

Pengcheng You

📍 Room 1003, Wangkezhen Building, Peking University,
5 Yiheyuan Rd, Haidian District, Beijing, China, 100871
🌐 <https://pengcheng-you.github.io/desires-lab/>
✉ pcyou@pku.edu.cn ☎ +86 (10) 6276 8229

EDUCATION

Zhejiang University

Ph.D., Control Science and Engineering

Hangzhou, China

Sep. 2013-Jun. 2018

Zhejiang University

B.S. with honors, Electrical Engineering

Hangzhou, China

Sep. 2009-Jun. 2013

PRIMARY APPOINTMENTS

Peking University

Assistant Professor in Dept. of Industrial Engineering and Management

Beijing, China

Feb. 2022-Present

Johns Hopkins University

Lecturer in Engineering for Professionals Program

Baltimore, MD, US

Aug. 2021-Dec. 2021

Johns Hopkins University

Postdoctoral Fellow in Depts. of ME and ECE

Baltimore, MD, US

Oct. 2018-Dec. 2021

Pacific Northwest National Laboratory

Research Intern in Data Sciences and Analytics Group

Richland, WA, US

Oct. 2017-Jan. 2018

California Institute of Technology

Visiting Graduate Student in Dept. of Computing and Mathematical Sciences

Pasadena, CA, US

Oct. 2016-Oct. 2017

AWARDS

- ACM e-Energy Student Travel Grant (10 awardees) 2018
- Sifang Scholarship, Zhejiang University 2017, 2016
- Outstanding Graduate Student, Zhejiang University 2017, 2016, 2015
- Chu Kochen Honors Bachelor Degree, Zhejiang University (~5% of graduates) 2013
- Excellent Student Scholarship, Chu Kochen Honors College, Zhejiang University 2012, 2010

TEACHING

Instructor

- Optimization in Operations Research *Peking University, Spring 2023*
- Foundations of Reinforcement Learning *Peking University, Fall 2022*
- Foundations of Reinforcement Learning *Johns Hopkins University, Fall 2021*

Teaching assistant

- Energy System Analysis *Johns Hopkins University, Spring 2021*
- Analytical Methods for Network Congestion Control *Zhejiang University, Summer 2016*
- Power Systems Analysis *Zhejiang University, Summer 2015*
- Linear Systems Analysis *Zhejiang University, Fall 2013*

PROJECTS

Grants awarded.....

1. **Huawei Cloud Research Project:** *Modeling, Simulation, Evaluation, and Causal Analysis of Resource Management Platform for Huawei Public Cloud IaaS Service*, 2022-2023
2. **NSFC (72201007):** *Digital Twin Driven Management for Electric Vehicle Charging: Evaluation and Realization of Its Economic Values*, 2023-2025
3. **PKU Emerging Engineering Interdisciplinary Project:** *Incentive Analysis for Coupled Participation in Electricity and Carbon Markets*, 2022
4. **PKU College of Engineering Startup Fund:** *Data-Driven Modeling, Analysis and Design for Electricity Markets*, 2022-2024

Grants as main contributor.....

1. **NSF CPS Medium (2136324):** *Enabling DER Integration via Redesign of Information Flows*, 2021-2024
2. **NSFC (61973163):** *Countermeasures for Deception Attack on Networked Control Systems*, 2020-2023
3. **JHU Discovery Award:** *A Data-Driven Approach to Electricity Market Design*, 2019-2021
4. **NSF (1711188):** *An Optimization Decomposition Framework for Principled Multi-Timescale Market Design and Co-Optimization*, 2017-2020
5. **DOE (DE-EE0008006):** *Robust and resilient coordination of feeders with uncertain distributed energy resources: from real-time control to long-term planning*, 2017-2020

FULL PUBLICATIONS

(Underlined include students or postdocs advised.)

Preprints.....

