **Leandro Von Krannichfeldt**, Online ensemble energy forecasting, ETH Zurich, 2020

- **Chenyu Zhou**, Spatial-Temporal Demand Response of Base Stations in Cellular Networks, ETH Zurich, 2021
- **Mert Karacelebi**, Prediction of possible power system blackouts with machine learning algorithms, ETH Zurich, 2021 (co-supervise)
- **Shams Taha**, Learning to Run a Power Network by Predicting Power Flows under Varying Grid Topology, ETH Zurich, 2021 (co-supervise)

TEACHING

- **Power System Forecasting Technology** (Chongqing Kang, 32 hour), Teaching assistant, Tsinghua University, 2016/2017
- **Big Data Analytics in Electrical Engineering** (Chongqing Kang, 32 hour), Teaching assistant, Tsinghua University, 2018
- **Power System Analysis** (Gabriela Hug, 32 hour), Teaching assistant, ETH Zurich, 2019
- **Introduction to Electric Power Transmission: System & Technology** (Gabriela Hug, 32 hour), Teaching assistant, ETH Zurich, 2019
- **Optimization in Energy Systems** (Gabriela Hug, 32 hours), Teaching assistant, ETH Zurich, 2021

RESEARCH PUBLICATIONS

Google Citation $\geq$ 4000, h-index=31, i10-index = 51 (Google Scholar)

Monograph

M1 **Yi Wang**, Qixin Chen, Chongqing Kang, "Smart Meter Data Analytics: Electricity Consumer Behavior Modeling, Aggregation, and Forecasting", 292 pages, Springer, 2020.

M2 Ning Zhang, Chongqing Kang, Ershun Du, **Yi Wang**, "Analytics and Optimization for Renewable Energy Integration", 380 pages, CRC Press, 2019.

Submitted Papers

S1 **Yi Wang**, Ning Gao, and Gabriela Hug, "Personalized Federated Learning for Individual Consumer Load Forecasting," ***CSEE Journal of Power and Energy Systems***, submitted.

S2 **Yi Wang**, Mengshuo Jia, Leandro Von Krannichfeldt, Mingyang Sun, and Gabriela Hug, "Federated Clustering for Electricity Consumption Pattern Extraction," ***IEEE Transactions on Smart Grid***, submitted.

S3 Fangyuan Si, Wenjie Qiao, **Yi Wang***, Peng-Yong Kong, and Ning Zhang, "Distributed Optimization for Integrated Energy Systems with Secure Multi-Party Computation," ***IEEE Internet of Things Journal***, submitted.

S4 Bottieau, Jeremie, **Yi Wang***, Zacharie De Greve, Francois Vallee, and Jean-Francois Toubeau, "Interpretable Transformer Model for Capturing Regime Switching Effects of Real-Time Electricity Prices," ***IEEE Transactions on Power Systems***, submitted.

S5 Dawei Qiu, Jianhong Wang, Zihang Dong, **Yi Wang***, and Goran Strbac, "Mean-Field Multi-Agent Reinforcement Learning for Peer-to-Peer Multi-Energy Trading," ***IEEE Transactions on Smart Grid***, submitted.

S6 Jean-Francois Toubeau, Fei Teng, Thomas Morstyn, Leandro Von Krannichfeldt, and **Yi Wang***, "Privacy-Preserving Probabilistic Voltage Forecasting in Local Energy Communities," ***IEEE Transactions on Smart Grid***, submitted.

S7 Jialun Zhang, **Yi Wang***, and Gabriela Hug, "Cost-Oriented Load Forecasting," ***Electric Power Systems Research***, submitted.

S8 Miha Grabner, **Yi Wang**, Qingsong Wen, Bostjan Blazic, and Vitomir Struc, "A Global Modeling Approach for Load Forecasting in Distribution Networks," ***IEEE Transactions on Smart Grid***, submitted.

S9 Seyyed Ahmad Hosseini, Jean-Francois Toubeau, Zacharie De Greve, **Yi Wang**, Nima Amjady, and Francois Vallee, "Data-Driven Multi-Resolution Probabilistic Energy and Reserve Scheduling of Wind Power," ***IEEE Transactions on Power Systems***, submitted.

