Hongyu Wu, Ph.D.

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CONTACT INFORMATION

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RESEARCH INTERESTS

- Smart Grid Cyber-Physical Security
- Artificial Intelligence in Power and Energy Sectors
- Stochastic Modeling and Optimization of Large-Scale Systems
- Renewable Energy (Wind and Solar) Integration
- Integration of Electric Vehicles in Smart Grids
- Home/Building Energy Management Systems
- Interdependent Energy Infrastructures
- Electric Power Systems Planning, Control, Operation, Reliability, and Economics

CURRENT AND PREVIOUS POSITIONS

- **ASSOCIATE PROFESSOR** **08/2021 - present**
  University Outstanding Scholar
  Lucas-Rathbone Professor in Engineering
  Steve Hsu Keystone Research Faculty Scholar
  Department of Electrical and Computer Engineering, Kansas State University, Manhattan, Kansas

- ASSISTANT PROFESSOR 08/2016 - 08/2021
  Michelle Munson-Serban Simu Keystone Research Faculty Scholar
  Department of Electrical and Computer Engineering, Kansas State University, Manhattan, Kansas

- RESEARCH ENGINEER 02/2014 - 08/2016
  Power Systems Engineering Center
  National Renewable Energy Laboratory (NREL), Golden, Colorado

- POST-DOCTORATE RESEARCH FELLOW 09/2011 - 02/2014
  Robert W. Galvin Center for Electricity Innovation at Illinois Institute of Technology, Chicago, IL

- RESEARCHER 02/2011 -08/2011
  State Grid Energy Research Institute, Beijing, China

- GRADUATE RESEARCH ASSISTANT 09/2004 -02/2011
  Xi'an Jiaotong University, Xi'an, China

EDUCATION AND TRAINING

- ILLINOIS INSTITUTE OF TECHNOLOGY, CHICAGO, IL
  Post-doctorate Research Fellow, 2014
  RESEARCH TOPIC: *Demand Response in Smart Grid*
  ADVISOR: Dr. Mohammad Shahidehpour, *MEMBER OF U.S. NATIONAL ACADEMY OF ENGINEERING, IEEE FELLOW*.

- XI'AN JIAOTONG UNIVERSITY, SHAANXI, CHINA
  Ph.D. in Control Science and Engineering, 2011
  DISSERTATION TITLE: *Modeling and Solution of Security-Constrained Unit Commitment (SCUC) in Power Systems*
  ADVISOR: Dr. Xiaohong Guan, *MEMBER OF CHINESE ACADEMY OF SCIENCES, IEEE FELLOW*.
  Recommended for Admission to Direct-to-Ph.D. Program

- XI'AN JIAOTONG UNIVERSITY, XI'AN, SHAANXI, CHINA
  B.S. in Power and Energy Engineering, 2003
  Minor in Computer Science, 2002

TEACHING EXPERIENCE

- KANSAS STATE UNIVERSITY, MANHATTAN, KS 08/2016 - present
  - ECE 581: Energy Conversion, Fall 2021-2023, 2025; Spring 2023, 2025
  - ECE 890: Introduction to Blockchain, Spring 2021
  - ECE 686: Power System Protection, Spring 2021
  - ECE 681: Wind and Solar Engineering, Fall 2018-2022, 2025
  - ECE 887: Distribution System Engineering, Spring 2019
  - ECE 885: Power Systems Operation and Control, Spring 2017, 2019, 2020, 2022, 2024
  - ECE 890: Power Market Operations, Fall 2016, 2017

- XI'AN UNIVERSITY OF FINANCE AND ECONOMICS, CHINA 09/2009 - 08/2010
  - Taught two undergraduate courses: *Visual C++* and *Computer Architecture*
  - Responsible for supervision of 3-hour laboratory

- XI'AN JIAOTONG UNIVERSITY, SHAANXI, CHINA 09/2008 - 02/2011
  - Supervised the theses of 5 undergraduate students and the journal paper publications of 3 Ph.D. students

MENTORING EXPERIENCE

- CURRENT MENTEES
  - Yichen Liu, Ph.D. student, machine-learning application in smart grid, Fall 2023 - present
  - Macie Sexton, M.S. student, AI-enabled energy management in microgrid, Summer 2025 - present
  - Deekshitha Chowdary Kalluri, M.S. student, machine-learning and big data analytics, Summer 2025 - present
  - Diego Sanchez, undergraduate student, microgrid design and planning, Summer 2025 - present

- PAST MENTEES

  - Sam Largo, undergraduate student, machine-learning application in smart grid, Summer 2025
  - Maddie Harp, undergraduate student, machine-learning application in smart grid, Summer 2025
  - Viv Nguyen, undergraduate student, microgrid design and planning, Summer 2025
  - Wilburn Wabaunsee, undergraduate student, microgrid design and planning, Summer 2025

- Xuebo Liu, Ph.D. student, machine-learning applications in smart grid, Fall 2020 - Spring 2025
- Timur Aminov, Research Associate, Typhoon-HIL-based attack-defense platform, Spring 2023 - Spring 2024
- Bo Liu, Research Assistant Professor, smart grid cyber-physical security, June 2021 - July 2024
- Grant Stamatis, undergraduate student, power flow model assessment, Spring 2023
- YinShan Wang, undergraduate student, home energy management system, Spring 2023
- Timur Aminov, M.S. student, Typhoon-HIL-based attack-defense platform, Spring 2022
- Bishwas Mandal, Ph.D. student, deep reinforcement learning in HVAC control, Spring 2022
- Noah Fulk, undergraduate student, PSCAD/PSSE simulation, Fall 2021 - Spring 2023
- Mulktar Alizada, M.S. student, integrated transmission + distribution simulation, Spring 2022
- Hang Zhang, Ph.D., smart grid cyber-physical security, Jan. 2019 - Dec. 2022
- Lawryn Edmonds, Ph.D., food, energy and water nexus, Fall 2017 - May 2022
- Aurora Grey, undergraduate student, machine learning and statistical analysis, Fall 2021 - May 2022
- Ananth Palani, Ph.D., Electricity market, Fall 2017 - July 2021
- Bo Liu, Ph.D., Smart grid cyber-physical security, Fall 2017 - May 2021
- Sayed F. Saeed, M.S., system frequency response with renewable energy, Fall 2020 - Spring 2021
- Nazif Faqiry, post-doctoral researcher, transactive energy market, Fall 2017 - Fall 2019
- Li Wang, M.S., home energy management system, Fall 2017 - Spring 2019
- Haifeng Zhang, visiting scholar, data center operation in smart grid, Fall 2017 - Sept. 2018
- Ying Liu, visiting scholar, home energy management system, Oct. 2017 - Aug. 2018
- Hang Zhang, M.S. student, wind and solar project, Fall 2018
- Hammad Aljaloud, M.S. student, electricity market, Spring 2018
- Jianwei Cui, M.S. student, substation automation, Fall 2017