1. P. You, M. A. Fernandez, D. F. Gayme, and E. Mallada. **The Role of Strategic Participants in Two-Stage Settlement Electricity Markets.**
2. P. You, Y. Jiang, E. Yeung, D. F. Gayme, and E. Mallada. **On the Stability, Economic Efficiency and Incentive Compatibility of Electricity Market Dynamics.**

Book chapters.....

1. P. You. **Scheduling of EV Battery Swapping in Microgrid.** Book chapter in *Distributed Control Methods and Cyber Security Issues in Microgrids* (Editors: X. Wang, W. Meng, S. Liu; ISBN: 978-0-12-816946-9), pp. 203-241, Elsevier Academic Press, 2020

Journals.....

1. R. K. Bansal, P. You, D. F. Gayme, and E. Mallada. **A Market Mechanism for Truthful Bidding with Energy Storage.** *Electric Power Systems Research*, vol. 211, 108284, Oct. 2022
2. R. Pates, A. Ferragut, E. Pivo, P. You, F. Paganini, and E. Mallada. **Respect the Unstable: Delays and Saturation in Contact Tracing for Disease Control.** *SIAM Journal on Control and Optimization*, vol. 60, no. 2, pp. S196-S220, Mar. 2022
3. J. Sun, S. Chen, P. You, Q. Yang, and Z. Yang. **Battery-Assisted Online Operation of Distributed Data Centers with Uncertain Workload and Electricity Prices.** *IEEE Transactions on Cloud Computing*, accepted
4. M. Almassalkhi, *et al.* **Hierarchical, Grid-Aware, and Economically Optimal Coordination of Distributed Energy Resources in Realistic Distribution Systems.** *Energies*, vol. 13, no. 23, 6399, Dec. 2020
5. H. Yang, P. You, and C. Shang. **Distributed Planning of Electricity and Natural Gas Networks and Energy Hubs.** *Applied Energy*, vol. 282, Part A, 116090, Jan. 2021
6. P. You, J. Z.F. Pang, and S. H. Low. **Online Station Assignment for Electric Vehicle Battery**

Swapping. *IEEE Transactions on Intelligent Transportation Systems*, vol. 23, no. 4, pp. 3256-3267, Apr. 2022

7. L. Mo, P. You, X. Cao, and Y.-Q. Song. **Event-Driven Joint Mobile Actuators Scheduling and Control in Cyber-Physical Systems.** *IEEE Transactions on Industrial Informatics*, vol. 15, no. 11, pp. 5877-5891, Nov. 2019
8. Z. Yang, T. Guo, P. You, Y. Hou, and S. J. Qin. **Distributed Approach for Temporal-Spatial Charging Coordination of Plug-in Electric Taxi Fleet.** *IEEE Transactions on Industrial Informatics*, vol. 15, no. 6, pp. 3185-3195, Jun. 2019
9. Y. Zhang, P. You, and L. Cai. **Optimal Charging Scheduling by Pricing for EV Charging Station with Dual Charging Modes.** *IEEE Transactions on Intelligent Transportation Systems*, vol. 20, no. 9, pp. 3386-3396, Sep. 2019
10. P. You, S. H. Low, L. Zhang, R. Deng, G. B. Giannakis, Y. Sun, and Z. Yang. **Scheduling of EV Battery Swapping, II: Distributed Solutions.** *IEEE Transactions on Control of Network Systems*, vol. 5, no. 4, pp. 1920-1930, Dec. 2018
11. P. You, S. H. Low, W. Tushar, G. Geng, C. Yuen, Z. Yang, and Y. Sun. **Scheduling of EV Battery Swapping, I: Centralized Solution.** *IEEE Transactions on Control of Network Systems*, vol. 5, no. 4, pp. 1887-1897, Dec. 2018
12. Y. Zhou, D. K.Y. Yau, P. You, and P. Cheng. **Optimal-Cost Scheduling of Electrical Vehicle Charging under Uncertainty.** *IEEE Transactions on Smart Grid*, vol. 9, no. 5, pp. 4547-4554, Sep. 2018
13. H. Ma, Z. Yang, P. You, and M. Fei. **Multi-objective Biogeography-based Optimization for Dynamic Economic Emission Load Dispatch Considering Plug-in Electric Vehicles Charging.** *Energy*, vol. 135, pp. 101-111, Sep. 2017
14. P. You, Z. Yang, Y. Zhang, S. H. Low, and Y. Sun. **Optimal Charging Schedule for a Battery Switching Station Serving Electric Buses.** *IEEE Transactions on Power Systems*, vol. 31, no. 5, pp. 3473-3483, Sep. 2016
15. P. You, Z. Yang, M.-Y. Chow, and Y. Sun. **Optimal Cooperative Charging Strategy for a Smart Charging Station of Electric Vehicles.** *IEEE Transactions on Power Systems*, vol. 31, no. 4, pp. 2946-2956, Jul. 2016
16. Z. Yang, R. Wu, J. Yang, K. Long, and P. You. **Economical Operation of Microgrid with Various Devices via Distributed Optimization.** *IEEE Transactions on Smart Grid*, vol. 7, no. 2, pp. 857-867, Mar. 2016
17. Z. Yang, K. Long, P. You, and M.-Y. Chow. **Joint Scheduling of Large-Scale Appliances and Batteries via Distributed Mixed Optimization.** *IEEE Transactions on Power Systems*, vol. 30, no. 4, pp. 2031-2040, Jul. 2015