S10 Yihong Zhou, Zhaohao Ding, and **Yi Wang**, "Robust Load Forecasting towards Adversarial Attacks via Bayesian Learning," ***IEEE Transactions on Power Systems***, submitted.

S11 Mostafa Farrokhabadi, Jethro Browell, **Yi Wang**, Stephen Makonin, Wencong Su, and Hamidreza Zareipour, "Day-Ahead Electricity Demand Forecasting Competition: Post-COVID Paradigm," ***IEEE Open Access Journal of Power and Energy***, submitted.

Accepted Journal Papers

AJ1 Cheng Feng, **Yi Wang***, Xuanyuan Wang, and Qixin Chen, "Device Access Optimization for Virtual Power Plants in Heterogeneous Networks," ***IEEE Transactions on Smart Grid***, in press.

AJ2 Leandro Von Krannichfeldt, **Yi Wang***, Thierry Zufferey, and Gabriela Hug, "An Online Ensemble Approach for Probabilistic Wind Power Forecasting," ***IEEE Transactions on Sustainable Energy***, in press.

AJ3 Chenyu Zhou, Cheng Feng, and **Yi Wang***, "Spatial-Temporal Energy Management of Base Stations in Cellular Networks," ***IEEE Internet of Things Journal***, in press.

AJ4 Adrian Lang, **Yi Wang***, Cheng Feng, Eleni Stai, and Gabriela Hug, "Data Aggregation Point Placements for Smart Meters in the Smart Grid," ***IEEE Transactions on Smart Grid***, in press.

AJ5 Jean-Francois Toubeau, Thuy-Hai Nguyen, Hooman Khaloie, **Yi Wang***, and Francois Vallee, "Forecast-Driven Stochastic Scheduling of a Virtual Power Plant in Energy and Reserve Markets," ***IEEE Systems Journal***, in press.

AJ6 Yang Li, Jiazheng Li, and **Yi Wang***, "Privacy-preserving Spatiotemporal Scenario Generation of Renewable Energies: A Federated Deep Generative Learning Approach," ***IEEE Transactions on Industrial Informatics***, in press.

AJ7 Yuxuan Gu, Kedi Zheng, **Yi Wang**, Kai Liu, and Qixin Chen, "An Online Approach for Partial Topology Recovery in LMP Markets," ***International Journal of Electrical Power & Energy Systems***, in press.

AJ8 Jean-Francois Toubeau, Jeremie Bottieau, **Yi Wang***, and Francois Vallee, "Interpretable Probabilistic Forecasting of Imbalances in Renewable-Dominated Electricity Systems," ***IEEE Transactions on Sustainable Energy***, in press.

AJ9 **Yi Wang**, Luzian Lebovitz, Kedi Zheng, and Yao Zhou, "Consensus Clustering for Bi-objective Power Network Partition," ***CSEE Journal of Power and Energy Systems***, in press.

AJ10 Jiawei Zhang, **Yi Wang**, Mingyang Sun, and Ning Zhang, "Two-Stage Bootstrap Sampling for Probabilistic Load Forecasting," ***IEEE Transactions on Engineering Management***, in press.

English Journal Papers

EJ1 **Yi Wang**, Leandro Von Krannichfeldt, Thierry Zufferey, and Jean-Francois Toubeaub, "Short-term nodal voltage forecasting for power distribution grids: An ensemble learning approach," ***Applied Energy***, 2021, 304:117880.

EJ2 **Yi Wang**, Imane Lahmam Bennani, Xiufeng Liu, Mingyang Sun, and Yao Zhou, "Electricity Consumer Characteristics Identification: A Federated Learning Approach," ***IEEE Transactions on Smart Grid***, 2021, 12(4):3637-3647.