FUNDING EXPERIENCE

- KSU (TOTAL FUNDING AT KSU: $12.3M)

ACTIVE

- Grant, Standardized, Scalable, and Cost-Effective AI Enhanced Microgrids for Remote Communities to Improve Resiliency and Support Decarbonization, DOE, PI, $300,000, KSU, 2024-2026
- Grant, Development of Cyber-physical Security Testbed for All-Electric Shipboard Power Systems, Office of Naval Research, PI, $315,000, KSU, 2023-2025
- Grant, RII Track-2 FEC: Sustainable Engineering Infrastructures and Solutions for Tribal Energy Sovereignty, NSF, PI, $1,150,000, KSU, 2023-2027
- Grant, Collaborative Research: AMPS: Deep-Learning-Enabled Distributed

Optimization Algorithms for Stochastic Security Constrained Unit Commitment, NSF, PI, $200,000, KSU, 2023-2026

- Grant, Towards Attack-Resilient Cyber-Physical Smart Grids: Moving Target Defense for Data Integrity Attack Detection, Identification and Mitigation, **NSF Career Award**, PI, $500,000, KSU, 2022-2027

COMPLETED

- Grant, INFEWS/T2 FEWtures: Innovation Analysis Framework for Resilient Futures, with Application to the Central Arkansas River Basin, NSF, Co-PI, $2,500,000, KSU, 2019-2025
- Grant, IRES: Research to Support Energy Sovereignty for Indigenous Peoples, NSF, Co-PI, $450,000, KSU, 2025
- Internal grant, Grid-integrated renewable energy for Kansas agriculture, Co-PI, $100,000, KSU, 2023-2024
- Grant, Development of MIDAS GUI and use cases for Stability-Augmented Optimal Control of Hybrid PV Plants with Very High Penetration of Inverter-based Resources (SAPPHIRE) Project, NREL, PI, $50,000, KSU, 2022-2023
- Grant, Building Smart Communities to Advance Solar Energy in Rural America, NSF, Co-PI, $150,000, 2021-2023
- Grant, Collegiate Wind Competition, DOE, PI, $51,000, KSU, 2021,2022
- Grant, RII Track-4: Robust Matrix Completion State Estimation in Low-Observability Distribution Systems under False Data Injection Attacks, NSF, PI, $198,000, KSU, 2019-2023
- Grant, MRI: Development of Grid of Nanogrids (GNG) Testbed, NSF, Co-PI, $892,000 (including $250K cost-share), KSU, 2019-2023
- Grant, Enabling a Transactive Energy System from a Stochastic Geometry Framework, NSF, Co-PI, $481,000, KSU, 2019-2023
- Grant, Enabling Cybersecurity, Situational Awareness and Resilience in Distribution Grids with High Penetration of Photovoltaics, DOE, Co-PI, $3,500,000 (including $700k cost-share), KSU, 2019-2023
- Grant, Development of ECE-681 Wind and Solar Energy, KSU Global Campus, PI, $13,000, 2019
- Grant, Collegiate Wind Competition, DOE, Co-PI, $12,000, KSU, 2019
- Grant, HEMS code to support IESM upgrades, DOE, PI, $20,000, KSU, 2018
- Grant, HEMS code to support hardware-in-the-loop experiments, DOE, PI, $10,000, KSU, 2017

- NATIONAL RENEWABLE ENERGY LABORATORY
  - Grant, Microgrid Integrated Solar and Storage Technology (MISST), DOE, Co-PI, $8,000,000 (including $4M cost-share), NREL, 2016
  - Grant, Stochastic Optimization in Bulk Power Market Operation, NREL's LDRD program, Co-PI, $300,000, 2014

PUBLICATIONS

- BOOK CHAPTERS

[B1] M. Shahidehpour and **H. Wu**, "Hourly demand response as an alternative to flexible ramping of thermal units in stochastic operation of electric power systems with non-dispatchable energy sources," *Hand Book of Clean Energy Systems*, June 2015

- REFEREED JOURNAL PUBLICATIONS

[J73] B. Liu, Q. Yang, **H. Wu**, and B. She, "Graph-theory-based optimal meter encoding for detecting false data injection attacks", *IEEE Transactions on Smart Grid*, UNDER REVIEW

[J72] Y. Liu, **H. Wu**, and B. Liu, "Representation-learning-based generative adversarial networks for generating false data injection attacks", *IEEE Transactions on Industrial Informatics*, UNDER REVIEW

[J71] X. Liu, L. Kiboma, V. Boadu, A. Modarresi, M. Hill, and **H. Wu**, "FEWtures-DRL based farm energy management considering ammonia generation: an approach within food-energy-water nexus", *Agricultural Systems*, UNDER REVIEW

[J70] H. Zhang, B. Liu and **H. Wu**, "Smart inverter enabled coding scheme for detecting false data injection attacks in distribution system state estimation", *Journal of Modern Power Systems and Clean Energy*, 2025

[J69] B. Liu and **H. Wu**, "Low-rank false data injection attacks with incomplete network information against machine learning detectors," *IEEE Transactions on Industrial Informatics*, vol. 21, no. 4, pp. 2868-2877, April 2025

[J68] B. Liu, Y. Liu, **H. Wu**, H. Zhang, Q. Yang, and Y. Zhang, "Tensor-completion-based false data injection attacks against machine-learning detectors," *IEEE Internet of Things Journal*, vol. 11, no. 22, pp. 36660-36672, Nov, 2024

[J67] X. Liu, **H. Wu**, and Y. Wu, "Enhancing HVAC energy management through multi-zone occupant-centric approach: A multi-agent deep reinforcement learning solution", *Energy and Buildings*, vol. 303, 2024

[J66] X. Liu, X. Fang, N. Gao, H. Yuan, A. Hoke, **H. Wu**, and J. Tan, "Frequency nadir constrained unit commitment for high renewable penetration island power systems," *IEEE Open Access Journal of Power and Energy*, vol. 11, PP. 141-153, 2024

[J65] Y. Wu, K. D. Morris, X. Liu, S. Lu, X. Wan, and **H. Wu**, "An exploratory study of body asymmetry using 3D body scans and machine learning", *Clothing and Textiles Research Journal*, no. 43, pp. 187-203, 2024

[J64] B. Liu, **H. Wu** and H. Zhang, "Countering AC load redistribution attacks in smart grids: the role of moving target defense in a defense-attack game," *IEEE Access*, vol. 12, pp. 118060-118071, 2024.

