

# Curriculum Vitae: Jimmy Chih-Hsien Peng

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## Research Scope

My research tackles the challenges arising from the widespread deployment of distributed inverter-based resources at the grid-edge, and analyses the mechanisms through which prosumers affect the operation of the power distribution systems. It fills the gap between renewable integration and grid resilience. My pioneering approach to this topic is called *society-in-the-loop* analysis, where I bridge the heretofore separate fields of power engineering (including power systems and power electronics) with computational social science. My research projects are interdisciplinary, combining theoretical analysis of power systems dynamics, control synthesis of power electronic inverters, and modelling of prosumer behaviours.

## Education

- Ph.D., Electrical and Electronic Engineering, University of Auckland, May, 2012.
- B.E. (1st Hons.), Electrical and Electronic Engineering, University of Auckland, Apr., 2008.

## Appointments

- Associate Professor, Department of Electrical and Computer Engineering, National University of Singapore, Oct. 2022 till present.
- Assistant Professor, Department of Electrical and Computer Engineering, National University of Singapore, Jul. 2016 to Oct. 2022.
- Assistant Professor, Department of Electrical Engineering and Computer Science, Masdar Institute (now part of Khalifa University), Sep. 2012 to Jun. 2016.
- Visiting Faculty, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Jan. to Sep. 2014.
- Visiting Scientist, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Jun. to Jul. 2013.

## Honours and Awards

- Recipient, Yushan Young Scholar, Ministry of Education, Taiwan, Jul. 2022.
- Recipient, Faculty Teaching Excellence Award, National University of Singapore, Apr. 2022.
- Runner Up, Grand Prize, International Genetically Engineered Machine (iGEM) Competition, Nov. 2021<sup>1</sup>.
- Recipient, Best Manufacturing Project, iGEM Competition, Nov. 2021.

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<sup>1</sup>Co-PI leading NUS\_Singapore iGEM undergraduate team.

- Recipient, 40 under 40: Disruptors and Innovators, University of Auckland, Nov. 2020.
- Recipient, Best Paper Award, IEEE International Future Energy Electronics Conference, Nov. 2019.
- Recipient, Best Reviewer, IEEE Transactions on Smart Grid, Dec. 2019.
- Recipient, Best Foundational Advance Project, iGEM Competition, Nov. 2019.
- Recipient, Faculty Teaching Award—Commendation List, Faculty of Engineering, National University of Singapore, May 2017.
- Recipient, Best Paper Award, International Conference on Control, Robotics and Cybernetics, Aug. 2013.
- Recipient, Doctoral Scholarship, University of Auckland, Mar. 2008 to May. 2012.
- New Zealand Representative, IEC Young Professional Program, Oct. 2011.
- University of Auckland Representative, Asia-Oceania Top University League Conference, Dec. 2009.
- Recipient, Transpower New Zealand Scholarship<sup>2</sup> (Mar. 2005 to Apr. 2008)

## Research Grants

1. PI, Charting a roadmap for grid-forming inverters in sustainable power grids, Academic Research Fund Tier 1, Ministry of Education, 230,000 SGD, Mar. 2022—Feb. 2025.
2. PI, Data networks in cyber-physical systems, Future Resilient Systems Program, National Research Foundation, 1,500,000 SGD, Apr. 2020—Mar. 2025.
3. PI, Grid-customer integrated resilience assessment and enhancement for modern power systems, Systemic Risk and Resilience Planning Grant, National Research Foundation, 150,000 SGD, Oct. 2018—Sep. 2019.
4. PI, Design and stability analysis for community microgrid implementations, Academic Research Fund Tier 1, Ministry of Education, 150,000 SGD, Mar. 2018—Feb. 2021.
5. PI, Event-driven methods for demand response in electrical grids, National University of Singapore and Humboldt University Berlin Joint Research Program, 22,000 SGD, Nov. 2017—Oct. 2018.
6. PI, Design of future residential apartment, Academic Research Fund Tier 1, Ministry of Education, 180,000 SGD, Aug. 2016—Jul. 2019.
7. Co-PI, Design of MYSAT-1 CubeSat, Yahsat and Orbital ATK, 5,000,000 USD, Sep. 2015—Aug. 2019<sup>3</sup>
8. PI, Mitigating inter-area oscillations in power systems, Massachusetts Institute of Technology and Masdar Institute Cooperative Program, 470,000 USD, Jun. 2014—May 2016.
9. Co-PI, Sustainability as a service, Masdar, 197,000 USD, Sep. 2013—Aug. 2014.

