

YAODAN HU

Idaho State University, Pocatello, ID 83209

Department of Electrical and Computer Engineering

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EDUCATION

University of Florida, Gainesville, Florida, USA Aug 2022
Ph.D. in Electrical and Computer Engineering
Advisors: Shuo Wang, Yier Jin, Yuguang Fang
Dissertation: Towards the Next Generation Power Grid: Security Defense of Smart Grid

University of Science and Technology of China, Hefei, Anhui, China Jun 2015
B.S. in Applied Physics

RESEARCH INTERESTS

1. Cyber-Physical Energy System Security
2. Attack-Resilient State Estimation
3. Secure Distributed Energy Resources Integration into Smart Grid

RESEARCH EXPERIENCE

Assistant Professor 2022 - Present
Department of Electrical and Computer Engineering, Idaho State University

Graduate Research Assistant 2015 - 2022
Department of Electrical and Computer Engineering, University of Florida

PUBLICATIONS

1. Xiaochen Xian, Alexander Semenov, **Yaodan Hu**, Andi Wang, Yier Jin “Adaptive Sampling and Quick Anomaly Detection in Large Networks,” IEEE Transactions on Automation Science and Engineering (TASE), 2022.
2. Xiaorui Liu, **Yaodan Hu**, Yier Jin, Charalambos Konstantinou , “CHIMERA: A Hybrid Estimation Approach to Limit the Effects of False Data Injection Attacks,” IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm), 2021.
3. **Yaodan Hu**, Xiaochen Xian, Yier Jin, “RADM: A Risk-Aware DER Management Framework with Real-time DER Trustworthiness Evaluation,” ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), 2021.
4. Max Panoff, Raj Gautam Dutta, **Yaodan Hu**, Kaichen Yang, and Yier Jin, “On Sensor Security in the Era of IoT and CPS,” Springer Nature Computer Science (SNCS), 2020.
5. Raj Gautam Dutta, **Yaodan Hu**, Feng Yu, Teng Zhang, and Yier Jin, “Design and Analysis of Secure Distributed Estimator for Vehicular Platooning in Adversarial Environment,” IEEE Transactions on Intelligent Transportation Systems (TITS), 2020.
6. **Yaodan Hu**, Haoqi Shan, Raj Gautam Dutta and Yier Jin, “P2SA: Protecting Platoons from Stealthy Jamming Attack,” Asian Hardware Oriented Security and Trust (AsianHOST), 2020.

7. Feng Yu, **Yaodan Hu**, Teng Zhang, Yier Jin, “Special Issue: Resilient Distributed Estimator with Information Consensus for CPS Security,” IEEE International Conference on Computer Design (ICCD), 2020.
8. Ali Sayghe, **Yaodan Hu**, Ioannis Zografopoulos, XiaoRui Liu, Raj Gautam Dutta, Yier Jin, Charalambos Konstantinou, “A Survey of Machine Learning Methods for Detecting False Data Injection Attacks in Power Systems,” IET Smart Grid, 2020.
9. Feng Yu, Raj Gautam Dutta, Teng Zhang, **Yaodan Hu**, Yier Jin, “Fast Attack-Resilient Distributed State Estimator for Cyber-Physical Systems” International Conference on Embedded Software (EMSOFT), 2020.
10. Raj Gautam Dutta, Feng Yu, Teng Zhang, **Yaodan Hu**, and Yier Jin, “Security for Safety: A Path Toward Building Trusted Autonomous Vehicles,” International Conference On Computer Aided Design (ICCAD), 2018.
11. Jianqing Liu, **Yaodan Hu**, Hao Yue, Yanmin Gong, Yuguang Fang, “A Cloud-based Secure and Privacy-Preserving Clustering Analysis of Infectious Disease,” IEEE Symposium on Privacy-Aware Computing (PAC), 2018.
12. **Yaodan Hu**, Xuanheng Li, Jianqing Liu, Haichuan Ding, Yanmin Gong, Yuguang Fang, “Mitigating Traffic Analysis Attack in Smartphones with Edge Network Assistance,” IEEE International Conference on Communications (ICC), 2018.
13. Yanmin Gong, Chi Zhang, **Yaodan Hu**, Yuguang Fang, “Privacy-Preserving Genome-Aware Remote Health Monitoring,” IEEE Global Communications Conference (GLOBECOM), 2016.
14. **Yaodan Hu**, Xiaochen Xian, Yier Jin, Shuo Wang, “Fairness-Guaranteed DER Coordination under False Data Injection Attacks,” (submitted to the IEEE Internet of Things Journal, under review).

PROJECTS

1. **ERI: AISA: Design and Deployment of an Artificial Intelligence-Assisted Scalable Adaptive Monitoring Framework for Internet of Energy Security** (Role: PI, submitted to NSF, under review)
Develop an Internet of Energy monitoring framework against cyber and physical attacks, securing physical operating environment, and dynamically allocating resources for monitoring
2. **Security Certification of Autonomous Cyber-Physical Systems** (Role: research assistant, Sponsor: NSF, Medium Project)
Develop algorithms for detection and recovery of CPS from attacks on sensors of the system
3. **Adversarially Robust Machine Learning Methods for Cyber-Physical Energy Systems** (Role: research assistant, Sponsor: Florida State Government)
Develop algorithms to enhance the resiliency of learning models to false data injection attacks in state estimation routines of energy management systems
4. **S3-IoT: Design and Deployment of Scalable, Secure, and Smart Mission-Critical IoT Systems** (Role: research assistant, Sponsor: NSF)
Develop algorithms to cross-validate the sensing data from multiple devices

TEACHING EXPERIENCE

Instructor

Department of Electrical and Computer Engineering, Idaho State University

1. Undergraduate Course: ECE3310 - Signals and Systems Fall 2022

Teaching Assistant

Department of Electrical and Computer Engineering, University of Florida

1. Undergraduate Course: EEL4930 - Microprocessor Applications II Spring 2020 & 2021
2. Graduate Course: EEL5718 - Computer Communications Fall 2018

PROFESSIONAL EXPERIENCE AND SERVICES

Technical Program Committee Member

1. IEEE International Conference on Consumer Electronics (ICCE) 2019, 2022, 2023
2. Annual Industrial Control System Security (ICSS) Workshop 2022
3. International Conference on Cyber-Technologies and Cyber-Systems (CYBER) 2022

Journal Reviewer

1. IEEE Internet of Things Journal
2. IEEE Transactions on Vehicular Technology
3. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
4. ACM Computing Surveys

Panelist

1. NSF 2023

PRESENTATIONS

1. International Conference on Cyber-Physical Systems (ICCPS), (Virtual) May 2021
Title: RADM: A Risk-Aware DER Management Framework with Real-time DER Trustworthiness Evaluation
2. Asian Hardware Oriented Security and Trust (AsianHOST), (Virtual) Dec 2020
Title: P2SA: Protecting Platoons from Stealthy Jamming Attack
3. Nelms Women in IoT Workshop, (Virtual) Oct 2020
Title: Physics-Informed Real-time DER Security Evaluation
4. IEEE International Conference on Communication (ICC), Kansas City, MO May 2018
Title: Mitigating Traffic Analysis Attack in Smartphones with Edge Network Assistance

HONORS AND AWARDS

1. Student Travel Grant for IEEE International Conference on Communication, Office of Research, University of Florida, 2018
2. Student Travel Grant for IEEE International Conference on Communication, Graduate Student Council, University of Florida, 2018
3. Undergraduate Scholarship, University of Science and Technology of China, 2011–2015