

# Junjie Yin

+1 (865) 307-5696 | [yin@utk.edu](mailto:yin@utk.edu) | <http://eejyin.github.io>  
1520 Middle Drive, Knoxville, TN 37996

## Education

### University of Tennessee (UTK)

PhD in Electrical Engineering

Knoxville, TN, US

Aug. 2023 - Jun. 2029

### Southeast University (SEU)

MS in Electrical Engineering, GPA: 3.79/4.0 (Top 5%)

Nanjing, Jiangsu, CN

Sep. 2020 - Jun. 2023

### North China Electrical Power University (NCEPU)

BS in Electrical Engineering, GPA: 3.73/4.0 (Top 1%)

Beijing, Beijing, CN

Sep. 2016 - Jun. 2020

## Technical Skills

### Programming

Matlab, C, Python

### Professional Softwares

Simulink, PLECS, Mathcad, PSCAD, RT-Box, Multisim, CVX, IBM Cplex, Yalmip

### Drawing & Typesetting

Photoshop, Illustrator, SketchUp, Office, L<sup>A</sup>T<sub>E</sub>X, Beamer

### Languages

Mandarin (Native), English (TOEFL 100: R30, L26, S22, W22; GRE: V155 + Q169 + AW3.0)

## Representative Publications

### Journal Papers:

- [1] **J. Yin**, J. Wang, J. You, et al. "Integrated Energy System Optimal Operation in Coal District with Hydrogen Heavy Trucks," *Frontiers in Energy Research*, vol. 9, pp. 748673, 2021. DOI: 10.3389/fenrg.2021.748673. (SCI, IF: 4.008)
- [2] J. Wang, **J. Yin**, X. Jin. "Improved Reactive Loop-Based Sequence Impedance Model and Stability Analysis of VSG Inverters with Coupling Frequency," *IEEE Transactions on Power Electronics*, 2022. (Submitted)
- [3] B. Kong, J. Zhu, S. Wang, X. Xu, X. Jin, **J. Yin**, J. Wang. "Comparative Study of the Transmission Capacity of Grid Forming Converters and Grid Following Converters," *Energy Reports*, 2022. (SCI, IF:4.937, Accepted on Oct. 2022)
- [4] H. Lu, Z. Zhuang, L. Chen, W. Zhang, **J. Yin**, J. Wang. "Optimal Scheduling of Multi-energy Flow of CCHP Based on Matrix Modeling of Energy Hub," *Machine Building & Automation*, vol. 5, pp. 90-96, 2022. DOI: 10.19344/j.cnki.issn1671-5276.2022.05.055 (In Chinese)

### Conference Papers:

- [1] W. Zhang, W. Xu, Y. Hu, **J. Yin**. "Multi Energy Flow Optimal Scheduling Model of Compressed Air Energy Storage Based on Matrix Modeling of Energy Hub," *Proceedings of 2022 The 4th International Conference on Power and Energy Technology (ICPET 2022)*, pp. 789-794, Xining, China, Jul. 2022. DOI: 10.1109/ICPET55165.2022.9918430.
- [2] S. Jiang, Y. Wang, D. Wang, **J. Yin\***, H. Yan, J. Wang. "Reliability Assessment of Distribution Network Considering Differentiated End-Users Demand for Reliability," *Proceedings of 2020 International Conference on Smart Grid and Energy Engineering (SGEE 2020)*, pp. 12026-12032, Guilin, China, Nov. 2020. DOI: 10.1088/1755-1315/645/1/012026.

### Patents:

- [1] **J. Yin**, J. Wang, N. Wang, et al. "A User-Oriented Calculation Method of Distribution Network Reliability Evaluation Index." China Patent No. 2022108630263. 23 Jul. 2022.
- [2] J. Wang, **J. Yin**, H. Yan. "Method for Weight Formulating of the Evaluation Index of Distribution Network Reliability." China Patent No. 2022100109403. 06 Jan. 2022.
- [3] J. Wang, **J. Yin**, X. Li. "A Modeling Method of Converter Sequence Impedance in Rectifier-Inverter Mode." China Patent No. 2021112230502. 20 Oct. 2021.

### Thesis:

- [1] **J. Yin**. "Research on Transient Stability of Grid-connected Converter," Master Thesis, Southeast University, Nanjing, June 2023.
- [2] **J. Yin**. "Research on Multi-energy Flow Interactive Coupling Characteristics and Optimal Scheduling of Integrated Energy System," Bachelor Thesis, North China Electrical Power University, Beijing, June 2020.