## Affiliations and Services

- Associate Editor, IEEE Transactions on Power Systems, Jan. 2023 till present.

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<sup>2</sup>Employed by Transpower as part of the scholarship program from Mar. 2005 to May. 2012.

<sup>3</sup>No longer involved in the CubeSat project after relocating to NUS in Jul. 2016.

- Member, College of Assessor, Ministry of Business, Innovation & Employment, New Zealand, Nov. 2021 till present.
- Member, Electrical and Electronic Standards Committee, Singapore Standards Council, Singapore, Aug. 2020 till present.
- Secretary, IEEE PES Working Group on High Performance Computing for Grid Analysis and Operation, Jul. 2014 till present.
- Senior Member, Institute of Electrical and Electronic Engineers (IEEE), Apr. 2005 till present.
- Member, Working Group on Singapore Standards 535:2010, Jul. 2017—Jun. 2018.
- Member, International Electrotechnical Commission (IEC) National Committee New Zealand, Oct. 2011—Sep. 2012.

## Research Supervision

- **Zhe Gong**, Ph.D. candidate, Operation of low-inertia renewable power systems, Aug. 2022 till present.
- **Jialun Zhang**, Ph.D. candidate, Resilience Enhancement Techniques in Cyber Physical Distribution Systems, Jul. 2022 till present.
- **Yang Yang**, Ph.D. candidate, Market clearing mechanisms of flexible demand resources for frequency response, Aug. 2020 till present.
- **Jingqiu Zhang**, Ph.D. candidate, Cyber security of inverter-based power systems, Jan. 2019 till present.

## Graduated Ph.D. and Master Students

- **Andrey Gobornov**, Ph.D., Stability of inverter-based renewables, Feb. 2023. *Currently Senior Research Scientist at Rapsodo*
- **Jie Mei**, Ph.D. from Massachusetts Institute of Technology, Thesis Committee (Co-advisor) with Prof. James L. Kirtley, Optimal Scheduling of Multi-Energy System, May 2021.
- **Gurupraanesh Raman**, Ph.D., Stability analysis of droop-controlled inverter-based power systems, Jul. 2021.  
Winner of Tan Ean Kiam Arts Award in 2018.  
*Currently Postdoctoral Researcher at Singapore-ETH Centre*
- **Gururaghav Raman**, Ph.D., Weaponizing disinformation to attack critical infrastructure, Jul. 2021.  
Winner of Tan Ean Kiam Arts Award in 2018.  
*Currently Postdoctoral Researcher at Singapore-ETH Centre*
- **Salish Maharjan**, Ph.D., Co-advisor with Prof. Ashwin Khambadkone at National University of Singapore, Analysis and predictive control of power distribution systems with high penetration of PV resources, Jul. 2020.
- **Colm O'Rourke**, Ph.D. from Massachusetts Institute of Technology, Thesis Committee (Co-advisor) with Prof. James L. Kirtley, Decentralized power systems: reference-frame theory and stability region generation, May 2020.  
*Currently Senior Data Analyst at Poloniex*
- **Kawsar Ali**, Ph.D., Co-advisor with Prof. Pritam Das at National University of Singapore, High performance three-phase AC/DC converters for data centres, Jul. 2018.  
*Currently Postdoctoral Researcher at Oxford University*

