

Ziang Liu

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EDUCATION

Tsinghua University, China

Master of Electrical Engineering

July 2022 - Present

GPA: 3.81

Core Courses: *Large Network Steady-State Analysis, Power Systems and Market Operations, Optimization methods for power systems, Learning from Data*

Tsinghua University, China

Bachelor of Electrical Engineering and Automation

July 2018 - June 2022

GPA: 3.47

Core Courses: *Power System Analysis, Power Electronics, Automatic Control Theory, Principle of Circuits, Analog and Digital Electronics, Electric Machinery Fundamentals, Electromagnetic Fields, Fundamentals of Analog Electronics, Digital Electronics, Signals and Systems*

PUBLICATIONS

[J1] **Z. Liu**, Q. Wu, X. Shen, J. Tan, X. Zhang, “*Post-disaster Robust Restoration Scheme for Distribution Network Considering Rerouting Process of Cyber System with 5G*”, **IEEE Transactions on Smart Grid (TSG)**, 2023, Accepted, IF=9.6

[C1] **Z. Liu**, S. Cai, Q. Wu, X. Shen, X. Zhang, Nikos Hatziaargyriou, “*Dynamic Microgrid Formation Considering Time-dependent Contingency: A Distributionally Robust Approach*”, **2024 IEEE Power Energy Society General Meeting (PESGM)**, Seattle, USA, 2024, Accepted

[C2] X. Tian, S. Chen, H. Rao, **Z. Liu**, X. Shen, “*Two-stage Day-ahead and Intra-day Peak Shaving Strategy Considering Flexible Loads Resources*”, **2023 IEEE 7th Conference on Energy Internet and Energy System Integration (EI2)**, Hangzhou, China, 2023, Published (The first student author)

[C3] L. Zhang, H. Rao, S. Chen, W. Zheng, X. Shen, **Z. Liu**, “*A Flexibility Assessment Method for Active Distribution System considering Time-Coupling Constraints*”, **2023 IEEE 7th Conference on Energy Internet and Energy System Integration (EI2)**, Hangzhou, China, 2023, Published (The second student author)

[P1] W. Wu, H. Sun, B. Wang, L. Guo, **Z. Liu**, et al, “*Online Voltage Control Method For Coordinating Multi-type Reactive Power Resources*”, **Chinese Patent 202110550498.9**, 2021, Published

RECENT RESEARCH EXPERIENCE

Post-disaster Robust Restoration Scheme for Distribution Network Considering Rerouting Process of Cyber System with 5G

June 2023 - March 2024

the Shenzhen Science and Technology Innovation Commission through the project “Research on Optimization Theory and Strategies for Load Restoration of Resilient Distribution Networks”(JCYJ20220530143010024)

- Carried out a literature review on *restoration, cyber-physical coupling* in the active distribution network.
- Proposed a *reroute process* for cyber systems with 5G.
- Proposed a *post-disaster restoration scheme* for the cyber-physical active distribution system.
- Formulated a *two-stage robust* model for considering *uncertainty* of DERs.
- Calculated and compared the *load recovery amount* in different case settings.
- Wrote and submitted a *Journal Paper (IEEE Transactions on Smart Grid)*.

Dynamic Microgrid Formation Considering Time-dependent Contingency: A Distributionally Robust Approach

September 2023 - November 2023

the Shenzhen Science and Technology Innovation Commission through the project “Research on Optimization Theory and Strategies for Load Restoration of Resilient Distribution Networks”(JCYJ20220530143010024)

- Proposed a *distributionally robust dynamic microgrid formation* method for ADN.
- Considered temporal characteristics of line failure probability during long-duration extreme weather events.
- Transformed the *intractable distributionally robust model* into *tractable two-stage robust model*, to improve solution efficiency.
- Analyzed the microgrid formation results of *DR-DMF* and compared with other methods.

- Wrote and submitted a *Conference Paper (PES General Meeting)* .

PROJECT & WORK EXPERIENCE

the Coordinated Consumption, Control and Oscillation Risk Prevention of Power Grid with High Penetration of Renewable Energy Project

September 2022 - Present

Guizhou Power Grid Co. Ltd.(GZKJXM20220060)

- **Main Works:** *Draft* research proposal, feasibility report, technical guidelines and bid document; *Analyze* the existing AGC system in China and *propose* a comprehensive operation model; *Report* regularly at monthly meetings.
- **Contributions:** Submitted two *conference papers* and two *patents*; Wrote two formal reports.

Course “*Advanced Power Network Analysis*”

September 2023 - January 2024

Teaching Assistant

- **Main Works:** Prepare slides, assign homework and grading, upload the answer and codes in Github, Q&A, design the final exam, grading the exam, help grading the final term project
- **Top 5% Rating TA of the semester**

SKILLS AND INTERESTS

Programming:	Matlab, Python, C++
Software:	Microsoft Office, Latex, Photoshop, Premiere
Language:	English, Chinese (native)
Hobbies:	Exercise, TV Series, Basketball

REFERENCE

Associate Prof. Qiuwei Wu, IEEE Senior Member

Tsinghua University

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Assistant Prof. Xinwei Shen, IEEE Senior Member

Tsinghua University

E-mail: sxw.tbsi@sz.tsinghua.edu.cn