EJ3 Jean-Francois Toubeau, Thomas Morstyn, Jeremie Bottieau, Kedi Zheng, Dimitra Apostolopoulou, Zacharie De Greve, **Yi Wang***, and Francois Vallee, "Capturing Spatio-Temporal Dependencies in the Probabilistic Forecasting of Distribution Locational Marginal Price," ***IEEE Transactions on Smart Grid***, 2021, 12(3):2663-2674.

EJ4 Yinxiao Li, **Yi Wang**, and Qixin Chen, "Promoting PV Accommodation in ADNs Incorporating Transformer Dynamic Thermal Rating," ***IEEE Transactions on Smart Grid***, 2021, 12(3):1989-1999.

EJ5 Mengshuo Jia, **Yi Wang**, Chen Shen, and Gabriela Hug, "Privacy-Preserving Distributed Clustering for Electrical Load Profiling," ***IEEE Transactions on Smart Grid***, 2021, 12(2):1429-1444.

EJ6 Mengshuo Jia, **Yi Wang**, Chen Shen, and Gabriela Hug, "Privacy-preserving Distributed Probabilistic Load Flow," ***IEEE Transactions on Power Systems***, 2021, 36(2):1616-1627.

EJ7 Cheng Feng, **Yi Wang**, Qixin Chen, Yi Ding, Goran Strbac, and Chongqing Kang, "Smart Grid Encounters Edge Computing: Opportunities and Applications," ***Advances in Applied Energy***, 2021, 1:100006.

EJ8 Leandro Von Krannichfeldt, **Yi Wang***, and Gabriela Hug, "Online Ensemble Learning for Load Forecasting," ***IEEE Transactions on Power Systems***, 2021, 36(1):545-548.

EJ9 Kedi Zheng, Qixin Chen, **Yi Wang**, Chongqing Kang, and Le Xie, "Unsupervised Congestion Status Identification Using LMP Data," ***IEEE Transactions on Smart Grid***, 2021, 12(1):726-736.

EJ10 Pei Yong, ***Yi Wang***, Tomislav Capuder, Zhenfei Tan, Ning Zhang, and Chongqing Kang, "Steady-State Security Region of Energy Hub: Modeling, Calculation, and Applications in Planning," ***International Journal of Electrical Power & Energy Systems***, 2021, 125:106551.

EJ11 Kedi Zheng, Qixin Chen, **Yi Wang**, and Bojin Wen, "Impact of Electricity Price Forecasting Errors on Bidding: A Price-Taker's Perspective," ***IET Generation, Transmission & Distribution***, 2020, 14(25):6259-6266.

EJ12 Tao Hong, Pierre Pinson, **Yi Wang**, Rafal Weron, Dazhi Yang, and Hamidreza Zareipour, "Energy Forecasting: A Review and Outlook," ***IEEE Open Access Journal of Power and Energy***, 2020, 7:376-388. (IEEE Open Access Journal of Power and Energy Best Paper Award)

EJ13 Yuxiao Liu, **Yi Wang**, Pei Yong, Ning Zhang, Chongqing Kang, and Dan Lu, "Fast Power System Risk Assessment of Cascading Failures with High Penetration of Wind Power," ***IEEE Transactions on Sustainable Energy***, 2020, 11(4):2274-2283.

EJ14 Shu Zhang, **Yi Wang***, Yutian Zhang, Dan Wang, and Ning Zhang, "Load Probability Density Forecasting by Transforming and Combining Quantile Forecasts," ***Applied Energy***, 2020, 277:115600.

EJ15 **Yi Wang**, Gabriela Hug, Zijie Liu, and Ning Zhang, "Modeling Load Forecast Uncertainty Using Generative Adversarial Networks," ***Electric Power Systems Research***, 2020, 189:106732.

EJ16 Wujing Huang, Ning Zhang, Yaohua Cheng, Jingwei Yang, **Yi Wang**, and Chongqing Kang, "Multienergy Networks Analytics: Standardized Modeling, Optimization, and Low Carbon Analysis," ***Proceedings of the IEEE***, 2020, 108(9):1411-1436.

