

# Cong Bai

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## Education

**Chongqing University (CQU)**

**M.Eng** in Electrical Engineering

GPA: 3.58/4.0 (86.5/100)

Chongqing, China

Sep. 2020 - Jun. 2023

**Kunming University of Science and Technology (KUST)**

**B.Eng** in Electrical Engineering and Its Automation

GPA: 3.86/4.0 (96.5/100), Rank: 2/34

Kunming, China

Sep. 2016 - Jun. 2020

## Publications

- [1] **Cong Bai**, Qiang Li\*, Xinze Zheng, et al. "Dynamic Weighted-Gradient Descent Method with Smoothing Momentum for Distributed Energy Management of Multi-Microgrids Systems," *IEEE Transactions on Smart Grid*. (Early Access)
- [2] **Cong Bai**, Qiang Li\*, Weihao Zhou, et al. "Fast Distributed Gradient Descent Method for Economic Dispatch of Microgrids via Upper Bounds of Second Derivatives," *Energy Reports*, 8:1051-1060, 2022.
- [3] **Cong Bai**, Qiang Li\*, Weihao Zhou, et al. "Weighted Matrix based Distributed Optimization Method for Economic Dispatch of Microgrids via Multi-step Gradient Descent," *Energy Reports*, 8:177-187, 2022.
- [4] Shujun Zhang, Xiao Qiao, **Cong Bai**, et al. "Optimal Configuration Method of Energy Storage System Oriented to Multi-application Scenarios," *Zhejiang Electric Power*, 5:22-31, 2022.
- [5] Xinze Zheng, Qiang Li, **Cong Bai**, et al. "Energy Trading Management Based on Stackelberg Game Theory to Increase Independence of Microgrids," *Energy Reports*, 8:771-779, 2022.

## Research Experience

**Research on reliable operation of rural microgrids based on multiple data sources**

Chongqing, China

China Southern Power Grid (No.035300KK52210006)

Feb. 2022 - Present

- Studying optimal configuration methods of PMU in rural microgrids.
- Studying completely distributed optimization methods for the economic dispatch of rural microgrids.

**Research on multi-functional optimization design and operation technology of grid-side energy storage power station for multi-application scenarios**

Chongqing, China

State Grid Zhejiang Electric Power Corporation (No.5211DS19002F)

Sep. 2020 - Nov. 2021

- Built a life-cycle levelized cost evaluation model of energy storage system (ESS).
- Developed a static and dynamic combined method to generate wind-solar-load power scenario in active distribution network.
- Developed a bi-level optimization design method of ESS considering cycle life attenuation.
- Built a multi-application scenarios combination optimization model of ESS.

**Research on engineering application of black start of island microgrid with heavy load**

Chongqing, China

State Grid Zhejiang Electric Power Corporation (No.5211WZ18007G)

Sep. 2020 - Jan. 2021

- Built transient and steady state operating models of typical loads of island microgrid.
- Developed a region division method for fast black start recovery of island microgrid based on k-means clustering method.

## Teaching and Service Experience

## Teaching Assistant

Course: Signals and Systems

Chongqing University, China

2021 Spring

- Gave lectures to 30 junior-level undergraduates.
- Graded assignments and exams.

## Undergraduate thesis advisor

Chongqing, China

Research field: Control of microgrids, economic dispatch, and distributed optimization method

2021 and 2022

- Guided undergraduate students in distributed algorithm designing, simulink model constructing, programming, and thesis writing.

## Technical Skills

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**Programming** Matlab, C, Python

**Professional Softwares** Yalmip, Matpower, Simulink, RT-LAB

**Drawing and Typesetting** Origin, AutoCAD, Office, L<sup>A</sup>T<sub>E</sub>X

**Languages** English(Good User, IELTS 7.0: L7.0, R8.5, W6.0, S6.0), Chinese(Native proficiency)

## Honors & Awards

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### Competitions

<b>Third Prize</b> , “Huawei Cup” The 18th China Post-Graduate Mathematical Contest in Modeling	2021
<b>First Prize</b> , 2019 Asia and Pacific Mathematical Contest in Modeling	2019
<b>Third Prize</b> , The 2nd “China Southern Power Grid” Conservation and Emission Reduction Competition	2019
<b>Second Prize (Division of Yunnan)</b> , Contemporary Undergraduate Mathematical Contest in Modeling	2018

### Scholarships and Others

<b>Best Presentation</b> , The 5th International Conference on Renewable Energy and Environment Engineering	2022
<b>Best Oral Presentation</b> , The 5th International Conference on Electrical Engineering and Green Energy	2022
<b>First-Class Scholarship</b> , Chongqing University	2021
<b>Outstanding Graduate</b> , Department of Education of Yunnan Province	2020
<b>National Scholarship</b> , Ministry of Education of the People’s Republic of China	2017
<b>First-Class Scholarship</b> , Kunming University of Science and Technology	2017

## References

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- Prof. Qiang Li (Advisor)  
Ph.D. , Associate Professor, at School of Electrical engineering, Chongqing University, Chongqing, China  
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- Prof. Minyou Chen (Co-Advisor)  
Ph.D. , Professor, at School of Electrical engineering, Chongqing University, Chongqing, China  
✉ minyouchen@cqu.edu.cn
- Prof. Li Zhang (Teacher)  
Ph.D. , Associate Professor, at School of Electrical engineering, Chongqing University, Chongqing, China  
✉ zldy02@cqu.edu.cn