[J63] B. Liu, **H. Wu**, H. Zhang, Q. Yang, Y. Liu, and Y. Zhang, "Matrix-completion-based false data injection attacks against machine-learning detectors," *IEEE Transactions on Smart Grid*, vol. 15, no. 2, pp. 2146-2163, March 2024

[J62] R. Nematirad, A. Pahwa, B. Natarajan, and **H. Wu**, "Optimal sizing of photovoltaic-battery system for peak demand reduction using statistical models", *Frontiers in Energy Research*, vol. 11, 2023

[J61] B. Liu, **H. Wu**, Q. Yang, and H. Zhang, "Random-based hidden moving target defense against alert false data injection attackers," *Processes*, vol. 11, no. 2, 2023

[J60] A. Tolooie, **H. Wu**, A. Palani, A. Sinha, and X. Liu, "A multi-cut L-shaped decomposition algorithm for stochastic unit commitment problem with renewable generation", Available at SSRN: https://ssrn.com/abstract=4189386

[J59] O. Al-Ani, S. Das, and **H. Wu**, "Imitation learning with deep attentive tabular neural networks for environmental prediction and control in smart home", *Energies*, vol. 16, no. 13, 2023

[J58] X. Liu, Y. Wu, and **H. Wu**, "Machine learning enabled 3D body measurement estimation using hybrid feature selection and Bayesian search", *Applied Sciences*, vol. 12, 2022

[J57] **H. Wu**, A. Pratt, P. Munankarmi, M. Lunacek, S. P. Balamurugan, X. Liu and P. Spitsen, "Impact of model predictive control enabled home energy management on large-scale distribution systems with photovoltaics", *Advances in Applied Energy*, vol. 6, 2022

[J56] H. Zhang, B. Liu, X. Liu, A. Pahwa, and **H. Wu**, "Voltage stability constrained moving target defense against net load redistribution attacks", *IEEE Transactions on Smart Grid*, vol. 13, no. 5, pp. 3748-3759, Sept. 2022

[J55] L. Edmonds, P. Pfromm, V. Abudu, M. Hill, and **H. Wu**, "Green ammonia production-enabled demand flexibility in agricultural community microgrids with distributed renewables", *Sustainable Energy, Grids and Networks*, vol. 31, 2022

[J54] P. Munankarmi, **H. Wu**, A. Pratt, M. Lunacek, S. P. Balamurugan, and P. Spitsen, "Home energy management system for price-responsive operation of consumer technologies under an export rate," *IEEE Access*, vol. 10, pp. 50087-50099, 2022

[J53] X. Liu, Y. Wu, and **H. Wu**, "PV-EV integrated home energy management considering residential occupant behaviors", *Sustainability*, vol. 13, no. 24, pp. 13826, Dec. 2021

[J52] M. Tian, H. Zhang, and **H. Wu**, "Energy management for data center microgrids considering co-optimization of workloads and waste heat", *IET Energy Systems Integration*, Sept, 2021

[J51] B. Liu, Q. Yang, H. Zhang, and **H. Wu**, "An interior-point solver for AC optimal power flow considering variable impedance-based FACTS devices," *IEEE Access*, vol. 9, pp. 154460-154470, 2021

[J50] J. Phetheeta, M. Hill, W. Heger, B. Barron, B. J. Gray, **H. Wu**, I. Kisekka, B. Golden, and M. Rossi, "Relating farm incomes to agricultural, energy, and water decisions using the FEWCalc agent-based model and DSSAT," *Agricultural Systems*, vol. 193, 2021.

[J49] L. Edmonds, M. Derby, M. Hill, and **H. Wu**, "Coordinated water and electricity distribution networks with distribution locational marginal pricing," *Renewable Energy*, vol. 177, pp. 1438-1450, Nov. 2021.

[J48] A. M. Palani, **H. Wu**, and M. Morcos, "A fast penalty-based gauss-seidel

method for stochastic unit commitment with uncertain load and wind generation," *IEEE Open Access Journal of Power and Energy*, vol. 8, pp. 211-222, 2021

[J47] X. Liu, Y. Wu, H. Zhang and **H. Wu**, "Hourly occupant clothing decisions in residential HVAC energy management," *Journal of Building Engineering*, vol. 40, August 2021.

[J46] B. Liu and **H. Wu**, "Optimal planning and operation of hidden moving target defense for maximal detection effectiveness," *IEEE Transactions on Smart Grid,* vol. 12, no. 5, pp. 4447-4459, Sept. 2021

[J45] B. Liu and **H. Wu**, "Systematic planning of moving target defense to maximize detection effectiveness against false data injection attacks in smart grid," *IET Cyber-Physical Systems: Theory and Applications,* vol.6, no. 3, pp. 151-163, 2021

[J44] H. Zhang, B. Liu, and **H. Wu**, "Smart grid cyber-physical attack and defense: a review," *IEEE Access*, vol. 9, pp. 29641-29659, 2021.

[J43] J. Phetheet, M. C. Hill, R. W. Barron, M. W. Rossi, V. Amanor-Boadu, **H. Wu**, and I. Ksekka, "Consequences of climate change on food-energy-water systems in arid regions without agricultural adaptation, analyzed using FEWCalc and DSSAT," *Resources, Conservation & Recycling* (*IF=8.1*), vol. 168, 2021

[J42] A. K. Zarabie, S. Das, and **H. Wu**, "A data-driven machine learning approach for consumer modeling with load disaggregation," arXiv:2011.03519, 2020.

[J41] X. Liu, **H. Wu**, L. Wang, and M. Faqiry. "Stochastic home energy management system via approximate dynamic programming," *IET Energy Systems Integration*, vol. 2, No. 4, pp. 382 -392, 2020 (*MOST DOWNLOADED PAPER*)

[J40] Q. Yang, C. Yi, A. Vajdi, L. W Cohnstaedt, **H. Wu**, X. Guo, C. M Scoglio, "Short-term forecasts and long-term mitigation evaluations for the COVID-19 epidemic in Hubei Province, China," *Infectious Disease Modelling*, vol. 5, pp: 563-574, 2020

[J39] Y. Dafalla, B. Liu, D. Hahn, **H. Wu**, R. Ahmadi, and A. Bardas, "Prosumer Nanogrids: A Cybersecurity Assessment," *IEEE Access,* vol. 8, pp. 131150-131164, 2020

[J38] D. Geng, H. Zhang, and **H. Wu**, "Short-term wind speed prediction based on principal component analysis and LSTM," *Applied Sciences*, vol. 10, no. 13, pp: 4416, 2020

[J37] B. Liu and **H. Wu**, "Optimal D-FACTS placement in moving target defense against false data injection attacks," *IEEE Transactions on Smart Grid,* vol. 11, no. 5, pp. 4345-4357, Sept. 2020

[J36] M. Faqiry, L. Edmonds, **H. Wu,** and A. Pahwa, "Distribution LMP-based transactive day-ahead market with variable renewable generation," *Applied Energy*, vol. 259, pp. 114103, 2020