- **Adedayo Aderibole**, M.Sc., Domain of stability characterization for hybrid microgrids considering different power sharing conditions, May 2017.  
*Currently Senior Software Engineer at Google.*
- **Maksymilian Klimontowicz**, M.Sc., Optimal sliding-mode load frequency control with high penetration of variable distributed energy resources, May 2015.
- **Abdulla Al Shammari**, M.Sc., Damping control loops for mitigating power oscillation using wind farms, May 2015.  
*Currently Project Manager of Strategy & Organizational Development at Abu Dhabi Police*

### Past Researchers

- **John Soon**, Research Fellow, Fault-tolerant power converters for distributed energy resources, 2019–2020.  
*Currently Senior Power Electronics Engineer at ION Mobility, Singapore.*
- **Subham Sahoo**, Research Fellow, Detection and mitigation of malicious attacks in microgrids, Apr. 2018—Mar. 2019.  
*Currently Assistant Professor at Aalborg University, Denmark.*
- **Yaonan Kong**, Research Fellow, Estimation of baseline load profiles of residential households, Jun.—Dec. 2016.  
*Currently Quantitative Analyst at Investment Company of the People's Republic of China, Singapore.*
- **Haris Khalid**, Research Fellow, Real-time monitoring of power oscillations using synchrophasor measurements, Aug. 2014—May 2016.  
*Currently Assistant Professor at Higher College of Technology, Abu Dhabi, United Arab Emirates.*
- **Chih-Lun Chang**, Research Engineer, Security of demand response services, Aug. 2014—Jul. 2015.  
*Currently Software Engineer at Verily, United States of America.*

## Publications

Underlined names are graduate students and postdoctoral researchers supervised by me. The corresponding author of each journal article is denoted by \* symbol.

### Journal Articles

1. Y. Yang, J. C. -H. Peng\*, and Z. Ye, Distributionally Robust Frequency Dynamic Constrained Unit Commitment Considering Uncertain Demand-side Resources, *Applied Energy*, vol. 331, Feb. 2023.
2. G. R. Raman, B. Zhao, J. C. -H. Peng\*, and M. Weidlich, Adaptive Incentive-based Demand Response with Distributed Non-Compliance Assessment, *Applied Energy*, vol. 326, Nov. 2022.
3. Y. Yang, J. C. -H. Peng\*, C. Ye, and Z. Ye, Optimal Reserve Allocation With Simulation-driven Frequency Dynamic Constraint: A Distributionally Robust Approach, *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 29, no. 11, pp. 4483-4487, Nov. 2022.
4. Y. Yang, G. P. Raman, J. C. -H. Peng\*, and Z. Ye, Resilient Consensus-based AC Optimal Power Flow against Data Integrity Attacks Using PLC, *IEEE Transactions on Smart Grid*, vol. 13, no. 5, pp. 3786-3797, Sep. 2022.
5. J. Zhang\*, B. She, J. C. -H. Peng, and F. Li, A Distributed Consensus-Based Optimal Energy Management Approach in DC Microgrids, *International Journal of Electrical Power & Energy Systems*, vol. 140, Sep. 2022.

