Jianfang Xiao

PhD(EPE), BE(Mechatronics)

OSKEFER
Failure & Incident Investigation

PROFILE

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Oskefer Consulting is an engineering company with head office located in Singapore, which provides *engineering consultancy services, e.g., failure analysis, forensic engineering investigation related consulting, root cause analysis, risk-based design review, inspection and/or condition assessment, trouble shooting, training, and research services.*

Dr Xiao has more than 10 years of research and development experience in electrical power engineering. His areas of expertise include electrical power generation, transmission network and substation, distribution system, renewable integration, energy storage system, microgrid operation and control, energy management system. Dr Xiao is specialized in failure analysis of containerized battery energy storages systems (for UPS and grid services), distribution network (in data center, vessel, and building), EV with charging facility, *etc*.

Dr Xiao has started his career as research fellow in NTU. He has been working as technical lead for several government-funded and industrial-funded projects in areas of renewable integration, energy storage system for auxiliary grid-supporting services, microgrid energy management system, control systems, etc. After he has joined Newcastle University in Singapore (NUiS) as faculty member, he has extended his areas of research to smart grid cyber-physical system resilience, EV fleet integration and impact analysis on power system, etc. Dr Xiao is currently acting as Consultant to Oskefer Consulting in the areas of forensic engineering investigation, failure analysis and root cause analysis in relation to electrical and electronic failures.

KEY STRENGTHS:

- Energy Storage and Management System
- Distribution System
- Smart Grid / Renewable Integration
- Generation System

INDUSTRY EXPERIENCE:

- Renewable Integration
- Energy Storage
- Smart Grid
- Control Systems

PROFESSIONAL EXPERIENCE

Jul 2023 - Present **Oskefer Consulting Pte Ltd** ***Principal Consultant***

- Provide forensic engineering investigation/root cause analysis services in relation to electrical (transformers, generators, switchgears, etc.) and electronic failures (PCBs, sensors, control devices, etc.)
- Support other consultants in major and complex cases which require expertise in electrical and electronics.

Feb 2019 – Present **Newcastle University** ***Assistant Professor***

- Faculty member in Electrical Power Engineering

Jun 2015 – Feb 2019 **Nanyang Technological University** ***Research Fellow***

- Postdoctoral Research Fellow in Renewable Integration & Micro Grid (RIMG) team.
- Led several million-dollar projects on development of smart microgrid, multiple energy optimization, power electronics, etc. funded by both government and industrial sectors.

EDUCATION

Doctor of Philosophy (Power Engineering)
Nanyang Technological University, 2015

Bachelor of Engineering (Mechatronics)
Nanyang Technological University, 2011

SELECTED PUBLICATIONS

Journals Papers:

- R. Wang, X. Zhao, Q. Sun, J. Xiao, L. Zhang, P. Wang. “Stability Analysis of Phase Locked Loops for AC Microgrids With Hybrid Power Sources”, *Energy Conversion*, *IEEE Transactions on*, vol. PP, no.99, pp.1-1, 2022.
- **J. Xiao**, P. Wang, and L Setyawan, "Hierarchical Control of Hybrid Energy Storage System in DC Microgrid," *Industrial Electronics, IEEE Transactions on*, vol. 62, pp. 4915 - 4924, 2015.
- **J. Xiao**, P. Wang, and L. Setyawan, "Multilevel Energy Management System for Hybrid Energy System in DC Microgrids," *Smart Grid, IEEE Transactions on*, vol. 7, pp. 847 - 856, 2015.
- **J. Xiao**, P. Wang, and L. Setyawan, "Implementation of Multiple-Slack-Terminal DC Microgrids to Ensure Smooth Transitions between Grid-tied and Islanded States," *Smart Grid*, *IEEE Transactions on*, vol. 7, pp. 273 - 281, 2015.
- **J. Xiao**, L. Setyawan, and P. Wang, "Real-time Power Capacity Based Bus Voltage Region Partition to Equalize Droop Coefficients and Eliminate Voltage Discontinuity in DC Microgrids," *Energy Conversion, IEEE Transactions on*, vol. 30, pp. 1338 - 1347, 2015.
- **J. Xiao**, P. Wang, L. Setyawan, and Q. Xu, "Multi-Level Energy Management System for Real-Time Scheduling of DC Microgrids With Multiple Slack Terminals," *Energy Conversion*, *IEEE Transactions on*, vol. 30, pp. 1338 - 1347, 2015.

Conference Papers:

- **J. Xiao**, T. Zhao, L. H. Koh, P. Wang, “Smart Energy Hub – Modularized Hybrid AC/DC Microgrid: System Design and Deployment,” in *1st IEEE Conference on Energy internet and Energy System integration* (IEEE EI2), 2017, pp.1-6.
- **J. Xiao**, P. Wang, J. Huang, Q. Zhou, X. B. Nguyen, “Implementation of CLLC DAB in the hybrid AC/DC microgrid,” *in Asian Conference on Energy, Power and Transportation Electrification* (ACEPT 2017), 2017, pp.1-5.
- **J. Xiao**, P. Wang, L. Setyawan, and C. Jin, "Power capacity-based bus voltage region partition and online droop coefficient tuning for real-time operation of DC microgrids," in *2016 IEEE Power and Energy Society General Meeting* (*PESGM*), 2016, pp. 1-1.

Patent:

- X. Pan, P. Wang, **J. Xiao**, and F. H. Choo, “Plug-and-Play Design for Integrated Hybrid AC/DC Microgrid Module”, Singapore Patent 10201601538S filed March 1, 2016.

Book chapter:

- P. Wang, **J. Xiao**, C. Jin, X. Han, W. Qin, (2017) “Hybrid AC/DC Micro-Grids: Solution for High Efficient Future Power Systems”, In: Karki N., Karki R., Verma A., Choi J. (eds) Sustainable Power Systems. Reliable and Sustainable Electric Power and Energy Systems Management. Springer, Singapore.