Conference proceedings.....

1. T. Zheng, P. You, and E. Mallada. **Constrained Reinforcement Learning via Regularized Saddle Flow Dynamics.** *Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, US, 2022
2. R. K. Bansal, Y. Chen, P. You, and E. Mallada. **Intercept Bidding in Two-stage Settlement Electricity Markets.** *ACM e-Energy*, Virtual Event, 2022
3. R. K. Bansal, P. You, D. F. Gayme, and E. Mallada. **A Market Mechanism for Truthful Bidding with Energy Storage.** *Power Systems Computation Conference (PSCC)*, Porto, Portugal, 2022
4. K. Lin, B. Wang, and P. You. **Mechanism Design for Efficient Nash Equilibrium in Oligopolistic Markets.** *Hawaii International Conference on System Sciences (HICSS)*, Maui Island, US, 2022
5. P. You, and E. Mallada. **Saddle Flow Dynamics: Observable Certificates and Separable Regularization.** *American Control Conference (ACC)*, New Orleans, US, 2021
6. R. K. Bansal, P. You, D. F. Gayme, and E. Mallada. **Storage Degradation Aware Economic Dispatch.** *American Control Conference (ACC)*, New Orleans, US, 2021
7. P. You, D. F. Gayme, and E. Mallada. **The Role of Strategic Load Participants in Two-Stage**

