Yongheng Wang

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EDUCATION

Tsinghua University, China July 2021 - Present
Master of Electrical Engineering *GPA: 3.63*
Core Courses: *Optimization Method in Modern Power Systems, Large-scale Renewable Generation Integration Operation and Control, Dynamics of Power Systems, Modern Power Electronics*

South China University of Technology, China July 2017 - June 2021
Bachelor of Electrical Engineering and Automation *GPA: 3.54*
Core Courses: *Analysis of Power System, Principle of Automatic Control, Power Electronics, Circuit Principle, Electromagnetic Field, Analog and Digital Electronics, Signal and System, Electrical Machinery*

PUBLICATIONS

[1] **Y. Wang** and X. Shen, "*Integrated Planning of Multi-Charging Facilities and Urban Distribution Network for Autopilot EVs*", **IEEE Transactions on Smart Grid**, 2023, Under Review, IF=9.6
[2] **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**, 2022, Accepted, IF=7.1
[3] C. Wei, **Y. Wang**, X. Shen and Y. Du, "*Synergistic Planning of photovoltaic Energy Storage-Charging Stations and Hydrogen Refueling Stations Considering Carbon Emission Flows*", **Automation of Electric Power Systems**, 2023, In Chinese, Under Second Review
[4] G. Liu, **Y. Wang**, S. Tang, W. Chen, X. Shen and L. Wang, "*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
[5] G. Liu, W. Chen, **Y. Wang**, S. Tang, X. Shen and L. Wang, "*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
[6] W. Zheng, M. Zhong, D. Guo, **Y. Wang**, P. Jiang, and G. Liu, "*Simulation Analysis of Transient Thermal Efect of Ground Wire-suspension Clamp System Wound by Aluminium Armour Tape*", **Guangdong Electric Power**, 2020, In Chinese, Published

RESEARCH EXPERIENCE

Integrated Planning of Multi-Charging Facilities (MTCF) and Urban Distribution Network September 2022 - Present
National Natural Science Foundation of China (52007123)
· Carried out literature review on *EV charging stations* planning in urban distribution network.
· Proposed a *two-step equivalence relaxation approach* for MTCF.
· Proposed a *dynamic traffic network model* for autopilot EVs.
· Proposed a *stochastic planning* model for urban distribution network based on *spatio-temporal uncertainty* of EVs.
· Calculated and compared the *costs of results* in different case setting and anticipated *congested traffic hubs*.
· Wrote and submitted a *Journal Paper*.
· Conduct research on other advanced methods for addressing multiple uncertainties. (In progress).

Joint Planning of Active Distribution Network (ADN) and EV Charging Stations (EVCS) September 2021 - August 2022
National Natural Science Foundation of China (52007123)
· Constructed a *comprehensive model* for ADN and EVCS considering *vehicle-to-grid* and *reactive power support*.
· Reconstructed large-scale planning problem using *sequential decomposition method*, based on the *weak coupling property*.

- Transformed the *holistic problem* (large-scale MISOCP) into two *sub-problems* (MILP and MISOCP), to improve solution efficiency.
- Modelled multiple *distributed generation resources* (DGRs), including energy storage systems, photovoltaic, capacitor banks, static var compensation, and on-load tap changer.
- Analyzed the planning results of *reactive power support of EVs* and *multiple DGRs* in detail.
- Wrote and submitted a *Journal Paper*.
- Wrote and submitted a *patent* entitled "A Collaborative Planning Method for Active Distribution Grids Integrated with V2G Charging Stations".

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

National Natural Science Foundation of China (51977083)

- Build three-dimensional *electromagnetic thermal coupling simulation model* of ground wire-suspension clamp system wound by aluminium armour tape.
- Calculated and analyzed the *current density distribution* and *temperature distribution* of the ground wire-suspension clamp system under the action of power frequency short-circuit current.
- Analyzed the effects of different *bolt torques* on the temperature of heating bottleneck point of the ground wire.

PROJECT EXPERIENCE

Research for the Interaction Between Large-scale EVs and Power Grids September 2021 - Present

China Southern Power Grid Technology Fund (090000KK52210132)

- **Main Works:** *Draft* research proposal, feasibility report, technical guidelines and bid document; *Analyze* the real data of different types of EVs and *propose* a comprehensive planning model; *Report* regularly at monthly meetings.
- **Contributions:** Submitted two *conference papers* and a *patent* entitled "Improved Particle Swarm Optimization Based on Longhorn Beetle for Optimal Siting and Sizing of Wind-Solar Integrated Distribution Grid and V2G Charging Stations".

PROFESSIONAL EXPERIENCE

Guangzhou Power Supply Bureau of the Southern Power Grid June 2018 - September 2018

Customer Service Center

- Collected feedback from electricity users in different regions of the power grid and composed a research report.
- Coordinated with the maintenance department to promptly communicate information about faulty power lines and schedule regular maintenance.

Shenzhen Power Supply Bureau of Southern Power Grid April 2022 - December 2022

Shenzhen Electric Power Research Institute

- Researched the business models of EVs, the spot market in Guangdong Province, and the electricity market clearance policies, and wrote a comprehensive review.
- Participated in two scientific and technological projects: "Development of Multi-type User Plug-and-Play Smart Interactive Terminals" and "Research and Demonstration of Key Technologies for Large-scale EVs and Grid Interaction". Assisted with conducting research and organizing literature materials.
- Assisted the department with administrative tasks such as modifying demonstration project architecture diagrams, filling in document information, and collecting data.

CONTEST EXPERIENCE

- **Second Prize** of 2019 National College Students Mathematical Contest in Modeling in Guangdong Province (Top 20%) April 2019
- **Third Prize** of 12th National College Students Energy Saving and Emission Reduction Contest in Guangdong Province (Top 25%) August 2019
- **Winner Prize** of 13th College Students Industrial Design Contest of Energy Saving and Emission Reduction in South China University of Technology (Top 30%) May 2020

AWARDS

- **National Scholarship** (Top 2%) 2019 - 2020
- **National Inspirational Scholarship** (Top 5%) 2018 - 2019
- **Kang Dewei Innovation Scholarship** (Top 10%) 2017 - 2018
- **Outstanding Student Leader** (Top 5%) 2019 - 2020
- **Outstanding Member of Student Union** (Top 5%) 2018 - 2019
- **Outstanding Graduate of SCUT** (Top 5%) 2021 - 2022
- **Outstanding Intern in Power Grid** (Top 5%) 2018 - 2019
- **Outstanding Speaker of "Youth Speaks"** (Top 10%) 2018 - 2019
- **Best Poster Award** of International Workshop on Learning and Information Theory (Top 2%) 2023

LEADERSHIP EXPERIENCE

Tsinghua University Student Union
Member, Practice Department March 2022 - December 2022
Tsinghua Shenzhen International Graduate School
Monitor, Electrical Engineering Class 21 Octomber 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, Latex, Photoshop
Language: English, Chinese (native)
Hobbies: Exercise, Reading, Watching movies

REFERENCE

Prof. Wenhu Tang, IET Fellow, IEEE Senior Member
South China University of Technology
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Associate Prof. Libao Shi, IEEE Senior Member
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Assistant Prof. Xinwei Shen, IEEE Senior Member
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518000, Guangdong, China
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DECLARATION

I hereby declare that all the details furnished above are true to the best of my knowledge and belief.