EJ17 Kedi Zheng, **Yi Wang**, Kai Liu, Qixin Chen, and Chongqing Kang, "Locational Marginal Price Forecasting: A Componential and Ensemble Approach," ***IEEE Transactions on Smart Grid***, 2020, 11(5):4555-4564.

EJ18 Jiawei Zhang, **Yi Wang**, Yang Weng, and Ning Zhang, "Topology Identification and Line Parameter Estimation for non-PMU Distribution Networks: A Numerical Method," ***IEEE Transactions on Smart Grid***, 2020, 11(5):4440-4453.

EJ19 Wujing Huang, Ning Zhang, **Yi Wang**, Tomislav Capuder, Igor Kuzle, and Chongqing Kang, "Matrix Modeling of Energy Hub with Variable Energy Conversion Efficiencies," ***International Journal of Electrical Power & Energy Systems***, 2020, 119:105876.

EJ20 Cheng Feng, **Yi Wang**, Kedi Zheng, and Qixin Chen, "Smart Meter Data-Driven Customizing Price Design for Retailers," ***IEEE Transactions on Smart Grid***, 2020, 11(3):2043-2054.

EJ21 Yuxiao Liu, **Yi Wang**, Ning Zhang, Dan Lu, and Chongqing Kang, "A Data-driven Approach to Linearize Power Flow Equations Considering Measurement Noise," ***IEEE Transactions on Smart Grid***, 2020, 11(3):2576-2587.

EJ22 Tainyi Li, **Yi Wang**, and Ning Zhang, "Combining Probability Density Forecasts for Power Electrical Loads," ***IEEE Transactions on Smart Grid***, 2020, 11(2):1679-1690.

EJ23 Yinxiao Li, **Yi Wang**, and Qixin Chen, "Study on the Impacts of Meteorological Factors on Distributed Photovoltaic Accommodation Considering Dynamic Line Parameters," ***Applied Energy***, 2020, 259:114133.

EJ24 Mingyang Sun, Tingqi Zhang, **Yi Wang**, Goran Strbac, and Chongqing Kang, "Using Bayesian Deep Learning to Capture Uncertainty for Residential Net Load Forecasting," ***IEEE Transactions on Power Systems***, 2020, 35(1):188-201.

EJ25 Mingyang Sun, **Yi Wang**, Fei Teng, Yujian Ye, Goran Strbac, and Chongqing Kang, "Clustering-Based Residential Baseline Estimation: A Probabilistic Perspective," ***IEEE Transactions on Smart Grid***, 2019, 10(6):6014-6028.

EJ26 **Yi Wang**, Dahua Gan, Ning Zhang, Le Xie, and Chongqing Kang, "Feature Selection for Probabilistic Load Forecasting via Sparse Penalized Quantile Regression," ***Journal of Modern Power Systems and Clean Energy***, 2019, 7(5):1200-1209.

EJ27 Ning Zhang, Jiangnan Cheng, and **Yi Wang***, "Probabilistic Optimal Energy Flow of District Multi-energy Systems: An MPLP-based Online Dictionary-Learning Approach," ***IEEE Transactions on Industrial Informatics***, 2019, 15(9):4867-4877.

EJ28 **Yi Wang**, Ning Zhang, Yushi Tan, Tao Hong, Daniel Kirschen, and Chongqing Kang, "Combining Probabilistic Load Forecasts," ***IEEE Transactions on Smart Grid***, 2019, 10(4):3664-3674. (ESI Highly Cited Paper)

EJ29 **Yi Wang**, Qixin Chen, Tao Hong, and Chongqing Kang, "Review of Smart Meter Data Analytics: Applications, Methodologies, and Challenges," ***IEEE Transactions on Smart Grid***, 2019, 10(3):3125-3148. (ESI Highly Cited Paper, IEEE Transactions on Smart Grid Best Paper Award)

EJ30 **Yi Wang**, Qixin Chen, Dahua Gan, Jingwei Yang, Daniel Kirschen, and Chongqing Kang, "Deep Learning-Based Socio-demographic Information Identification from Smart Meter Data," ***IEEE Transactions on Smart Grid***, 2019, 10(3):2593-2602.

