

Yongheng Wang

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EDUCATION

The University of Hong Kong

September 2024 – Present

Ph.D. Student in Electrical Engineering

Core Courses: *Dynamical Power Networks: Control and Optimization, Dynamical Power Networks: Modeling and Stability, Advanced Topics in Power Electronics and Drives*

Tsinghua University

September 2021 – June 2024

M.Phil. in Electrical Engineering

Core Courses: *Optimization Method in Modern Power Systems, Large-scale Renewable Generation Integration Operation and Control*

South China University of Technology

September 2017 – June 2021

B.E. in Electrical Engineering and Automation

Core Courses: *Power System Analysis, Automatic Control Principles, Power Electronics, Electromagnetic Field, Analog and Digital Electronics, Signals and Systems, Electrical Machinery*

PUBLICATIONS

Journals

- J1 **Y. Wang**, X. Shen, and Y. Xu, “Joint Planning of Active Distribution Network and EV Charging Stations Considering Vehicle-to-Grid Functionality and Reactive Power Support,” **CSEE Journal of Power and Energy Systems**, 2024, Published.
- J2 **Y. Wang** and X. Shen, “Integrated Planning of Multi-Charging Infrastructure and Urban Distribution Networks Based on Smart Transportation Systems,” **Applied Energy**, 2025, Under Review.
- J3 H. Wang, X. Shen, and **Y. Wang**, “Dynamic Reactive Power Optimization Based on Modified Generalized Benders Decomposition,” **IEEE Transactions on Power Systems**, 2025, Under Review.
- J4 C. Wei, **Y. Wang**, and X. Shen, “Synergistic Planning of Photovoltaic Energy Storage-Charging Stations and Hydrogen Refueling Stations Considering Carbon Emission Flows,” **Automation of Electric Power Systems**, 2023, Published (in Chinese).
- J5 W. Zheng, M. Zhong, D. Guo, **Y. Wang**, et al., “Simulation Analysis of Transient Thermal Effect of Ground Wire-Suspension Clamp System Wound by Aluminium Armour Tape,” **Guangdong Electric Power**, 2020, Published (in Chinese).

Conferences

- C1 **Y. Wang** and T. Liu, “Two-Stage Robust Planning of Distribution Networks with Renewable Charging Stations: A Strong Optimization Framework,” **2025 IEEE Power & Energy Society General Meeting (PESGM)**, Under Review.
- C2 G. Liu, **Y. Wang**, et al., “Coordinated Planning of Active Distribution Network and V2G Charging Stations Considering the Load Characteristics of V2G Stations,” **2022 IEEE 6th Conference on Energy Internet and Energy System Integration (EI2)**, Chengdu, China, 2022, Published.
- C3 G. Liu, W. Chen, **Y. Wang**, et al., “Co-Planning of ADN and EV Charging Stations Considering EV Spatial Migration and Sequential Charging Characteristics,” **2023 8th Asia Conference on Power and Electrical Engineering (ACPEE)**, Tianjin, China, 2023, Published.

Patents

- P1 X. Shen, **Y. Wang**, et al., “Method for Joint Planning of Active Distribution Network and V2G Charging Stations,” **Chinese Patent 202310630383.X**, 2023.

- P2 G. Liu, W. Zheng, **Y. Wang**, *et al.*, “Experimental Device for Simulating Different Contact States of Plum Blossom Contacts by Adjusting the Insertion Depth of Static Contacts,” **Chinese Patent ZL201911315956.X**, 2021.
- P3 X. Shen, W. Chen, **Y. Wang**, *et al.*, “Method for Collaborative Planning of New Energy Vehicle Charging Stations Considering Carbon Emission Flow,” **Chinese Patent 202311022600.3**, 2023.
- P4 W. Tang, Y. Zhao, C. Zhong, X. Zhao, X. Shen, **Y. Wang**, *et al.*, “Method for Optimal Location and Sizing of Wind, Solar, and V2G Charging Stations in Distribution Networks Based on Improved Beetle Antennae Search Particle Swarm Algorithm,” **Chinese Patent 35082119900201004.X**, 2022.