[J35] H. Zhang, T. Xu, **H. Wu**, B. Liu, and M. Faqiry, "Risk-based stochastic day-ahead operation for data centre virtual power plants," *IET Renewable Power*

Generation, vol. 13, no. 10, pp: 1660-1669, July 2019

[J34] A. M. Palani, **H. Wu**, and M. Morcos, "A Frank-Wolfe progressive hedging algorithm for improved lower bounds in stochastic SCUC," *IEEE Access*, vol. 7, pp. 99398-99406, 2019

[J33] M. N. Faqiry, L. Wang, and **H. Wu**, "HEMS-enabled transactive flexibility in real-time operation of three-phase unbalanced distribution systems," *Journal of Modern Power Systems and Clean Energy*, vol. 7, no. 6, pp. 1434-1449, November 2019

[J32] K. Jhala, B. Natarajan, A. Pahwa, and **H. Wu**, "Stability of transactive energy market-based power distribution system under data integrity attack," *IEEE Transactions on Industrial Informatics*, vol. 15, no. 10, pp. 5541-5550, Oct. 2019

[J31] T. Liu, J. Tian, J, Wang, **H. Wu**, L. Sun, Y. Zhou, C. Shen, and X. Guan, "Integrated security threats and defense of cyber-physical systems," *Acta Automatica Sinica*, vol. 45, no. 1, pp: 5-24, 2019

[J30] Y. Gu, H. Jiang, Y. Zhang, J Zhang, **H. Wu**, and E. Muljadi, "Multi-timescale three-phase unbalanced distribution system operation with variable renewable generations," *IEEE Transactions on Smart Grid*, vol. 10, no. 4, pp. 4497-4507, July 2019

[J29] S. Das, M. N. Faqiry, A. K. Zarabie, and **H. Wu**, "Game theoretic equilibrium analysis of energy auction in microgrid," *International Journal of Electrical and Electronic Engineering & Telecommunications*, 2018

[J28] **H. Wu** and M. Shahidehpour, "Applications of ZigBee wireless sensor networks for area coverage in microgrids," *IEEE Transactions on Smart Grid,* vol. 9, no. 3, pp. 1590-1598, May 2018

[J27] M. N. Faqiry, L. Edmonds, H. Zhang, A. Khodaei and **H. Wu**, "Transactive-market-based operation of distributed electrical energy storage with grid constraints," *Energies*, vol. 10, no. 9, Sept. 2017

[J26] I. Alsaidan, A. Alanazi, W. Gao, **H. Wu** and A. Khodaei, "State-of-the-art in microgrid-integrated distributed energy storage sizing," *Energies*, vol. 10, no. 9, Sept. 2017

[J25] S. Chen, T. Liu, F. Gao, J. Ji, Z. Xu, B. Qian, **H. Wu**, and X. Guan, "Butler, not servants: A human-centric smart home energy management system," *IEEE Communications Magazine*, vol. 55, no. 2. pp. 27-33, Feb. 2017

[J24] M. Cui, J. Zhang, **H. Wu**, and B.M. Hodge, "Wind-friendly flexible ramping product design in multi-timescale power system operations," *IEEE Transactions on Sustainable Energy*. vol. 8, no. 3, pp. 1064-1075, Jan. 2017

[J23] **H. Wu**, I. Krad, A. Florita, E. Ibanez, J. Zhang, and B.M. Hodge, and E. Ela, "Stochastic multi-timescale power system operations with variable wind generation," *IEEE Transactions on Power Systems.* vol. 32, no. 5, pp. 3325-3337, Sept. 2017

[J22] I. Krad, D. W. Gao and **H. Wu**, "An assessment of flexibility reserves in stochastic modeling at multiple timescales," *CSEE Journal of Power and Energy Systems*, vol. 3, no. 1, pp. 84-92, March 2017

[J21] Q. Wang, **H. Wu**, A. Florita, C.B. Martinez, and B.M. Hodge, "The value of

improved wind power forecasting: grid flexibility quantification, ramp capability analysis, and impacts of electricity market operation timescales," *Applied Energy*, vol. 184, pp. 696-713, Dec. 2016

[J20] A. Pratt, D. Krishnamurthy, M. Ruth, **H. Wu**, M. Lunacek, and P. Vaynshenk, "Transactive home energy management systems: The impact of their proliferation on the electric grid," *IEEE Electrification Magazine*, vol. 4, no. 4, pp. 8-14, Dec. 2016

[J19] B. Palmintier, E. Hale, T. Hansen, W. Jones, D. Biagioni, H. Sorensen, **H. Wu**, and B.M. Hodge, "IGMS: An integrated ISO-to-appliance scale grid modeling system," *IEEE Transactions on Smart Grid*, vol. 8, no. 3, pp. 1525-1534, May 2017

[J18] I. Krad, D. W. Gao, E. Ela, E. Ibanez, and **H. Wu**, "Analysis of operating reserve demand curves in power system operations in the presence of variable generation," *IET Renewable Power Generation*, vol. 11, no. 7, pp. 959-965, June, 2017

[J17] M.E Khodayar, S. Manshadi, **H. Wu,** and J. Lin, "Multiple period ramping processes in day-ahead electricity markets," *IEEE Transactions on Sustainable Energy*, vol. 7, no. 4, pp. 1634-1645, Oct. 2016

[J16] Q. Wang, C.B. Martinez, **H. Wu**, A. Florita, and B.M. Hodge, "Quantifying the economic and grid reliability impacts of improved wind power forecasting," *IEEE Transactions on Sustainable Energy*. vol. 7, no. 4, pp. 1525-1537, Oct. 2016

[J15] C. Dai, L. Wu and **H. Wu**, "A multi-band uncertainty set based robust SCUC with spatial and temporal budget constraints," *IEEE Transactions on Power Systems*, vol. 31, no. 6, pp. 4988-5000, Nov. 2016

[J14] A. Kargarian, Y. Fu, and **H. Wu,** "Chance-constrained system of system based decentralized operation of power systems," *IEEE Transactions on Power* Systems, vol. 31, no. 5, pp. 3404-3413, Sept. 2016

[J13] **H. Wu**, M. Shahidehpour, A. Alabdulwahab, and A. Abusorrah. "A game theoretic approach to risk-based optimal bidding strategies for electric vehicle aggregators in electricity markets with variable wind energy resources," *IEEE Transactions on Sustainable Energy,* vol. 7, no. 1, pp. 374-385, Jan. 2016

[J12] M.E. Khodayar and **H. Wu**. "Demand forecasting in the smart grid paradigm: features and challenges," *The Electricity Journal*, vol. 28, no. 6, pp. 51-62, July 2015