EJ31 Yuxiao Liu, Ning Zhang, **Yi Wang**, Jingwei Yang, and Chongqing Kang, "Data-Driven Power Flow Linearization: A Regression Approach," ***IEEE Transactions on Smart Grid***, 2019, 10(3):2569-2580.

EJ32 Yaohua Cheng, Ning Zhang, **Yi Wang**, Jingwei Yang, Chongqing Kang, Qing Xia, "Modeling Carbon Emission Flow in Multiple Energy Systems," ***IEEE Transactions on Smart Grid***, 2019, 10(4):3562-3574.

EJ33 Wujing Huang, Ning Zhang, Jingwei Yang, **Yi Wang**, and Chongqing Kang, "Optimal Configuration Planning of Multi-Energy Systems Considering Distributed Renewable Energy," ***IEEE Transactions on Smart Grid***, 2019, 10(2):1452-1464.

EJ34 Kedi Zheng, Qixin Chen, **Yi Wang**, Chongqing Kang, and Qing Xia, "A Novel Combined Data-Driven Approach for Electricity Theft Detection," ***IEEE Transactions on Industrial Informatics***, 2019, 15(3):1809-1819.

EJ35 **Yi Wang**, Dahua Gan, Mingyang Sun, Ning Zhang, and Chongqing Kang, "Probabilistic Individual Load Forecasting Using Pinball Loss Guided LSTM," ***Applied Energy***, 2019, 235: 10-20. (ESI Highly Cited Paper, Applied Energy Highly Cited Research Paper Award)

EJ36 Mingyang Sun, **Yi Wang**, Goran Strbac, and Chongqing Kang, "Probabilistic Peak Load Estimation in Smart Cities Using Smart Meter Data," ***IEEE Transactions on Industrial Electronics***, 2019, 66(2): 1608-1618.

EJ37 **Yi Wang**, Ning Zhang, Chongqing Kang, and Qing Xia, "Standardized Matrix Modeling of Multiple Energy Systems," ***IEEE Transactions on Smart Grid***, 2019, 10(1): 257-270. (ESI Highly Cited Paper)

EJ38 **Yi Wang**, Qixin Chen, Ning Zhang, and Yishen Wang, "Conditional Residual Modeling for Probabilistic Load Forecasting," ***IEEE Transactions on Power Systems***, 2018, 33(6): 7327-7330.

EJ39 **Yi Wang**, Ning Zhang, Qixin Chen, Daniel Kirschen, Pan Li, and Qing Xia, "Data-Driven Probabilistic Net Load Forecasting with High Penetration of Behind-the-Meter PV," ***IEEE Transactions on Power Systems***, 2018, 33(3): 3255-3264. (ESI Highly Cited Paper)

EJ40 **Yi Wang**, Qixin Chen, Mingyang Sun, Chongqing Kang and Qing Xia, "An Ensemble Forecasting Method for the Aggregated Load with Subprofiles," ***IEEE Transactions on Smart Grid***, 2018, 9(4): 3906-3908.

EJ41 **Yi Wang**, Ning Zhang, Chongqing Kang, Miao Miao, Rui Shi, and Qing Xia, "An Efficient Approach to Power System Uncertainty Analysis with High-Dimensional Dependencies," ***IEEE Transactions on Power Systems***, 2018, 33(3): 2984-2994. (ESI Highly Cited Paper)

EJ42 **Yi Wang**, Jiangnan Chen, Ning Zhang, and Chongqing Kang, "Automatic and Linearized Modeling of Energy Hub and Its Flexibility Analysis ," ***Applied Energy***, 2018, 211: 705-714.

EJ43 **Yi Wang**, Ning Zhang, Zhenyu Zhuo, Chongqing Kang, and Daniel Kirschen, "Mixed-Integer Linear Programming Based Optimal Configuration Planning for Energy Hub: Starting from Scratch," ***Applied Energy***, 2018, 210: 1141-1150. (ESI Highly Cited Paper)

EJ44 Chongqing Kang, **Yi Wang**, Yusheng Xue, Gang Mu, and Ruijin Liao, "Big Data Analytics in China's Electric Power Industry: Modern Information, Communication Technologies, and Millions of Smart Meters," ***IEEE Power and Energy Magazine***, 2018, 16(3): 54-65.