6. G. P. Raman, G. R. Raman, and **J. C. -H. Peng\***, Coupled Power Generators Require Stability Buffers in Addition to Inertia, *Scientific Reports*, vol. 11, no. 13714, Aug. 2022.
7. A. Gorbunov, **J. C. -H. Peng\***, J. Bialek, and P. Vorobev, Identification of Stability Regions in Inverter-Based Microgrids, *IEEE Transactions on Power Systems*, vol. 37, no. 4, pp. 2613-2623, Jul. 2022.
8. G. R. Raman, G. P. Raman, and **J. C. -H. Peng\***, Resilience of Urban Public Electric Vehicle Charging Infrastructure to Flooding, *Nature Communications*, Jun. 2022.
9. A. Gorbunov, **J. C. -H. Peng\***, J. Bialek, and P. Vorobev, Can Center-of-Inertia Model be Identified from Ambient Frequency Measurements?, *IEEE Transactions on Power Systems*, vol. 37, no. 3, pp. 2459-2462, May 2022.
10. **J. C. -H. Peng\***, G. P. Raman, J. Soon, and N. Hatziargyriou, Droop-Controlled Inverters as Educational Control Design Project, *IEEE Transactions on Power Systems*, vol. 37, no.2, pp. 1623-1633, Mar. 2022.
11. G. P. Raman\*, C. O'Rourke, J. Lu, **J. C. -H. Peng**, and J. L. Kirtley, Conditional Generative Adversarial Networks for Dynamic Control-Parameter Selection in Power Systems, *IEEE Access*, Vol. 10, pp. 11236-11247, Jan. 2022.
12. Y. Yang, **J. C. -H. Peng**, C. Ye\*, Z. Ye, and Y. Ding, A Criterion and Stochastic Unit Commitment towards Frequency Resilience of Power Systems, *IEEE Transactions on Power Systems*, vol. 37, no.1, pp. 640-652, Jan. 2022.
13. Y. Yang, **J. C. -H. Peng\***, and Z. Ye, A Market Clearing Mechanism Considering Primary Frequency Response Rate, *IEEE Transactions on Power Systems*, vol. 36, no. 6, pp. 5952-5955, Nov. 2021.
14. G. P. Raman, and **J. C. -H. Peng\***, Filter Debballasting Control of Droop-controlled Inverters, *IEEE Transactions on Power Electronics*, vol. 37, no. 11, pp. 13107-13117, Nov. 2021.
15. J. Soon, G. P. Raman, **J. C. -H. Peng\***, and D. D. C. Lu, Current Ripple Reduction Using AC Core Biasing in DC-DC Converters, *IEEE Transactions on Industrial Electronics*, vol. 68, no. 10, pp. 10058-10067, Oct. 2021.
16. G. R. Raman, and **J. C. -H. Peng\***, Electricity Consumption of Singaporean Households Reveals Proactive Community Response to COVID-19 Progression, *Proceedings of the National Academy of Sciences*, vol. 118, no. 34, pp. e2026596118, Aug. 2021.
17. J. Zhang, S. Sahoo, **J. C. -H. Peng\***, and F. Blaabjerg, Mitigating Concurrent False Data Injection Attacks in Cooperative DC Microgrids, *IEEE Transactions on Power Electronics*, vol. 36, no. 8, pp. 9637-9647, Aug. 2021.
18. S. Sahoo, and **J. C. -H. Peng\***, A Localized Event Driven Resilient Mechanism for Cooperative Microgrid Against Data Integrity Attacks, *IEEE Transactions on Cybernetics*, vol. 51, no. 7, pp. 3687-3698, Jul. 2021.
19. M. Waniek, G. R. Raman, B. AlShebli, **J. C. -H. Peng\***, and T. Rahwan\*, Traffic Networks are Vulnerable to Disinformation Attacks, *Scientific Reports*, vol. 11, no. 5329, Mar. 2021.
20. Z. Qiu, **J. C. -H. Peng**, H. Yang\*, and D. Srinivasan, Modeling and Analysis of Inner controls Effects on Damping and Synchronizing Torque Components in VSG-controlled Converter, *IEEE Transactions on Energy Conversion*, vol. 36, no. 1, pp. 488-499, Mar. 2021.
21. S. Maharjan\*, A. Khambadkone\*, and **J. C. -H. Peng**, Robust Constrained Model Predictive Voltage Control in Active Distribution Networks, *IEEE Transactions on Sustainable Energy*, vol. 12, no. 1, pp. 400-411, Jan. 2021.