- Settlement Electricity Markets.** *IEEE Conference on Decision and Control (CDC)*, Nice, France, 2019
8. H. Fan, P. You, Z. Guo, S. Chen, and Z. Yang. **Online Pricing Mechanism for Electric Vehicles Charging Based on Operational Condition of A Charging Station.** *Chinese Control Conference (CCC)*, Guangzhou, China, 2019
 9. H. Fan, S. Chen, Z. Guo, P. You, and Z. Yang. **Coordinated Scheduling Strategy of Charging Station Considering Cost and Efficiency.** *IEEE International Conference on Control & Automation (ICCA)*, Edinburgh, Scotland, 2019
 10. P. You*, J. Z.F. Pang*, and E. Yeung*. **Deep Koopman Controller Synthesis for Cyber-Resilient Market-Based Frequency Regulation** (*all authors contributed equally). *IFAC Symposium on Control of Power and Energy Systems (CPES)*, Tokyo, Japan, 2018
 11. P. You, J. Z.F. Pang, and E. Yeung. **Stabilization of Power Networks via Market Dynamics.** *ACM e-Energy*, Karlsruhe, Germany, 2018
 12. P. You, J. Z.F. Pang, S. H. Low, and P. Cheng. **Efficient Online Station Assignment for EV Battery Swapping** (poster abstract). *ACM e-Energy*, Karlsruhe, Germany, 2018
 13. X. Liu, P. You, and Z. Yang. **Bilaterally Open Electricity Markets with High Penetration of Renewables.** *IEEE International Conference on Control & Automation (ICCA)*, Anchorage, US, 2018
 14. Z. Yu, P. You, and Z. Yang. **Residential Load Reduction Scheduling with Optimal Power Flow and Segmented Incentives.** *IEEE PES General Meeting*, Portland, US, 2018
 15. J. Z.F. Pang, P. You, and M. Chen. **The Role of Information in Temporally Networked Cournot Markets: Second Chance in Power Markets.** *Hawaii International Conference on System Sciences (HICSS)*, Hawaii, US, 2018
 16. P. You, J. Z.F. Pang, M. Chen, S. H. Low, and Y. Sun. **Battery Swapping Assignment for Electric Vehicles: A Bipartite Matching Approach.** *IEEE Conference on Decision and Control (CDC)*, Melbourne, Australia, 2017
 17. H. Ma, P. You, K. Liu, Z. Yang, and M. Fei. **Optimal Battery Charging Strategy Based on Complex System Optimization.** *International Conference on Intelligent Computing for Sustainable Energy and Environment (ICSEE)*, Nanjing, China, 2017
 18. P. You, Y. Sun, J. Z.F. Pang, S. H. Low, and M. Chen. **Battery Swapping Assignment for Electric Vehicles: A Bipartite Matching Approach** (extended abstract). *Greenmetrics*, Urbana-Champaign, US, 2017
 19. T. Guo, P. You, and Z. Yang. **Recommendation of Geo-Distributed Charging Stations for EVs: A Game Theoretical Approach.** *IEEE PES General Meeting*, Chicago, US, 2017
 20. H. Ma, Z. Yang, P. You, and M. Fei. **Complex System Optimization for Economic Emission Load Dispatch.** *International Conference on Control*, Belfast, Northern Ireland, UK, 2016
 21. E. Liu, P. You, and P. Cheng. **Optimal Privacy-Preserving Load Scheduling in Smart Grid.** *IEEE PES General Meeting*, Boston, US, 2016
 22. P. You, S. H. Low, Z. Yang, Y. Zhang, and L. Fu. **Real-Time Recommendation Algorithm of Battery Swapping Stations for Electric Taxis.** *IEEE PES General Meeting*, Boston, US, 2016
 23. L. Mo, P. You, X. Cao, Y.-Q. Song, and J. Chen. **Decentralized Multi-Charger Coordination for Wireless Rechargeable Sensor Networks.** *International Performance Computing and Communications Conference (IPCCC)*, Nanjing, China, 2015
 24. P. You, Z. Yang, and Y. Zhang. **Efficient Battery Charging Schedule of Battery-Swapping Station for Electric Buses.** *European Control Conference (ECC)*, Linz, Austria, 2015
 25. P. You, and Z. Yang. **Efficient Optimal Scheduling of Charging Station with Multiple Electric Vehicles via V2V.** *IEEE SmartGridComm*, Venice, Italy, 2014

MENTORSHIP

Advisor		
Zijian Zhao <i>Ph.D. student since 2022</i>		Peking University
Huilan Xu <i>Master student since 2022</i>		Peking University
Co-mentor		
Rajni Kant Bansal <i>Ph.D. student since 2018</i> Research interest: Electricity Market Design for Storage		Johns Hopkins University
Xianglu Liu <i>M.Sc. 2019</i> Thesis: Reformed Electricity Market with Deep Penetration of Renewables		Zhejiang University <i>Next hop: State Grid</i>
Ziwen Yu <i>M.Sc. 2018</i> Thesis: Experimental Testbed and Optimal Load Scheduling for Demand Response Management in Smart Grid		Zhejiang University <i>Next hop: Hikvision</i>
Tianci Guo <i>M.Sc. 2017</i> Thesis: Joint Temporal-Spatial Coordination of Charging Decision of Plug-in Electric Taxi Fleet		Zhejiang University <i>Next hop: Huawei</i>
Host		
Endong Liu <i>Visiting scholar since 2022</i>		Heze College
Ruishuang Chen <i>Visiting student since 2022</i>	Southern University of Science and Technology	
Xiwen Huang <i>Research assistant since 2022</i>		Peking University
Hengxing Zhao <i>Undergraduate since 2022</i>		Peking University
Fuyi Li <i>Undergraduate since 2022</i>		Peking University
Yi Yan <i>Undergraduate since 2022</i>		Peking University