[J11] **H. Wu**, M. Shahidehpour, A. Alabdulwahab, and A. Abusorrah. "Demand response exchange in the stochastic day-ahead scheduling with variable renewable generation," *IEEE Transactions on Sustainable Energy*. vol. 6, no. 2, pp. 516-525, Feb. 2015

[J10] **H. Wu**, M. Shahidehpour, A. Alabdulwahab, and A. Abusorrah. "Thermal generation flexibility with ramping costs and hourly demand response in stochastic security-constrained scheduling of variable energy sources," *IEEE Transactions on Power Systems*, vol. 30, no. 6, pp. 2955-2964, Nov. 2015

[J9] **H. Wu** and M. Shahidehpour. "Stochastic SCUC with variable wind penetration using constrained ordinal optimization," *IEEE Transactions on*

Sustainable Energy. vol. 5, no. 2, pp. 379-388, April 2014

[J8] **H. Wu**, M. Shahidehpour, Z. Li, and W. Tian. "Chance-constrained day-ahead scheduling in stochastic power system operations," *IEEE Transactions on Power Systems*. vol. 29, no. 4, pp. 1583-1591, July 2014

[J7] **H. Wu**, M. Shahidehpour, and M. E. Khodayar, "Hourly demand response in day-ahead scheduling for reducing generating unit ramping cost," *IEEE Transactions on Power Systems*, vol. 28, no. 3, pp. 2446-2454, Aug. 2013

[J6] **H. Wu**, M. Shahidehpour and A. Al-Abdulwahab, "Hourly demand response in day-ahead scheduling for managing the variability of renewable energy," *IET Generation Transmission and Distribution*, vol. 7, no. 3, pp 226-234, March 2013

[J5] **H. Wu**, X. Guan, Q. Zhai, et al., "A systematic method for constructing feasible solution to SCUC problem with analytical feasibility conditions," *IEEE Transactions on Power Systems*, vol. 27, no. 1, pp.526-534, Feb. 2012

[J4] **H. Wu**, Q. Zhai, X. Guan, et al. "Security-constrained unit commitment based on a realizable energy delivery formulation," *Mathematical Problems in Engineering*, vol. 2012, pp. 1-22, 2012

[J3] Q. Zhai, X. Guan, J. Cheng, and **H. Wu**, "Fast identification of inactive security constraints in SCUC problems," *IEEE Transactions on Power Systems*, vol. 25, no. 4, pp. 1946-1954, Nov. 2010 (IEEE TRANSACTIONS PRIZE PAPER AWARD FINALIST)

[J2] **H. Wu**, X. Guan, Q. Zhai, et al. "Short-term hydrothermal scheduling using mixed-integer linear programming," *Proceedings of the Chinese Society of Electrical Engineering*. vol. 29, no. 28, pp. 82-88. Oct. 2009

[J1] J. Jia, Q. Zhai, X. Guan, and **H. Wu**. "Mixed integer programming based method for short-term scheduling of hydroelectric plants," *Journal of Xi'an Jiaotong University*. Vol. 42, no. 8, pp. 82-88, 2008

- REFEREED CONFERENCE PUBLICATIONS AND TECHNICAL REPORTS

[C52] A. Debnath, B. Liu and **H. Wu**, "Unobservable tensor-completion enabled false data injection attacks against PMU state estimation", *2026 IEEE PES General Meeting*, UNDER REVIEW

[C51] Y. Liu, **H. Wu**, and B. Liu, "Evaluation of large language models for numeric anomaly detection in power systems", *2026 IEEE PES General Meeting*, UNDER REVIEW (ARXIV:2511.21371)

[C50] B. Liu, and **H. Wu**, "Enhanced tensor-completion distribution system state estimation considering measurement outliers and noises", *2025 IEEE PES General Meeting*, IN PRESS

[C49] Y. Liu, A. Pradeep, T. Stucky, **H. Wu**, and B. Liu, "Detecting false data injection attacks in smart grids: A transformer-based self-supervised learning approach", *2025 IEEE PES General Meeting*, IN PRESS

[C48] T. Aminov, **H. Wu**, H. Zhang, B. Liu, "Real-time simulation of convolutional neural network detectors for false data injection attacks using Typhoon HIL", *2024 IEEE Kansas Power and Energy Conference (KPEC)*, IN PRESS

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[C44] Y. Liu, B. Liu and **H. Wu**, "False data injection attacks based on least squares generative adversarial networks with reconstruction loss", *2024 IEEE PES General Meeting,* IN PRESS

[C43] M. Hill, R. Barron, P. Pfromm, V. Amanor-Boadu, **H. Wu**, et al, "Low Carbon Opportunities for Arid Agricultural Areas Impacted by Climate Change: The FEWtures Experience in the Central Arkansas River basin (CARB) with Global Interaction Evaluation using GCAM", *2023 Annual AGU Fall Meeting*

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[C41] B. Liu, **H. Wu**, Q. Yang, X. Liu and Y. Liu, "Data-driven FDI attacks: a stealthy approach to subvert SVM detectors in power system security", *2023 IEEE Kansas Power and Energy Conference (KPEC)*, IN PRESS

[C40] X. Liu, Y. Wu, H. Zhang, B. Liu, and **H. Wu**, "A multi-agent deep deterministic policy gradient method for multi-zone HVAC control", *2023 IEEE PES General Meeting*, IN PRESS

[C39] B. Liu, Q. Yang, H. Zhang, X. Liu and **H. Wu**, "Random-based hidden moving target defense against alert false data injection attackers", *2023 IEEE PES General Meeting*, IN PRESS

[C38] O. Al-Ani, S. Das, **H. Wu**, D. Martinez-Figueora, X. Liu and R. Cheppally, "A deep architecture using multiple TabNets for environmental prediction and control in smart home", *2022 IEEE Symposium Series on Computational Intelligence (SSCI),* Singapore, Singapore, 2022

[C37] Y. Wu, X. Liu, and **H. Wu**, "An exploratory study of body measurements prediction using machine learning and 3D body scans", *2022 International Textile and Apparel Association Annual Conference Proceedings,* Denver, USA, 2022

[C36] X. Liu, J. Xie, X. Fang, H. Yuan, B. Wang, **H. Wu**, and J. Tan, "A comparison of machine learning methods for frequency nadir estimation in power systems", *2022 Kansas Power and Energy Conference*, Manhattan, KS, USA, 2022

[C35] L. Edmonds, X. Liu, H. Zhang, B. Liu, and **H. Wu,** "Demand-responsive green ammonia plant model and impact on electricity distribution system", *2022 IEEE Power & Energy Society General Meeting (PESGM),* Denver,

CO, USA, 2022, pp. 1-5.