EJ45 Dahua Gan, **Yi Wang**, Shuo Yang, and Chongqing Kang, "Embedding Based Quantile Regression Neural Network for Probabilistic Load Forecasting," ***Journal of Modern Power Systems and Clean Energy***, 2018, 6(2): 1-11

EJ46 Jiangqiang Miao, Ning Zhang, Chongqing Kang, Jianxiao Wang, **Yi Wang**, and Qing Xia, "Steady-state Power Flow Model of Energy Router Embedded AC Network and Its Application in Optimizing Power System Operation," ***IEEE Transactions on Smart Grid***, 2018,9(5):4828-4837.

EJ47 **Yi Wang**, Qixin Chen, Chongqing Kang, and Qing Xia, "Sparse and Redundant Representations-Based Smart Meter Data Compression and Pattern Extraction," IEEE Transactions on Power Systems, 2017, 32(3): 2142-2151.

EJ48 **Yi Wang**, Ning Zhang, Qixin Chen, Jingwei Yang, Chongqing Kang, Junhui Huang, "Dependent Discrete Convolution Based Probabilistic Load Flow for Active Distribution System," IEEE Transactions on Sustainable Energy, 2017, 8(3): 1000-1009.

EJ49 **Yi Wang**, Ning Zhang, Hai Li, Jingwei Yang, Chongqing Kang, "Linear Three-Phase Power Flow for Unbalanced Active Distribution Network with PV Nodes," ***CSEE Journal of Power and Energy Systems*** , 2017, 3(3): 321-324.

EJ50 Dahua Gan, **Yi Wang**, Ning Zhang, and Wenjun Zhu, "Enhancing Short-term Probabilistic Residential Load Forecasting with Quantile Long-short-term Memory," ***The Journal of Engineering***, 2017, 2017(14): 2622-2627.

EJ51 **Yi Wang**, Qixin Chen, Chongqing Kang, and Qing Xia, "Clustering of Electricity Consumption Behavior Dynamics Toward Big Data Applications," ***IEEE Transactions on Smart Grid***, 2016, 7(5): 2437-2447.

EJ52 **Yi Wang**, Qixin Chen, Chongqing Kang, Mingming Zhang, Ke Wang, and Yun Zhao, "Load Profiling and Its Application to Demand Response: A Review," ***Tsinghua Science and Technology***, 2015, 20(2): 117-129.

EJ53 **Yi Wang**, Ning Zhang, Chongqing Kang, Qianyao Xu, "Ordinal Optimization Theory Based Planning for Clustered Wind Farms Considering the Capacity Credit," ***Journal of Electrical Engineering & Technology***, 2015, 10(5): 1903-1939.

Chinese Journal Papers

CJ1 Chenyu Zhou, Cheng Feng, and **Yi Wang***, "Demand Response of 5G Communication Base Stations Based on Admission Control of Mobile Users," ***Proceedings of the CSEE***, 2021, 41(16):5452-5461. (In Chinese)

CJ2 Ning Zhang, Jingwei Yang, **Yi Wang**, Qixin Chen, Chongqing Kang, "5G Communication for Ubiquitous Power Internet of Things: Technical Principles and Typical Applications," ***Proceedings of the CSEE***, 2019, 39(14):4015-4025. (In Chinese)

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CJ5 **Yi Wang**, Ning Zhang, and Chongqing Kang, "Low-Rank Matrix Factorization to Bad Data Identification and Recovering for Bus Load," ***Power System Technology***, 2017, 41(6): 1972-1979. (In Chinese)

CJ6 Ning Zhang, **Yi Wang**, Ning Zhang, Chongqing Kang, Jiangnan Cheng, Dawei He, "Blockchain Technique in the Energy Internet: Preliminary Research Framework and Typical Applications," ***Proceedings of the CSEE***, 2016, 36(15):4011-4022. (In Chinese)