ACADEMIC ACTIVITIES

Editorial board		
• Guest editor		
1. Frontiers in Energy Research <i>Special Issue on Transactive Energy</i>		2022
Conference organization		
• Session chair		
1. POMS International Conference in China <i>Data-Driven Operations Management</i>		Jun. 2022
2. SIAM Conference on Control and Its Applications <i>Analysis and Control of Nonlinear Systems</i>		Jul. 2021

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| 3. Conference on Information Sciences and Systems
<i>Power System Control, Optimization and Economics I & II
Systems and Control</i> | Mar. 2021 |
| 4. Conference on Information Sciences and Systems
<i>Security and Privacy</i> | Mar. 2019 |
| • TPC member | |
| 1. IEEE Global Communications Conference | Dec. 2022 |
| 2. IEEE International Conference on Smart Grid Communications | Oct. 2022 |
| 3. IEEE Global Communications Conference | Dec. 2021 |
| 4. Conference on Information Sciences and Systems | Mar. 2021 |
| 5. International Workshop on Cyberspace Security | Dec. 2020 |

Peer review.....

- Journal: TAC, TCNS, TCST, TPS, TSG, TSE, TITS, TIE, TII, TPDS, TECS, Automatica, IEEE L-CSS, IEEE Systems Journal, IEEE Network, etc.
- Conference: ACC, PSCC, CISS, PESGM, SmartGridComm, Globecom, ICCA, IECON, ICC, etc.

Short visits.....

- Southern University of Science and Technology, Dept. of Mechanical and Energy Engineering, Shenzhen, China, Jul. 2018-Sep. 2018
- Chinese University of Hong Kong, Dept. of Information Engineering, Hong Kong, China, May 2018
- Chinese University of Hong Kong-Shenzhen, School of Science and Engineering, Shenzhen, China, Sep. 2016
- Singapore University of Technology and Design, Engineering Product Development Pillar, Singapore, Nov. 2015-Feb. 2016

TALKS

Conference and workshop presentations.....

- "Bidding Mechanisms and Incentive Analysis for Temporally-Coupled Electricity Markets", INFORMS Annual Meeting, Anaheim, California, US, Oct. 2021
- "Saddle Flow Dynamics: Observable Certificates and Separable Regularization", SIAM Conference on Control and Its Applications (CT), Spokane, Washington, US, July 2021
- "Saddle Flow Dynamics: Observable Certificates and Separable Regularization", IEEE American Control Conference (ACC), New Orleans, Louisiana, US, May 2021
- "The Role of Strategic Participants in Two-stage Settlement Electricity Markets", INFORMS Annual Meeting, Washington D.C., US, Nov. 2020
- "On Stability and Economic Efficiency of Electricity Market Dynamics", INFORMS Annual Meeting, Washington D.C., US, Nov. 2020
- "The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets", IEEE Conference on Decision and Control (CDC), Nice, France, Dec. 2019
- "The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets", Trans-Atlantic Infraday Conference, Washington, D.C., US, Oct. 2019
- "Deep Koopman Controller Synthesis for Cyber-Resilient Market-Based Frequency Regulation" (E. Yeung presented), IFAC Symposium on Control of Power and Energy Systems (CPES), Tokyo, Japan, Sep. 2018
- "Stabilization of Power Networks via Market Dynamics", ACM e-Energy, Karlsruhe, Germany, Jun. 2018
- "Online Station Assignment for EV Battery Swapping" (J. Z.F. Pang presented), IEEE Conference on Decision and Control (CDC), Melbourne, Australia, Dec. 2017