[C34] X. Liu, Y. Wu, H. Zhang, L. Edmonds, **H. Wu**, "Home energy management with clothing integrated thermal comfort and EV SOC concern", *2022 IEEE Power & Energy Society General Meeting (PESGM),* Denver, CO, USA, 2022, pp. 1-5

[C33] H. Zhang, N. Fulk, B. Liu, L. Edmonds, X. Liu, and **H. Wu**, "Load margin-constrained moving target defense against false data injection attacks", *2022 IEEE Green Tech*, Houston, Texas, March, 2022

[C32] J. Rajasekaran, B. Natarajan, A. Pahwa, and **H. Wu**, "Detection of stealthy false data injection attacks in unobservable distribution networks", *2022 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT),* New Orleans, LA, USA, 2022

[C31] X. Liu, M. Ross, H. Bindra, and **H. Wu**, "Optimal sizing of battery energy storage systems for small modular reactor based microgrids," 2021 IEEE Kansas Power and Energy Conference (KPEC), Manhattan, KS, USA, 2021

[C30] H. Zhang, B. Liu, and **H. Wu**, "Net load redistribution attacks on nodal voltage magnitude estimation in AC distribution networks," *2020 IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe)*, The Hague, Netherlands, 2020

[C29] L. Edmonds, M. Nazif Faqiry, **H. Wu** and A. Palani, "Three-phase distribution location marginal price to manage unbalanced variable renewable energy," *2020 IEEE Power & Energy Society General Meeting.*

[C28] B. Liu, L. Edmonds, H. Zhang, and **H. Wu**, "An interior-point solver for optimal power flow problems considering distributed FACTS devices," *2020 IEEE Kansas Power and Energy Conference (KPEC)*, Manhattan, KS, USA, 2020, pp. 1-5

[C27] L. Edmonds, B. Liu, H. Zhang, C. Scoglio, D. Gruenbacher, and **H. Wu**, "Blockchain-enabled transactive home energy management systems in distribution networks," *2020 IEEE Kansas Power and Energy Conference (KPEC)*, Manhattan, KS, USA, 2020, pp. 1-5

[C26] H. Kanakri, A. Pahwa, M. N. Faqiry, **H. Wu**, and B. Natarajan, "Residential aggregator risk-constrained profit maximization under demand response," *2020 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT),* Washington, DC, USA, 2020, pp. 1-5

[C25] B. Liu, **H. Wu**, Y. Zhang, R. Yang, and A. Bernstain, "Robust matrix completion state estimation in distribution systems," *2019 IEEE Power & Energy Society General Meeting (PESGM)*, Atlanta, GA, USA, 2019, pp. 1-5

[C24] M. C. Hill, R. W. Barron, V. Amanor-Boadu, P. Pfromm, **H. Wu**, J. Bloodgood, and B.J. Gray, "Intelligent Science for Involving Stakeholders in Making Agriculture Sustainable using Local Renewable Energy," American Geophysical Union, Fall Meeting

[C23] M. Easley, L. Haney, J. Paul, K. Fowler, and **H. Wu**, "Deep neural networks for short-term load forecasting in ERCOT system," *IEEE Texas Power and Energy Conference (TPEC) 2018* (*Best Paper Award*)

[C22] B. Sparn, D. Krishnamurthy, A. Pratt, M. Ruth, and **H. Wu**, "Hardware-in-

the-loop (HIL) simulations for smart grid impact studies," *2018 IEEE Power & Energy Society General Meeting (PESGM),* Portland, OR, pp. 1-5, 2018

[C21] B. Liu, **H. Wu**, A. Pahwa, F. Ding, E. Ibrahim, T. Liu, "Hidden moving target defense against false data injection in distribution network reconfiguration," *2018 IEEE Power & Energy Society General Meeting (PESGM),* Portland, OR, pp. 1-5, 2018

[C20] M. Faqiry, L. Wang, **H. Wu**, D. Krishnamurthy and B. Palmintier, "ADP-based home energy management system under uncertainty: A case study using DYNAMO," *2018 IEEE Power & Energy Society General Meeting (PESGM),* Portland, OR, pp. 1-5, 2018

[C19] M. Faqiry, A. Zarabie, F. Nassery, **H. Wu**, and S. Das, "A day-ahead market energy auction for distribution system operation," *2017 Ninth Annual IEEE Green Technologies Conference (GreenTech),* pp. 132–138, 2017

[C18] S. Veda, **H. Wu**, M. Martin, and M. Baggu, "Developing Use Cases for the Evaluation of ADMS Applications to Accelerate Technology Adoption," in *2017 Ninth Annual IEEE Green Technologies Conference* (GreenTech), 2017, pp. 132–138

[C17] A. Pratt, M. Ruth, S. Mittal, D. Krishnamurthy, B. Sparn, **H. Wu**, J. Marks, M. Lunacek and W. Jones, "Hardware-in-the-Loop simulation of a distribution system with air conditioners under model predictive control," *2017 IEEE Power & Energy Society General Meeting*, Chicago, IL, 2017, pp. 1-5

[C16] J. Ji, T. Liu, C. Shen, **H. Wu**, W. Liu, M. Su, Z. jia, and S. Chen, "A human-centered smart home system with wearable-sensor behavior analysis," *IEEE Conference on Automation Science and Engineering*, Fort Worth, Texas, US, August 21-24, 2016

[C15] B. Palmintier, D. Krishnamurthy and **H. Wu**, "Design flexibility for uncertain distributed generation from photovoltaics," 2016 *IEEE Power & Energy Society Innovative Smart Grid Technologies Conference* (*ISGT*), Minneapolis, MN, 2016, pp. 1-5

[C14] B. Palmintier, E. Hale, T. Hansen, W. Jones, D. Biagioni, K. Baker, **H. Wu**, J. Giraldez, H. Sorensen, M. Lunacek, N. Merket, J. Jorgenson, and B. M. Hodge, "Final Technical Report: Integrated Distribution-Transmission Analysis for Very High Penetration Solar PV," NREL/TP-5D00-65550

[C13] Q. Wang, **H. Wu**, B.M. Hodge, W. Li and C. Luo, "Analyzing the impacts of increased wind power on generation revenue sufficiency," 2016 IEEE PES General meeting (*Best Conference Paper on Planning, Operations, & Electricity Markets*)

[C12] M. Cui, J. Zhang, **H. Wu**, B. Hodge, D. Ke and Y. Sun, "Wind power ramping product for increasing power system flexibility," 2016 *IEEE/PES Transmission and Distribution Conference and Exposition (T&D)*, Dallas, TX, 2016, pp. 1-5

[C11] Y. Zhang, R. Yang, **H. Wu**, H. Jiang, B. Mather, B. Lundstrom, "Coupling energy management systems at distribution and home level by utilizing look-ahead distribution state estimation," 2015 *IEEE PES General Meeting*, Denver Colorado, USA, July 2015

