Pudong Ge

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Education

Imperial College London — London, UK
PhD Student in Electrical Engineering — *Sep. 2019 – Present*

Zhejiang University — Hangzhou, China
Visiting PhD Student — *Apr. 2021 - July 2021*

Southeast University — Nanjing, China
MEng in Electrical Engineering — *Sep. 2016 – June 2019*

Nanjing University of Science & Technology — Nanjing, China
BEng in Electrical Engineering & Automation — *Sep. 2012 – June 2016*

Working Experience

Imperial College London — London, UK
Research Assistant — *Nov. 2020 – June 2021*

- **Project:** Energy for Development - Low Carbon Energy and Industry for Economic Growth in Mongolia, GCRF
- **Subtopic:** Energy infrastructure in Mongolia: local, national and international perspective

Teaching Assistant — *Sep. 2020 – Present*

- **Module 1:** Electrical Energy Systems
- **Module 2:** Debating and Non-technical / Soft Skills Development (Energy Future Lab)
- **Responsibility:** General administration; Panopto (Lecture recording); Marking; Tutorial support

Research Interest

Towards future energy digitisation (Digital Twin): resilience-oriented coordination of centralised and decentralised frameworks (e.g., Cloud-Edge Solution) in cyber-physical systems with applications to power systems, especially in resilient operation of power systems with renewables, cyber-attack detection and mitigation in power system control, and etc.

Publications

Submitted Papers

1. **P. Ge**, B. Chen and F. Teng, "Cyber-Resilient Distributed Self-Triggered Control of Networked Microgrids Against Multi-Layer DoS Attacks", *IEEE Transactions on Smart Grid*, under 2nd round review.

Journal Papers

1. **P. Ge**, P. Li, B. Chen, and F. Teng, "Fixed-Time Convergent Distributed Observer Design of Linear Systems: A Kernel-Based Approach", *IEEE Transactions on Automatic Control*, Accepted
2. **P. Ge**, F. Teng, C. Konstantinou, and S. Hu, "A Resilience-Oriented Centralised-to-Decentralised Framework for Networked Microgrids Management", *Applied Energy*, 2022, 308: 118234.
3. **P. Ge**, B. Chen, and F. Teng, "Event-triggered Distributed MPC for resilient voltage control of an islanded microgrid", *International Journal of Robust and Nonlinear Control*, vol. 31, no. 6, pp. 1979-2000, Apr. 2021.
4. **P. Ge**, Y. Zhu, T. Green, and F. Teng, "Resilient Secondary Voltage Control of Islanded Microgrids: An ESKBF-Based Distributed Fast Terminal Sliding Mode Control Approach", *IEEE Transactions on Power Systems*, vol. 36, no. 2, pp. 1059-1070, March 2021.
5. **P. Ge**, X. Dou, X. Quan, Q. Hu, W. Sheng, Z. Wu and W. Gu, "Extended-State-Observer-Based Distributed Robust Secondary Voltage and Frequency Control for an Autonomous Microgrid", *IEEE Transactions on Sustainable Energy*, vol. 11, no. 1, pp. 195-205, Jan. 2020.

6. **P. Ge**, Q. Hu, Q. Wu, X. Dou, Z. Wu, and Y. Ding, "Increasing operational flexibility of integrated energy systems by introducing power to hydrogen", *IET Renewable Power Generation*, vol. 14, no. 3, pp. 372-380, Nov. 2019.
7. X. Dou, **P. Ge**, X. Quan, et al., "Reactive Power and Voltage Robust Control for Active Distribution Network Considering Uncertain Delay (in Chinese)", *Zhongguo Dianji Gongcheng Xuebao/Proceedings of the CSEE*, vol. 39, no. 5, pp. 1290-1300, 2019.
8. J. Ma, X. Dou, K. Chen, Y. Jiao, and **P. Ge**, "Design of network information observer based on Kalman filtering algorithm (in Chinese)", *Dianli Zidonghua Shebei/Electric Power Automation Equipment*, vol. 39, no. 10, pp. 215-223, 2019.
9. X. Dou, L. Chang, C. Ni, X. Duan, **P. Ge**, and Z. Wu, "Multi-level Dispatching and Control of Active Distribution Network for Virtual Cluster of Distributed Photovoltaic (in Chinese)", *Dianli Xitong Zidonghua/Automation of Electric Power Systems*, vol. 42, no. 3, pp. 21-31, 2018.

White Papers & Book Chapters

1. F. Teng, S. Chhachhi, **P. Ge**, et al., "Balancing privacy and access to smart meter data: an Energy Futures Lab briefing paper", *Energy Futures Lab, Imperial College London*, 2022.
2. S. Rath, C. Konstantinou, B. Papari, C. Edrington, **P. Ge**, et al., "Microgrids in mission-critical applications", *IET Digital Library*, Cyber Security for Microgrids, Chap. 3, pp. 39-58, 2022.

Conference Papers

1. **P. Ge**, C. Caputo, F. Teng, et al., "A Wireless-Assisted Hierarchical Framework to Accommodate Mobile Energy Resources", *IEEE SmartGridComm 2022*, Singapore, Oct. 2022.
2. **P. Ge**, C. Konstantinou, and F. Teng, "Cyber-Physical Disaster Response of Power Supply Using a Centralised-to-Distributed Framework", *IEEE SmartGridComm 2021*, Aachen, Germany, Oct. 2021.
3. L. Castiglione, Z. Hau, **P. Ge**, et al., "HA-Grid: Security Aware Hazard Analysis for Smart Grids", *IEEE SmartGridComm 2022*, Singapore, Oct. 2022.
4. T. Wang, X. Zhu, **P. Ge**, et al., "Expanding flexibility with P2H for integrated energy systems", *8th Renewable Power Generation Conference (RPG 2019)*, Shanghai, China, 2019.

Project Experience

1. "Technology Transformation to Support Flexible and Resilient Local Energy Systems", EPSRC (EP/T021780/1), 2020-2023
2. "ICT-enabled Platform for Development and Verification of Distributed Resilient Control of Cyber-Physical Power Systems", Royal Society, 2021-2022
3. "Energy for Development - Low Carbon Energy and Industry for Economic Growth in Mongolia", Research England GCRF, 2020-2021
4. "Socio-Techno-Economic Pathways for sustainable Urban energy DeveloPment (STEP-UP)", ESRC (ES/T000112/1), 2019-2022

Academic Activities

IEEE Task Force on Cyber-Physical Interdependence for Power System Operation and Control: Technical Report Contribution on "Cyber-Physical Interdependence for Power System Operation and Control"

Professional Affiliations: Member, IEEE & IEEE Power and Energy Society (PES)

Reviewer of International Journals: IEEE Transactions on Sustainable Energy, IEEE Transactions on Power Systems, IEEE Transactions on Industry Applications, IEEE Transactions on Cloud Computing, Applied Energy, International Journal of Electrical Power and Energy Systems, CSEE Journal of Power and Energy Systems, Control Engineering Practice, Journal of Cleaner Production, IET Renewable Power Generation