22. A. Gorbunov, **J. C. -H. Peng\***, and P. Vorobev, Identification of Critical Clusters in Inverter-based Microgrids, *Electric Power Systems Research*, vol. 189, Dec. 2020.
23. H. M. Khalid\*, and **J. C. -H. Peng**, Bidirectional Charging in V2G Systems: An In-Cell Variation Analysis of Vehicle Batteries, *IEEE Systems Journal*, vol. 14, no. 3, pp. 3665-3675, Sep. 2020.
24. J. Soon, D. D. C. Lu, **J. C. -H. Peng\***, and W. Xiao, Reconfigurable Nonisolated DC-DC Converter with Fault-Tolerant Capability for High Reliability, *IEEE Transactions on Power Electronics*, vol.35, no.9, pp. 8934-8943, Sep. 2020.
25. G. R. Raman, B. AlShebli, M. Waniek, T. Rahwan\*, and **J. C. -H. Peng\***, How Weaponizing Disinformation Can Bring Down a City's Power Grid, *PLOS ONE*, vol. 15, no. 8, pp. e0236517, Aug. 2020.
26. S. Sahoo, **J. C. -H. Peng\***, D. Annavaram, S. Mishra, and T. Dragicevic, On Detection of False Data in Cooperative DC Microgrids-A Discordant Element Approach, *IEEE Transactions on Industrial Electronics*, vol. 67, no. 8, pp. 6562-6571, Aug. 2020.
27. G. P. Raman, **J. C. -H. Peng\***, and H. Zeineldin, Optimal Damping Recovery Scheme for Droop-controlled Inverter-based Microgrids, *IEEE Transactions on Smart Grid*, vol.11, no. 4, pp. 2805-2815, Jul. 2020.
28. S. Sahoo, **J. C. -H. Peng\***, S. Mishra, and T. Dragicevic, Distributed Screening of Hijacking Attacks in DC Microgrids, *IEEE Transactions on Power Electronics*, vol. 35, no. 7, pp. 7574-7582, Jul. 2020.
29. S. Maharjan\*, A. Khambadkone, and **J. C. -H. Peng**, Enhanced Z-bus Method for Analytical Computation of Voltage Sensitivities in Distribution Networks, *IET Generation, Transmission & Distribution*, vol. 14, no. 16, pp. 31873197, Jun. 2020.
30. H. M. Khalid\*, S. Muyeen, and **J. C. -H. Peng**, Cyber-attacks in a Looped Energy-Water Nexus: An Inoculated Sub-observer-Based Approach, *IEEE Systems Journal*, vol.14, no. 2, pp. 2054-2065, Jun. 2020.
31. G. P. Raman, and **J. C. -H. Peng\***, Mitigating Stability Issues due to Line Dynamics in Droop-Controlled multi-Inverter Systems, *IEEE Transactions on Power Systems*, vol. 35, no. 3, pp. 2082-2092, May 2020.
32. K. Ali\*, S. Dube, P. Das, **J. C. -H. Peng**, and D. Rogers, Improvement of ZVS Range and Current Quality of the Nine-Switch Single-Stage AC-DC Converter, *IEEE Transactions on Power Electronics*, vol.5, no.35, pp. 4658-4668, May 2020.
33. G. R. Raman, **J. C. -H. Peng\***, and T. Rahwan, Manipulating Residents' Behavior to Attack the Urban Power Distribution System, *IEEE Transactions on Industrial Informatics*, vol.15, no.10, pp. 5575-5587, Oct. 2019.
34. S. Sahoo, S. Mishra, **J. C. -H. Peng\***, and T. Dragicevic, A Stealth Cyber Attack Detection Strategy for DC Microgrids, *IEEE Transactions on Power Electronics*, vol.34, no.8, pp. 8162-8174, Aug. 2019.
35. C. L. Chang, and **J. C. -H. Peng\***, A Decision-Making Auction Algorithm for Demand Response in Microgrids, *IEEE Transactions on Smart Grid*, vol.9, no.4, pp. 3553-3562, Jul. 2018.
36. G. R. Raman, Y. Kong, **J. C. -H. Peng\***, and Z. Ye, Demand Baseline Estimation using Similarity-based technique for Tropical and Wet Climates, *IET Generation, Transmission & Distribution journal*, vol.12, no.13, pp. 3296-3304, May 2018.
37. A. Adedayo, H. Zeineldin, M. El Moursi, **J. C. -H. Peng**, and M. Al Hosani\*, Domain of Stability Characterization for Hybrid Microgrids Considering Different Power Sharing Conditions, *IEEE Transactions on Energy Conversion*, vol.33, no.1, pp. 312-323, Mar. 2018.