CJ7 Wenjun Zhu, **Yi Wang**, Min Luo, Guoying Lin, Jiangnan Cheng, and Chongqing Kang, "A Distributed Clustering Algorithm Oriented Towards Awareness of Electricity Consumption Characteristics of Massive Consumer," ***Automation of Electric Power Systems***, 2016, 40(12):21-27. (In Chinese)

CJ8 **Yi Wang**, Ning Zhang, and Chongqing Kang, "Review and Prospect of Optimal Planning and Operation of Energy Hub in Energy Internet," ***Proceedings of the CSEE***, 2015, 35(22): 5669-5681. (In Chinese)

Conference Papers

C1 **Yi Wang**, Leandro Von Krannichfeldt, and Gabriela Hug, "Probabilistic Aggregated Load Forecasting with Fine-grained Smart Meter Data," ***2021 IEEE PowerTech***, June, 2021.

C2 Hai Li, **Yi Wang**, Ning Zhang, Genghe Zhang, and Xu Tian, "Aggregate Model of Massive Distributed Energy Storage for Power System Operation," ***2019 IEEE ISGT Europe***, Novermber, 2019.

C3 Wujing Huang, **Yi Wang**, Ning Zhang, Chongqing Kang, Weimin Xi, and Molin Huo, "Fast Multi-Energy Systems Reliability Evaluation Using Multi-Parametric Linear Programming," ***2019 IEEE Power & Energy Society General Meeting (PESGM)***, August, 2019.

C4 Kedi Zheng, **Yi Wang**, Qixin Chen, and Dan Lu, "Multi-Objective Power Network Partition: Finding the Pareto Frontier," ***2019 IEEE Power & Energy Society General Meeting (PESGM)***, August, 2019.

C5 Kedi Zheng, **Yi Wang**, Qixin Chen, et al., "Multidimensional Smart Meter Data Analytics based on Sparse Representation Technique," ***The 11th Mediterranean Conference on Power Generation, Transmission, Distribution and Energy Conversion***, Novermber, 2018.

C6 Jiawei Zhang, **Yi Wang**, Mingyang Sun et al., "Constructing Probabilistic Load Forecast From Multiple Point Forecasts: A Bootstrap Based Approach," ***IEEE Innovative Smart Grid Technologies - Asia (ISGT Asia)***, Novermber, 2018.

C7 Kedi Zheng, **Yi Wang**, Qixin Chen, et al., "Electricity Theft Detecting Based on Density-Clustering Method," ***IEEE PES Innovative Smart Grid Technologies - Asia***, December, 2017.

C8 **Yi Wang**, Qixin Chen, Chongqing Kang, et al., "Residential Smart Meter Data Compression and Patterns Extraction via Non-negative K-SVD," ***IEEE Power & Energy Society General Meeting (PESGM)***, July, 2016.

C9 **Yi Wang**, Qixin Chen, Chongqing Kang, et al., "Linear Optimization for Active Distribution Systems Operation Considering Demand Response Mismatch," ***CIGRE Session***, August, 2016.

C10 Jiangnan Cheng, Ning Zhang, **Yi Wang**, et al., "Evaluating the Spatial Correlations of Multi-Area Load Forecasting Errors," ***International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)***, July, 2016.

C11 Qi Zeng, Ning Zhang, **Yi Wang**, et al., "An Optimum Regression Approach for Analyzing Weather Influence on the Energy Consumption," ***International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)***, July, 2016.

INVITED TALKS

T1 29 June 2021, "Probabilistic Aggregated Load Forecasting with Fine-grained Smart Meter Data", 2021 IEEE PowerTech, online.

T2 9 June 2021, "Federated Learning and Its Applications in Smart Grid", Department of Electrical and Electronic Engineering, Imperial College London, online.

T3 18 May 2021, "Data Analytics for Digitalized Power and Energy Systems", Department of Electrical and Electronic Engineering, University of Hong Kong, online.