[C10] **H. Wu**, E. Ela, I. Krad, et al, "An assessment of the impact of stochastic day-ahead SCUC on economic and reliability metrics at multiple timescales," *2015 IEEE PES General Meeting*. (*Best Paper on Power System Modeling and Simulation*)

[C9] **H. Wu**, A. Pratt, and S. Chakraborty, "Stochastic Optimal Operation of Residential Appliances with Variable Energy Sources," *2015 IEEE PES General Meeting*, Denver, CO, USA

[C8] M. Ruth, A. Pratt, W. Jones, **H. Wu** and M. Lunacek, "Effects of home energy management systems on distribution utilities and feeders under various market structures," *23rd International Conference and Exhibition on Electricity Distribution*, Lyon, France, June, 2015

[C7] M. Shahidehpour and **H. Wu.** "Stochastic operation security with demand response and renewable energy sources," *2012 Power & Energy Society General Meeting*, San Diego, California, USA, July 2012

[C6] H. Ye, Q. Zhai, Y. Ge, and **H. Wu**. "A revised subgradient method for solving the dual problem of hydrothermal scheduling," *2011 Asia-Pacific Power and Energy Engineering Conference*, Wuhan, China, March 2011

[C5] Q. Feng and **H. Wu**. "Information technology-based smart energy system," *2011 International Conference on Energy, Environment and Sustainable Development*, Shanghai, China, Oct. 2011

[C4] Q. Zhai, **H. Wu**, and X. Guan. "Analytical conditions for determining feasible commitment states of SCUC problems," *2010 Power & Energy Society General Meeting*, Minneapolis, Minnesota, USA, July 2010

[C3] Q. Zhai and **H. Wu**. "Several notes on Lagrangian Relaxation for Unit Commitment," *29th Chinese Control Conference*, Beijing, China, July 2010

[C2] **H. Wu**, X. Guan, Q. Zhai, et al. "Security-constrained generation scheduling with feasible energy delivery," *2009 Power & Energy Society General Meeting*, Calgary, Canada, July 2009

[C1] J. Jia, Q. Zhai, X. Guan, and **H Wu**. "Optimal short term scheduling of cascaded hydroelectric chain plants with pumped-storage units," *27th Chinese Control Conference*, Kunming, China, July 2008

SOFTWARE RECORD/ COPYRIGHT

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[S3] M. Ruth, A. Pratt, W. Jones, M. Lunacek, S. Mittal, and **H. Wu**. Integrated Energy System Model, Software Record, DOE, 2016

[S2] **H. Wu**, A. Pratt, and S. Chakraborty. Home Energy Management System, Software Record, DOE, 2015

[S1] **H. Wu**, H. Ye, et al. Web-based platform for power system analysis and optimization, Software copyright, 2009

INVITED TALKS, CONFERENCE AND PANEL

[P29] "Empowering rural resilience: agricultural microgrids for a net zero grid", keynote speaker, the 20th Dialog on Sustainability, July 2025.

PRESENTATIONS

[P28] "Machine learning for power system cybersecurity: detecting and defending against stealthy false data injection attacks", IEEE PES Subcommittee on Big Data & Analytics for Power Systems, Feb. 2025

[P27] "Towards attack-resilient cyber-physical smart grids: moving target defense for data integrity attack detection, identification, and mitigation", NSF CAREER Award Panel, IEEE PES General Meeting, July 2023

[P26] "Innovating for a sustainable energy future: advancing renewable energy integration and cyber-physical security in smart grids", keynote speaker, University of Missouri, Columbia, April 2023

[P25] "Pathways to net zero greenhouse gas emissions by 2050", Panel presentation at Worldwide Teach-In on Climate and Justice, KSU, March 2023

[P24] "Machine-learning-enabled moving target defense against cyber-physical attacks in smart grid", departmental seminar, University of Georgia, Feb. 2023

[P23] "Impact of model predictive control-enabled home energy management on large-scale distribution systems with Photovoltaics", Energy visions seminar, August, 2022

[P22] "NSF CAREER Nuts and Bolts", KSU seminar, March 2022

[P21] "Machine-learning-enabled moving target defense in smart grid", departmental seminar, University of Georgia, Feb. 2022

[P20] "Coordinated water and electricity distribution networks with distribution locational marginal pricing", 10th annual Governor's Conference on the Future of Water in Kansas, Nov. 2021

[P19] "Cyber-physical attack and defense in smart grid: a review," committee presentation at IEEE-NERC cybersecurity integration project, August, 2021

[P18] "Challenges and opportunities for DER markets and DLMP," panel presentation at Denver Online Forecasting and Markets Workshop - Markets 3, June 2020

[P17] "Matrix completion state estimation in low-observability distribution systems", paper presentation in 2019 IEEE Power and Energy Society General Meeting, Atlanta, GA, Aug. 2019

[P16] "R&D in smart energy system group at K-State," invited talk at Westar Energy (Evergy) Inc., Topeka, KS, Nov. 2018

[P15] "Stochastic optimization in smart electrical grid," invited talk in Knowledge Discovery in Databases Seminar, Kansas State University, Sept. 2018

[P14] "Using local energy to complete the agricultural nitrogen cycle in a wind-energy-rich region," panel presentation in 2018 IEEE Power and Energy Society General Meeting, Portland, OR, Aug. 2018

[P13] "Smart electric grid with renewable energy," invited talk in NSF REU Seminar, Kansas State University, July 2017

[P12] "Applications of ZigBee wireless sensor networks for area coverage in microgrids," paper presentation in 2017 IEEE PES PowerTech, Manchester, UK, June 2017

[P11] "Energy management systems in next-generation power grid," invited talk at Black and Veatch Inc., Kansas City, Sept. 2016

[P10] "A game theoretic approach to risk-based optimal bidding strategies for electric vehicle aggregators in electricity markets with variable wind energy resources", paper presentation in 2016 IEEE Power and Energy Society General Meeting, Boston, July 2016

[P9] "Stochastic multi-timescale power system operations with increased variable generation and operational flexibilities," invited talk at Ascend Analytics Inc., Boulder, CO, Oct. 2015

[P8] "Stochastic optimal scheduling of residential appliances with renewable energy sources," paper presentation in 2015 IEEE Power and Energy Society General Meeting, Denver, CO, July 2015

[P7] "An assessment of the impact of stochastic Day-ahead SCUC on economic and reliability metrics at multiple timescales," paper presentation in 2015 IEEE Power and Energy Society General Meeting, Denver, CO, July 2015

[P6] "Reliability, costs, and pricing impacts of various scheduling strategies that can reduce the impact of uncertainty," panel presentation in 2015 IEEE Power and Energy Society General Meeting, Denver, CO, July 2015

[P5] "Stochastic optimal scheduling of residential appliances with renewable energy sources", paper presentation in 2015 IEEE Power and Energy Society General Meeting, Denver, CO, July 2015