38. H. M. Khalid, and **J. C. -H. Peng\***, Immunity Toward Data-Injection Attacks Using Multisensor Track Fusion-Based Model Prediction, *IEEE Transactions on Smart Grid*, vol.8, no.2, pp.697-707, Mar. 2017.
39. S. Mahajan, **J. C. -H. Peng\***, J. Elizondo Martinez, W. Xiao, P. H. Huang, and J. L. Kirtley, Improved Sample Value Adjustment for Synchrophasor Estimation at Off-Nominal Power System Conditions, *IEEE Transactions on Power Delivery*, vol.32, no.1, pp.33-44, Feb. 2017.
40. H. R. Chamorro\*, C. A. Ordonez, **J. C. -H. Peng**, and M. Ghandhari, Non-Synchronous Generation Impact on Power System Coherency, *IET Generation, Transmission & Distribution*, vol.10, no. 10, pp. 2443-2453, Jul. 2016.
41. H. M. Khalid, and **J. C. -H. Peng\***, A Bayesian Algorithm to Enhance the Resilience of WAMS Applications Against Cyber Attacks, *IEEE Transactions on Smart Grid*, vol.7, no.4, pp. 2026-2037, Jul. 2016.
42. H. M. Khalid, and **J. C. -H. Peng\***, Tracking Electromechanical Oscillations: An Enhanced Maximum-Likelihood Based Approach, *IEEE Transactions on Power Systems*, vol. 31, no.3, 1799-1808, May 2016.
43. P. H. Huang\*, W. Xiao, **J. C. -H. Peng**, and J. L. Kirtley, Comprehensive Parameterization of Solar Cell: Improved Accuracy with Simulation Efficiency, *IEEE Transactions on Industrial Electronics*, vol. 63, no. 3, pp. 1549-1560, Mar. 2016.
44. M. Klimontowicz, A. Al-Hinai\*, and **J. C. -H. Peng**, Optimal LFC SMC for three-Area power system with high penetration of PV, *Journal of Electric Systems*, vol. 12, no. 1, pp. 68-84, Mar. 2016.
45. H. M. Khalid, Q. Ahmed, **J. C. -H. Peng\***, and G. Rizzoni, Current-Split Estimation in Li-Ion Battery Pack: An Enhanced Weighted Recursive Filter Method, *IEEE Transactions on Transportation Electrification*, vol. 1, no. 4, pp. 402-412, Dec. 2015.
46. H. M. Khalid, Q. Ahmed, and **J. C. -H. Peng\***, Health Monitoring of Li-Ion Battery Systems: A Median Expectation-based Diagnosis Approach (MEDA), *IEEE Transactions on Transportation Electrification*, vol. 1, no. 1, pp. 94-105, Jun. 2015.
47. H. M. Khalid, and **J. C. -H. Peng\***, Improved Recursive Electromechanical Oscillations Monitoring Scheme: A Novel Distributed Approach, *IEEE Transactions on Power Systems*, vol. 30, no. 2, pp. 680-688, Mar. 2015.
48. H. M. Khalid\*, **J. C. -H. Peng**, and M. Mahmoud, An Enhanced Distributed Estimation Based on Prior Information, *IET Signal Processing*, vol. 9, no. 1, pp. 60-72, Feb. 2015.
49. **J. C. -H. Peng**, and N. -K. C. Nair\*, Enhancing Kalman Filter for Tracking Ringdown Electromechanical Oscillations, *IEEE Transactions on Power Systems*, vol. 27, no.2, pp. 1042-1050, May 2012.
50. **J. C. -H. Peng**, and N. -K. C. Nair\*, Adaptive Sampling Scheme for Monitoring Oscillations using Prony Analysis, *IET Generation, Transmission & Distribution*, vol. 3, no. 12, pp. 1052-1060, Dec. 2009.