## Research Projects

### Research on Active and Rapid Support Technology of Transient Frequency and Voltage for Photovoltaic/Wind Farm Stations

Beijing, Beijing, CN

Topic Investigator

Dec. 2021 - Nov. 2025

- Funded by National Key Research and Development Program of China (No. 2021YFB2400500)
- Studied the difference and integration between Grid-Forming (GFM) and Grid-Following (GFL) converters
- Conducted qualitative and quantitative analysis of transient stability, by Equal area criterion (EAC) and Lyapunov function
- Proposed Virtual Synchronous Generator (VSG)-based converters stabilization methods
- Verified by Hardware-in-the-Loop (HIL) experiment, utilizing the RT-Box and PLECS

## Research on Distribution Network Planning and Power Supply Restoration Technology Facing the Reliability Needs of End Users

Tianjin, Tianjin, CN

Topic Investigator

Jan. 2020 - Dec. 2021

- Funded by State Grid Corporation Headquarters Technology Project (No. 5400-202012118A-0-0-00)
- Proposed innovatively the distributed network reliability evaluation index based on the value engineering theory
- Established a comprehensive reliability evaluation index system considering the number of users and power supply capacity
- Calculated the reliability evaluation index weight based on Analytic hierarchy process (AHP)-Entropy weight method (EWM)

## Research on Friendly Grid-Supporting and Online Evaluation Technology of New Energy for Bilateral Service Between Plant and Grid

Yangzhou, Jiangsu, CN

Project Investigator

Jun. 2021 - Dec. 2022

- Funded by Jiangsu Power Grid Corporation Scientific Research Project (No. J2021012)
- Studied Kmeans-based PV generation units clustering and characteristics extraction technology
- Constructed the fault self-diagnosis evaluation system of PV, aiming to accurately locate the fault panel
- Proposed the VSG-based inertia evaluation and scheduling method for PV system to realize the friendly interaction

## Research on Interaction and Coupling Characteristics of Multi-energy Flow in Integrated Energy System

Changzhou, Jiangsu, CN

Project Investigator

Sep. 2019 - Dec. 2020

- Funded by Jiangsu Power Grid Corporation Scientific Research Project (No. J2019082)
- Studied the various characteristics of multi-energy flows on different spatio-temporal scales
- Established a matrix modeling of energy hub to portray the conversion relationships between multi-energy flows
- Proposed power-to-gas (P2G) optimized scheduling model of IES based on second-order cone programming (SOCP)
- Verified the feasibility, economy, low carbon, and effectiveness of the proposed mechanism by MATLAB/CPLEX

## Awards and Honors

Oct. 2020-2022	<b>Scholarship:</b> “Graduate Scholarship of SEU” (3 Times), “Graduate Scholarship of NR Electric Co., Ltd”	Nanjing
Nov. 2020	<b>Contest:</b> Second Prize of China in “National Post-Graduate Mathematical Contest in Modeling”	Shanghai
Jun. 2020	<b>Honorary Title:</b> “Merit Graduate of Beijing”	Beijing
Nov. 2019	<b>Contest:</b> First Prize of Beijing in “Contemporary Undergraduate Mathematical Contest in Modeling”	Beijing
Oct. 2017-2019	<b>Scholarship:</b> “Undergraduate Scholarship” (3 Times), “Scholarship of Beijing Banner Electric Co., Ltd”	Beijing
Sep. 2017-2019	<b>Honorary Title:</b> “Outstanding Student Leaders” (2 Times), “Distinction Student”	Beijing

## Volunteer Services

### IEEE Transactions on Industry Applications, IEEE ACCESS

ScholarOne Website

Peer Reviewer

Oct. 2020 - Present

- Reviewed 2 manuscripts submitted to IEEE Transactions on Industry Applications
- Reviewed 21 manuscripts submitted to IEEE Access
- Assisted the advisor in reviewing several journals

### International Academic Conferences

Several Cities

Presentation / Attendance

Oct. 2019 - Present

- IEEE 5th International Electrical and Energy Conference (CIEEC 2022), Nanjing, May. 2022
- The 5th IEEE Conference on Energy Internet and Energy System Integration (EI<sup>2</sup> 2021), Taiyuan, Oct. 2021
- International Conference on Smart Grid and Energy Engineering (SGEE 2020), Guilin, Nov. 2020
- 2019 Annual Meeting of Chinese Society for Electrical Engineering (CSEE Annual 2019), Beijing, Nov. 2019

### Frontiers Journals, Higher Education Press

Beijing, Beijing, CN

Publicist

May. 2022 - Aug. 2022

- Promoted the public acknowledgment of “Frontiers Journals”, an English academic journal series launched by Higher Education Press (HEP), through posters, online forums, and meetings with scholars

### Huizhou Electric Power Co., Ltd, China Southern Power Grid

Huizhou, Guangdong, CN

Intern

Jul. 2019 - Aug. 2019

- Experienced the workflow of dispatch centers, substations and other departments on the spot
- Participated in actual process of power generation, transmission, distribution, and consumption

### North China Electric Power University

Beijing, Beijing, CN

Student Leader

Feb. 2016 - Jun. 2020

- Received and dispatched messages/materials, and allocated tasks detailedly in School of Electrical and Electronic Engineering
- Held responsible for elections, proposals, candidate reviews, and the annual Congress, serving as a member of Student Committee