

Cong Bai

2520 Osborn Drive, Ames, IA, 50011, United States

☎ (+1) 515-388-0699 | ✉ congbai@iastate.edu | 🏠 cong-97.github.io/ | 💻 congbai | 📄 0000-0002-5312-6008 | 🎓 Cong Bai

Education

Iowa State University (ISU)

GRADUATE STUDENT IN ELECTRICAL ENGINEERING

GPA:

Ames, United States

Sep. 2023 - Present

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*, 14(6):4152-4168, 2023.
- [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

Programming

Matlab, C, Python

Professional Softwares

Yalmip, Matpower, Simulink, RT-LAB

Drawing and Typesetting

Origin, AutoCAD, Office, L^AT_EX

Languages

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

Honors & Awards

COMPETITIONS

Third Prize, “Huawei Cup” The 18th China Post-Graduate Mathematical Contest in Modeling 2021

First Prize, 2019 Asia and Pacific Mathematical Contest in Modeling 2019

Third Prize, The 2nd “China Southern Power Grid” Conservation and Emission Reduction Competition 2019

Second Prize (Division of Yunnan), Contemporary Undergraduate Mathematical Contest in Modeling 2018

SCHOLARSHIPS AND OTHERS

Best Presentation, The 5th International Conference on Renewable Energy and Environment Engineering 2022

Best Oral Presentation, The 5th International Conference on Electrical Engineering and Green Energy 2022

First-Class Scholarship, Chongqing University 2021

Outstanding Graduate, Department of Education of Yunnan Province 2020

National Scholarship, Ministry of Education of the People’s Republic of China 2017

First-Class Scholarship, Kunming University of Science and Technology 2017

References

- Prof. Zhaoyu Wang (Advisor)
Ph.D. , Associate Professor, at Department of Electrical and computer engineering, Iowa State University, Ames, United States
☎ (+1)515-294-6305 ✉ wzy@iastate.edu