## Media Coverage

— Hyperlinks are underlined.

1. W. T. Teng, Installation of EV Chargers in HDB Parking Lots Requires Substantial Investments (in Mandarin Chinese), *Lianhe Zaobao*, 12 July 2022. URL: <https://www.zaobao.com.sg>
2. R. Metteo, Views being sought on installing electric vehicle charges at buildings like condominiums, *Channel News Asia CNA*, 16 June 2022. URL: <https://www.youtube.com>

3. J. Havely, Inadequate charging networks could thwart electric vehicle adoption goals, NUS College of Design and Engineering News, 15 June 2022. URL: <https://cde.nus.edu.sg>
4. N. Meah, Exit of cheaper retailers a fresh blow for some households already using more electricity while working, studying at home, TODAY, 19 October 2021. URL: <https://www.todayonline.com>.
5. H. X. Yuen, Electricity consumption reveals proactive community response to COVID-19 progression, NUS Press Releases Insights Research COVID-19, 4 October 2021. URL: <https://news.nus.edu.sg>.
6. Y. A. Tan, Study: Household electricity consumption is related to the number of new cases of COVID-19, showing that people proactively prevent pandemic at home (in Mandarin Chinese), Zaobao, 4 October 2021. URL: <https://www.zaobao.com.sg>.
7. J. C. -H. Peng, Prepare Singapore's electricity grid for new era, The Strait Times, 28 October 2020. URL: <https://www.straitstimes.com>.
8. A. Peters, Hackers Could Take Down the Power Grid by Telling Everyone It was a Good Time to Turn Things On, Fast Company, 21 August 2020, URL: <https://www.fastcompany.com>.
9. P. Dockrill, Weaponised Disinformation Could Unleash City-Wide Blackouts, Researchers Warn, Science Alert, 22 August 2020, URL: <https://www.sciencealert.com>.
10. J. C. -H. Peng, In the Fight against Fake News, Dont Let Emotions Take Hold, Today, 6 May 2020. URL: <https://www.todayonline.com>.
11. J. C. -H. Peng, Debate on Cutting Carbon Emissions Will Define Our Future, The Strait Times, 7 March 2020. URL: <https://www.straitstimes.com>.
12. J. C. -H. Peng, Consumers Should Switch Retailers when Price Plan Goes Sour, The Strait Times, 22 February 2019. URL: <https://www.straitstimes.com>.

### Invited Talks

— Hyperlinks are underlined.

1. **J. C. -H. Peng**, [Assessing COVID-19 response using household electricity data](#), ETH Risk Center, ETH Zurich, Switzerland, November 2021.
2. **J. C. -H. Peng**, Building Grid Resilience with Inverter-based Resources and Prosumer Behavior, National Taiwan University, November 2021.
3. **J. C. -H. Peng**, W. Xiao, and Q. Han, A MATLAB/Simulink Approach of Photovoltaic Power Systems: Designing, Modeling, Simulation, and Control, Tutorial Session, IEEE Energy Conversion Congress and Exposition (ECCE), Vancouver, British Columbia, Canada, October 2021.
4. **J. C. -H. Peng**, [Resilience in Cyber-Physical Systems](#), APRU Multi-Hazards Summer Lecture Series: Creating a Resilient Society Against Multiple Hazards, Tohoku University, Japan, August 2021.
5. **J. C. -H. Peng**, Weaponizing Disinformation to Attack Critical Infrastructure, IEEE Young Professional Affinity Group, Denmark, March 2021.
6. **J. C. -H. Peng** [Global Renewable Power Generation Scenario and Challenges in Microgrids](#), National Institute of Technology Silchar, Assam, India, September 2020.
7. **J. C. -H. Peng**, From Engineering to Synthetic Biology, iGEM LifeHack Workshop, Singapore, February 2019.
8. **J. C. -H. Peng**, Facilitating Reliable Future Energy Trading for United Arab Emirates, National University of Singapore, Singapore, November 2015.