T4 16 May 2021, "Big data analytics for smart power distribution and consumption under digital transformation", The 16th China Electrotechnical Society Youth Cloud Salon, online.

T5 21 Feb. 2021, "Smart Meter Data-Driven Load Forecasting and Price Design in the Retail Market", Graduate Seminar, Program in Electrical and Computer Engineering (ECE) , King Abdullah University of Science and Technology (KAUST), online.

T6 3 Feb. 2021, "Data Analytics for Digitalized Power and Energy Systems", Department of Mechanical and Automation Engineering, Chinese University of Hong Kong, online.

T7 13 Dec. 2020, "Research and Prospects on Probabilistic Load Forecasting (In Chinese)", Advanced Seminar on Power System Load Forecasting Technology, China Agricultural University, Beijing China.

T8 25 Nov. 2020, "Aggregated load forecasting with fine-grained smart meter data: An ensemble learning approach", 2020 IEEE Sustainable Power and Energy Conference (iSPEC), Chengdu, China.

T9 2 Jul. 2020, "Modeling Load Forecast Uncertainty Using Generative Adversarial Networks", 2020 Power Systems Computation Conference (PSCC), online.

T10 21 April 2020, "Data Analytics for Smart Power and Energy Systems", Department of Electrical Engineering, University of Sydney, online.

T11 28 Jan. 2020, "Data Analytics for Smart Power and Energy Systems", Department of Electrical and Electronic Engineering, University of Melbourne, online.

T12 20 Nov. 2019, "Data Analytics, Forecasting, and Optimization of Smart Power and Energy Systems", Department of Industrial Engineering and Management, Peking University, Beijing, China.

T13 8 Aug. 2019, "Combining Probabilistic Load Forecasts", 2019 IEEE Power & Energy Society General Meeting, Atlanta, US.

T14 6 Aug. 2019, "Personalized Price Design in Retail Market using Smart Meter Data", 2019 IEEE Power & Energy Society General Meeting, Atlanta, US.

T15 17 Jan. 2019, "Big Data Analytics for Distribution Systems and Electrical Consumers", Department of Electrical Engineering, Sichuan University, Chengdu, China.

T16 16 Jan. 2019, "Big Data Analytics for Distribution Systems and Electrical Consumers", Department of Electrical Engineering, Chongqing University, Chongqing, China.

T17 22 Oct. 2018, "Smart Meter Data Analytics for Consumer Behavior Modeling", The 2nd IEEE Conference on Energy Internet and Energy System Integration (EI$\hat{2}$), Beijing, China.

T18 6 Sept. 2018, "Matrix Modeling of Multiple Energy Systems and Smart Meter Data Analytics", Power Systems Laboratory, ETH, Zurich, Switherland.

T19 21 June 2018, "Energy Internet: A Tri-level Perspective", Smart Grid Operation & Control Center, Huazhong University of Science and Technology, Wuhan, China.

T20 18 May 2018, "Probabilistic Short-term Load Forecasting", THU-NTNU Joint Seminar, Tsinghua University, Beijing, China.

T21 12 May 2018, "Big Data Analytics in the Demand Side of Power System", Tsinghua-IET Electrical Engineering Academic Forum (2018), Tsinghua University Sanbao Academic Base, Beijing, China.

T22 10 Apr. 2018, "Probabilistic Short-Term Load Forecasting", Renewable Energy Analysis (REAL) Lab, University of Washington, Seattle, US.

T23 6 Aug. 2016, "Residential Smart Meter Data Compression and Pattern Extraction via Non-negative K-SVD", 2016 IEEE Power & Energy Society General Meeting, Boston, US.

T24 14 May 2016, "Sparse and Redundant Representation-Based Smart Meter Data Compression and Pattern Extraction", Tsinghua-IET Electrical Engineering Academic Forum (2017), Tsinghua University Sanbao Academic Base, Beijing, China.

T25 15 May 2016, "Data-Driven Insights into Smart Meter Data: A Door to the Energy Internet", 2016 Next Generation of Young Researchers in Power Systems, University of Manchster, Manchster, UK.

REFERENCES

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