RESEARCH EXPERIENCE

Integrated Planning of Multi-Charging Facilities (MTCF) and Urban Distribution Network September 2022 – July 2024

National Natural Science Foundation of China (No. 52007123)

- Performed a comprehensive literature review on EV charging station planning in urban distribution networks.
- Proposed a two-step equivalence relaxation method for MTCF and developed a dynamic traffic network model for autonomous EVs.
- Formulated a stochastic planning model to address EV spatiotemporal uncertainties, analyzing costs across various scenarios, including congested traffic hubs.

Joint Planning of Active Distribution Network (ADN) and EV Charging Stations (EVCS) September 2021 – August 2022

National Natural Science Foundation of China (No. 52007123)

- Established an integrated model for ADN and EVCS considering vehicle-to-grid and reactive power support.
- Decomposed the large-scale MISOCP problem into MILP and MISOCP sub-problems to enhance solution efficiency.
- Modeled distributed generation resources such as energy storage, photovoltaic systems, capacitor banks, static VAR compensators, and on-load tap changers.
- Analyzed reactive power support planning results for EVs and multiple distributed generation resources.

Simulation Analysis of Transient Thermal Effect of Ground Wire-Suspension Clamp System September 2019 – June 2020

National Natural Science Foundation of China (No. 51977083)

- Built a three-dimensional electromagnetic-thermal coupling simulation model for a ground wire-suspension clamp system wrapped with aluminum armor tape.
- Analyzed current density and temperature distribution under power-frequency short-circuit currents.
- Investigated the influence of different bolt torques on the ground wire's peak temperature.

INTERNSHIP EXPERIENCE

Guangzhou Power Supply Bureau of the Southern Power Grid **Customer Service Center**

June 2018 – September 2018

- Collected user feedback from multiple power grid regions, compiled a research report, and coordinated with the maintenance department to ensure timely fault communication and routine maintenance scheduling.

Shenzhen Power Supply Bureau of the Southern Power Grid **Shenzhen Electric Power Research Institute**

April 2022 – December 2022

- Researched EV business models, the Guangdong spot market, and electricity market clearing policies, producing an extensive review.
- Contributed to two technology projects on multi-type user plug-and-play smart terminals and large-scale EV-to-grid interactions.
- Assisted with administrative tasks such as project architecture optimization, document editing, and data collection.

AWARDS

• National Scholarship (Top 2%)	2019 – 2020
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• First Prize Scholarship of Tsinghua University (Top 5%)	2022 – 2023
• Kang Dewei Innovation Scholarship (Top 10%)	2017 – 2018
• Outstanding Graduate of Tsinghua University (Top 2%)	2023 – 2024
• Outstanding Graduation Thesis of Tsinghua University (Top 5%)	2023 – 2024
• Outstanding Graduate of SCUT (Top 5%)	2021 – 2022
• Outstanding Student Leader (Top 5%)	2019 – 2020
• Outstanding Member of Student Union (Top 5%)	2018 – 2019
• Outstanding Intern in Power Grid (Top 5%)	2018 – 2019
• Outstanding Speaker of "Youth Speaks" (Top 10%)	2018 – 2019
• Best Poster Award, International Workshop on Learning and Information Theory (Top 2%)	2023
• Second Prize, 2019 National College Students Mathematical Contest in Modeling, Guangdong Province (Top 20%)	2019
• Third Prize, 12th National College Students Energy Saving and Emission Reduction Contest, Guangdong Province (Top 25%)	2019
• Winner Prize, 13th College Students Industrial Design Contest of Energy Saving and Emission Reduction, SCUT (Top 30%)	2020
• Third Prize, 9th Professional Practice at Tsinghua University (Top 10%)	2024

LEADERSHIP EXPERIENCE

Tsinghua University Student Union Member, Practice Department	March 2022 – December 2022
Tsinghua Shenzhen International Graduate School Monitor, Electrical Engineering Class 21	October 2021 – August 2022
South China University of Technology Student Union Secretary, Department of Manpower and Liaison	May 2018 – July 2019
Student Innovation and Entrepreneurship Club of SCUT Member, Outreach Practice Department	March 2018 – August 2018
Art Group of SCUT Leader, Host Team	July 2017 – June 2019

SKILLS AND INTERESTS

Programming:	Matlab, Python, C++
Software:	Microsoft Office, L ^A T _E X, Photoshop
Languages:	English, Chinese

(Updated in September 2024)