9. **J. C. -H. Peng**, Enhancing Situational Awareness in Electrical Power Infrastructures, Center for Automotive Research, Ohio State University, Columbus, Ohio, August 2015.
10. **J. C. -H. Peng**, Applications using Phasor Measurement Units, ABB Middle East User Group Meeting, Abu Dhabi, United Arab Emirates (UAE), May 2015.
11. **J. C. -H. Peng**, Moving Forward: Integration of Wide-Area Monitoring Systems, ABB Corporate Research Center, Vasteras, Sweden, March 2015.
12. **J. C. -H. Peng**, Interconnecting our World: Monitoring Inter-Area Oscillations in GCC Interconnection, KTH Royal Institute of Technology, Stockholm, Sweden, March 2015.
13. **J. C. -H. Peng**, Smarter Grid: Enhancing Power System Security, Ventyx, Abu Dhabi, UAE, November 2014.
14. **J. C. -H. Peng**, Renewable Integration: Challenges and Projections, Harvard Project for Asian and International Relations Conference, Dubai, UAE, November 2013.
15. **J. C. -H. Peng**, Monitoring System Dynamics in the Middle Eastern Power Grids, Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks (CURENT), Rensselaer Polytechnic Institute, Troy, New York, July 2013.
16. **J. C. -H. Peng**, Transmission Tomorrow: New Zealand Synchrophasor Development, University of Canterbury, Christchurch, New Zealand, May 2012.

### Conference Papers

1. J. Zhang, G. P. Raman, G. R. Raman, **J. C. -H. Peng**, and W. Xiao, A Resilient Scheme for Mitigating False Data Injection Attacks in Distributed DC Microgrids, IEEE Energy Conversion Congress and Exposition (ECCE), Oct. 2021.
2. H. Li, W. Xiao, S. Li, and **J. C. -H. Peng**, Enhanced Modulation Technique for Power Quality Improvement of LED Drivers, IEEE Energy Conversion Congress and Exposition (ECCE), Oct. 2021.
3. Q. Zhang, G. R. Raman, and **J. C. -H. Peng**, EV Charging Optimization based on Day-ahead Pricing Incorporating Consumer Behavior, IEEE Region 10 Conference, Nov. 2020.
4. J. Zhang, and **J. C. -H. Peng**, and J. Y. Siu, A Novel Design of Concurrent Cyber Attacks in Cooperative DC Microgrids, IEEE Power and Energy Society Transmission & Distribution Exposition, Oct. 2020.
5. G. P. Raman, X. Cao, A. Li, J. Lu, G. R. Raman, and **J. C. -H. Peng**, cGANs-based Real-time Stability Region Determination for Inverter-based Systems, IEEE Power and Energy Society General Meeting, Aug. 2020.
6. K. Ali, G. P. Raman, **J. C. -H. Peng**, and W. Xiao, A GaN-based High Step-Up Half-Bridge Resonant Converter for Interfacing PV modules to DC Data Centers, IEEE International Future Energy Electronics Conference, Nov. 2019.
7. G. P. Raman, and **J. C. -H. Peng**, and S. Venkatachari, On the Effect of Line Dynamics in Multi-inverter Systems with Generalized Droop Control, IEEE Energy Conversion Congress and Exposition (ECCE), Sep. 2019.
8. G. R. Raman, B. Zhao, **J. C. -H. Peng**, and M. Weidlich, Dynamic Decision Making for Demand Response through Adaptive Event Stream Monitoring, IEEE Power and Energy Society General Meeting, Aug. 2019.
9. R. Rana, S. Sahoo, S. Mishra, and **J. C. -H. Peng**, Performance Validation of Cooperative Secondary Controllers in Autonomous AC Microgrids under Communication Delays, IEEE Power

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