[P4] "Computational challenges in stochastic optimization for power systems operation", panel presentation in Computational Challenges in Energy System Integration (C2ESI) Workshop, Golden, Colorado, July 2015

[P3] "Stochastic modeling at multiple timescale," panel presentation in Federal Energy Regulatory Commission (FERC)'s Technical Conference, Washington D.C., June 2014

[P2] "Several notes on Lagrangian relaxation for unit commitment," paper presentation in 2010 Chinese Control Conference, Beijing, China, July 2010

[P1] "Security-constrained generation scheduling with feasible energy delivery," paper presentation in 2009 IEEE Power and Energy Society General Meeting, Calgary, Canada, July 2009

PROFESSIONAL ACTIVITIES

REVIEWER

- JOURNALS REVIEWER
  - IEEE Transactions on Power Systems
  - IEEE Transactions on Smart Grid
  - IEEE Transactions on Sustainable Energy
  - IEEE Transactions on Industrial Informatics
  - IEEE Transactions on Mobile Computing
  - IEEE Transactions on Cloud Computing
  - IEEE Transactions on Intelligent Transportation Systems
  - IEEE Transactions on Network Science and Engineering
  - IEEE Access
  - IEEE Systems Journal
  - IEEE Power Engineering Letters
  - IEEE Power and Energy Technology Systems Journal

- IEEE Open Access Journal of Power and Energy
- Applied Energy
- Applied Thermal Engineering
- Energies
- Energy Science and Engineering
- IET Generation, Transmission & Distribution
- International Journal on Energy Research
- International Journal of Electrical Power and Energy Systems
- Electric Power Components and Systems
- Information Fusion
- Sustainable Computing, Informatics and Systems
- Journal of Modern Power Systems and Clean Energy
- Journal of Environmental Management
- Journal of Energy Engineering
- Journal of Energy Storage

- BOOK REVIEWER
  - CRC Press
  - Taylor & Francis

- JOURNAL EDITOR
  - Guest Editor, Frontiers in Energy Research, 2023-2024
  - Associate Editor, IEEE Transactions on Smart Grid, 2021 - present
  - Associate Editor, IEEE Transactions on Industrial Informatics, 2021 - present
  - Associate Editor, IEEE Power Engineering Letters, 2021 - present
  - Associate Editor, Journal of Modern Power Systems and Clean Energy, 2018-2021
  - Guest Editor, Mathematical Problem in Engineering, 2017
  - Guest Editor, Energies, 2018

- CONFERENCE REVIEWER
  - IEEE SmartGridComm, 2019-2023
  - ASHRAE Annual Conference, 2019
  - IEEE Conference on Decision and Control, 2018
  - IEEE Power and Energy Society General Meeting, 2011-2020
  - Chinese Control Conference, 2012-2015
  - IEEE Green Tech Conference, 2015
  - Student Poster Session, IEEE PES General Meeting, 2017

- REVIEW PANELS
  - US DOE CESER, Bipartisan Infrastructure Law Rural and Municipal Utility Cybersecurity (RMUC), Advanced Cybersecurity Technology 02/2024
  - DOE Office of Clean Energy Demonstrations (OCED) Energy Improvements in Rural or Remote Areas (ERA) Program 09/2023
  - US DOE Office of Clean Energy Demonstrations 05/2023
  - KSU internal review panel for NSF EPSCoR Track 4 02/2023
  - National Science Foundation, EPCN 2015, 2023, 2025
  - Hong Kong Research Grants Council 2021-2025
  - US DOE SBIR/STTR 2021, 2025
  - US DOE Technology Commercialization Fund 2019, 2020
  - NNSA Minority Serving Institution Partnership Program 04/2020

- UTSA Transdisciplinary Teams T2 Program 03/2020
- KidWind Challenge, Kansas Energy Program 02/2020
- UTSA MRI Program 2019
- US DOE Building Energy Technology Office 09/2019
- European Research Council – Horizon 2020 05/2019
- UTSA DoD Research and Education Program 2018
- American Association for the Advancement of Science (AAAS) 12/2017
- Pakistan – U.S. Science & Technology Cooperation Program 11/2017
- Sandia National Laboratory 07/2014

- TECHNICAL OR ORGANIZATION COMMITTEES
  - IEEE-NERC Security Integration Project 12/2020
  - IEEE SmartGridComm – Cybersecurity and Privacy 10/2020-present
  - IEEE Kansas Power and Energy Conference (KPEC) 2020-2023
  - IEEE PES Smart Building, Loads, Customers (SBLC) Committee 2017-2023
  - IEEE PES Microgrid Task Force 2017-2022
  - IEEE PES Power Engineering Education Committee 2017-present
  - Planning Committee, IEEE North American Power Symposium 09/2016
  - Computational Challenges in Energy System Integration Workshop 07/2015
    - Technical Preparation Committee
    - Chair of advanced power system operation session

- CHAIR OF IEEE CONFERENCES/SYMPOSIUMS
  - IEEE SmartGridComm – Cybersecurity and Privacy 10/2019
  - IEEE PES PowerTech 06/2017
  - IEEE PES T&D Conference and Exposition 05/2016
  - IEEE North American Power Symposium 09/2016

HONORS

- Inaugural University Outstanding Scholar, Kansas State University, 2024-present
- Elsevier list of the world's top 2% of scientists for single-year impact, 2020-2024
- Charles H. Scholer Faculty Award, College of Engineering, KSU, 2023
- Steve Hsu Keystone Research Faculty Scholar, KSU, 2023-2024
- CAREER Award, National Science Foundation, 2022
- Lucas-Rathbone Professorship, 2022-present
- Winner, 2022 US DOE Collegiate Wind Competition, as Faculty Advisor
- Most Downloaded Paper, IET Energy Systems Integration
- Turbine Prototype Contest Winner, 2021 US DOE Collegiate Wind Competition, as Faculty Advisor
- NSF EPSCoR Research Fellow, 2020-2023
- Outstanding Assistant Professor Award, College of Engineering, Kansas State University, 2019
- Best Paper Award, IEEE Texas Power and Energy Conference, 2018
- Michelle Munson-Serban Simu Keystone Research Faculty Scholar, KSU, 2017-2023
- Best Conference Paper, IEEE PES General Meeting, 2015, 2016
- Senior Member, IEEE, Sept. 2015
- NREL Innovator of the Year Award, 2015
- NREL Employee of the Month Award, May 2015
- Finalist, IEEE Transactions Prize Paper Award, 2010
- 'PengKang' Outstanding Postgraduate Scholarship, 2009

- National First-Class Postgraduate Academic Fellowship, 2004 - 2006

MEMBERSHIP

- Senior Member, IEEE/ Power and Energy Society, 2015 - present
- Full Member, Sigma Xi, 2013 - present