

HONGYI LI

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EDUCATION

University of Macau, Macau, China Sept. 2020 - present

- Ph.D. in Electrical Engineering, in State Key Laboratory of Internet of Things for Smart City.
- Admitted by University of Macau '1+3' PhD program with Imperial College London.
- Supervisor: Prof. Hongcai Zhang.

Imperial College London, London, UK Oct. 2020 - Oct. 2021

- M.Sc. with Distinction in Future Power Networks, in Department of Electrical and Electronic Engineering.
- Awardee of M.Sc. Future Power Networks Outstanding Achievement Prize, with straight A's.

Huazhong University of Science and Technology, Wuhan, China Sept. 2016 - Jun. 2020

- B.Eng. in Electrical Engineering and Automation, in School of Electrical and Electronic Engineering.
- Awardee of Bachelor's Honors Degree (Top 1%, 4 out of 380), with a GPA of 3.91/4.0.
- Awardee of Outstanding Graduate of Huazhong University of Science and Technology.

RESEARCH INTEREST

- Consensus-based optimization algorithms and its acceleration;
- Blockchain-assisted distributed optimization methods;
- Optimal coordination of heterogeneous distributed energy resources in microgrid;
- Trusted operation and control framework for virtual power plants

RESEARCH EXPERIENCE

Consensus-based Energy Management of Microgrid with Random Packet Drops

- In this paper, we theoretically analyze the failure of conventional consensus-based energy management algorithms with random packet drops. We propose a novel consensus-based algorithm with running-sums, and theoretically prove the optimality of the solution and the convergence of the algorithm.
- Accepted for publication in IEEE Transactions on Smart Grid, DOI: [10.1109/TSG.2023.3241653](https://doi.org/10.1109/TSG.2023.3241653).

Decentralized Energy Management of Microgrid Based on Blockchain-Empowered Consensus Algorithm with Collusion Prevention

- In this paper, we propose a blockchain-empowered microgrid energy management framework and a consensus-based energy management algorithm over random communication topology, to enable trusted coordination among agents and prevent collusion between malicious agents.
- Under second round review for publication in IEEE Transactions on Sustainable Energy.

Impact of COVID-19 on Urban Energy Consumption of Commercial Tourism City

- In this paper, we study the impact of the COVID-19 pandemic on the energy sector in commercial tourism cities. We analyze the impact of COVID-19 pandemic on Macau's overall energy consumption and different fields. A detailed comparison with the energy characteristics of different countries is also presented.
- Published in Sustainable Cities and Society, DOI: [10.1016/j.scs.2021.103133](https://doi.org/10.1016/j.scs.2021.103133).

Distributed, Consensus-based Coordination of Demand Response

- In my master thesis, we study the local flexibility transaction in the distribution network level, using both centralized method and distributed consensus-based method.

Consensus-based Distributed Control for Energy Storage Devices in Isolated Microgrid

- In my bachelor thesis, we study the consensus-based distributed control of energy storage devices in the microgrid. We also validate the algorithm's ability to operate under communication delay and small scale failure.
- Awardee of Outstanding Undergraduate Thesis.

Online Monitor Device for Insulation of Distribution Cable

- In this project, we study the detection of leakage current in μA -level in the context of A -level working current.
- We won the first prize in "Challenge Cup" National Undergraduate Extra-Curricular Academic Science and Technology Works.

HONORS AND AWARDS

M.Sc. Future Power Networks Outstanding Achievement Prize, Imperial College London,	2021
Outstanding Graduates of Huazhong University of Science and Technology,	2020
Bachelor's Honors Degree in School of Electrical and Electronic Engineering,	2020
First prize, Challenge Cup National Undergraduate Extra-Curricular Academic Science and Technology Works,	2019
Outstanding Individual in University Students Innovation and Entrepreneurship Project,	2018, 2019
Outstanding Cadres of Communist Youth League of Huazhong University of Science and Technology,	2018, 2019
Outstanding Student Cadres of Huazhong University of Science and Technology,	2018

LEADERSHIP EXPERIENCE

Organization Department of the Committee of Huazhong University of Science and Technology	
• Student assistant	2019-2020
School of Electrical and Electronic Engineering in Huazhong University of Science and Technology	
• Class monitor	2017-2020
School of Electrical and Electronic Engineering in Huazhong University of Science and Technology	
• Leader of the student assistant team in Experiment Teaching Center	2018-2020