- “Online Station Assignment for EV Battery Swapping”, Greenmetrics, Urbana-Champaign, Illinois, US, Jun. 2017
- “Optimal Charging Schedule for a Battery Switching Station Serving Electric Buses”, IEEE PES General Meeting, Boston, Massachusetts, US, Jul. 2016
- “Joint Scheduling of Large-Scale Appliances and Batteries via Distributed Mixed Optimization”, IEEE PES General Meeting, Denver, Colorado, US, Jul. 2015
- “Efficient Battery Charging Schedule of Battery-Swapping Station for Electric Buses”, European Control Conference (ECC), Linz, Austria, Jul. 2015
- “Efficient Optimal Scheduling of Charging Station with Multiple Electric Vehicles via V2V”, IEEE SmartGridComm, Venice, Italy, Nov. 2014

Seminar presentations.....

- “Incentive Analysis and Coordination Design for Multi-Timescale Markets”, Energy Seminar, Department of Environmental Health and Engineering, Johns Hopkins University, Baltimore, Maryland, US, Sep. 2021
- “Incentive Analysis and Coordination Design for Multi-Timescale Markets”, Tsinghua-Berkeley Shenzhen Institute, Shenzhen, China, Jul. 2021
- “Incentive Analysis and Coordination Design for Multi-Timescale Markets”, Department of Automation, Shanghai Jiao Tong University, Shanghai, China, May 2021
- “Incentive Analysis and Coordination Design for Multi-Timescale Markets”, Department of Industrial Engineering and Management, Peking University, Beijing, China, May 2021
- “Incentive Analysis and Coordination Design for Multi-Timescale Markets”, College of Smart Energy, Shanghai Jiao Tong University, Shanghai, China, Apr. 2021
- “Incentive Analysis and Coordination Design for Multi-Timescale Markets”, Center for Future Networks, BNU-HKBU United International College, Zhuhai, China, Apr. 2021
- “On Stability and Economic Efficiency of Electricity Market Dynamics”, International Forum of Excellent Young Talents in Engineering Sciences, Peking University, Beijing, China, Feb. 2021
- “On Stability and Economic Efficiency of Electricity Market Dynamics”, Global Scientist Interdisciplinary Online Forum, Southern University of Science and Technology, Shenzhen, China, Jan. 2021
- “On Stability and Economic Efficiency of Electricity Market Dynamics”, Vision Forum for International Young Scholars, Beijing University of Aeronautics and Astronautics, Beijing, China, Jan. 2021
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, School of Automation, Nanjing University of Science and Technology, Nanjing, China, Sep. 2019
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, School of Electrical Engineering, Southeast University, Nanjing, China, Sep. 2019
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, Department of Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China, Aug. 2019
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, Department of Mechanical and Energy Engineering, Southern University of Science and Technology, Shenzhen, China, Aug. 2019
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, Department of Control Science and Engineering, Zhejiang University, Hangzhou, China, Jul. 2019
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, Shanghai Astronomical Observatory, Chinese Academy of Science, Shanghai, China, Jul. 2019
- “The Role of Strategic Load Participants in Two-Stage Settlement Electricity Markets”, Department of Computer Science, Central South University, Changsha, China, Jul. 2019
- “Scheduling of EV Battery Swapping”, Department of Electrical Engineering, Tsinghua University, Beijing, China, Jul. 2018

- “Stabilization of Power Networks via Market Dynamics”, Department of Information Engineering, Chinese University of Hong Kong, Hong Kong, China, May 2018
- “Scheduling of EV Battery Swapping”, School of Science and Engineering, Chinese University of Hong Kong-Shenzhen, Shenzhen, China, Sep. 2016
- “Scheduling of EV Battery Swapping”, SYSU-CMU Joint Institute of Engineering, Sun Yat-sen University, Guangzhou, China, Sep. 2016

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