Siying LI

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Education

Zhejiang University — Hangzhou, China
Master of Science in Electrical Engineering — *Sept. 2020 – Mar. 2022 (Expected)*
- GPA: 3.94 / 4.00 | Rank: 1 / 30

CentraleSupélec — Gif-sur-Yvette, France
Master of Engineering (Diplôme d'Ingénieur) — *Sept. 2018 – Jul. 2020*
- GPA: 4.0 / 4.3

Zhejiang University — Hangzhou, China
Bachelor of Engineering in Electrical Engineering — *Sept. 2016 – Jul. 2020*
- GPA: 3.87 / 4.00

Research Experience

Smart Grid Operation and Optimization Lab, Zhejiang University — Hangzhou, China
Graduate Student — *Sept. 2020 – present*
- Developed a multi-state model to describe the aging process of batteries and quantify the time-varying performance of the battery energy storage system.
- Designed a solution algorithm to calculate the optimal scheduling results of the battery energy storage in its real-time performance range.
- Proposed a reliability assessment method for battery energy storage integrated renewable power systems to avoid over-optimistic reliability estimation.
- Currently working on the optimal structure design of battery modules considering the reliability of battery energy storage to mitigate potential risks in renewable power systems.

Economic Research Institute of State Grid Zhejiang Electric Power Co.,Ltd. — Hangzhou, China
Student Researcher — *Sept. 2020 – Jul. 2022*
- Investigated optimal scheduling strategies of the virtual power plant considering different development stages of the electricity market.
- Reformulated the bi-level operating framework of the virtual power plant as a solvable mathematical programming with equilibrium constraints.
- Wrote MATLAB scripts on optimal scheduling of the virtual power plant, which were deployed in the virtual power plant operation simulation platform of Economic Research Institute of State Grid Zhejiang Electric Power Co.,Ltd.

Publications

Journal Articles

Reliability Assessment of Renewable Power Systems Considering Thermally-Induced Incidents of Large-Scale Battery Energy Storage
Siying Li, Chengjin Ye, Yi Ding, Yonghua Song, Minglei Bao
IEEE Transactions on Power Systems, August 2022

Reliability Modeling and Evaluation of Large Scale Battery Energy Storage Systems Considering Thermal Degradation and Thermal Runaway Propagation
Siying Li, Chengjin Ye, Yi Ding, Minglei Bao, Xunhu Yin, Qiang Gao
Proceedings of the CSEE, March 2022

Electricity Price Risk Assessment Considering Guaranteed Accommodation of Renewable Energy in Electricity Market
Jie He, Ruosong Jin, Wen Zhao, Hengzi Huang **Siying Li**, Maosheng Sang, Yi Ding
Modern Electric Power, September 2021

Resilience-based Restoration Strategy Optimization for Interdependent Gas and Power Networks
Maosheng Sang, Yi Ding, Minglei Bao, **Siying Li**, Chengjin Ye, Youtong Fang
Applied Energy, August 2021

Conference Papers

Review of Typical Incentive Policies and Market Mechanisms for Renewable Energy Accommodation
Jun Liu, Hejun Wu, Xiaoyu Wang, **Siying Li***, Libang Guo, Changjiang Wang
2021 International Conference on Power System Technology (POWERCON), February 2022

Optimal Scheduling Strategies of the Virtual Power Plant Considering Different Development Stages of the Electricity Market
Yunlei Zhang, Kan Yang, Bin Zheng, Guorong Zhu, Dixin Wang, **Siying Li***, Kangxuan Xu, Teng Tu
2021 6th Asia Conference on Power and Electrical Engineering (ACPEE), May 2021

Presentations & Posters

Typical Incentive Policies and Market Mechanisms for Renewable Energy Accommodation
2021 International Conference on Power System Technology, Haikou, China, November 2021

Optimal Scheduling Strategies of the Virtual Power Plant Considering Different Development Stages of the Electricity Market
2021 6th Asia Conference on Power and Electrical Engineering, Chongqing, China, April 2021

Patents

A Reliability Calculation Method for Battery Energy Storage Considering Thermal Runaway Propagation
Under Review

An Energy Consumption Risk Eliminating Method Considering Uncertainty of Renewable Energy
Application No.: CN202110378985.1

Selected Project Experience

Renewable Generation Forecasting Driven by Meteorological Data Nov. 2021 – present
State Grid Zhejiang Electric Power Co.,Ltd. *Hangzhou, China*
- Extracted useful features from meteorological data and historical power generation data.
- Constructed a more accurate monthly forecast model for renewable energy generation in Zhejiang province.

Bidirectional On-Board Charger Design Sept. 2019 – Apr. 2020
CentraleSupélec *Gif-sur-Yvette, France*
- Realized the digital implementation for each part of the charging device.
- Simulated V2G operation of an electric vehicle using the designed bidirectional charger.

Intelligent Vehicle Navigation Control Sept. 2017 – Jan. 2018
Zhejiang University *Hangzhou, China*
- Designed the circuit diagram and control algorithm for automatic path tracking of the vehicle model.
- Wrote Vivado scripts to achieve 100% accurate navigation control on test paths.

Honors & Awards

Award of Honor for Graduate Zhejiang University Dec. 2021
Eiffel Excellence Scholarship French Ministry for Europe and Foreign Affairs 2018-2020
Third-Class Scholarship for Outstanding Students Zhejiang University Dec. 2018
Second-Class Scholarship for Outstanding Students Zhejiang University Dec. 2017

Professional Experience & Activities

Student Member of the Organizing Committee Sept. 2021 – Jan. 2022
2021 International Conference on Power System Technology (POWERCON) *Haikou, China*
Participated in the organization of the 2021 International Conference on Power System Technology

Vice President Sept. 2019 – Jun. 2020
Chinese Club, CentraleSupélec *Gif-sur-Yvette, France*
Participated in the planning and organization of club activities

Skills

Tools and Languages: Matlab/Simulink, C, Python, Vivado, LaTeX
Communication: Chinese (native), English (fluent), French (intermediate)