JUNHUI ZHANG (张君会)

School of Engineering Technology, Purdue University
West Lafayette, IN, USA
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CURRENT POSITION

Postdoc Researcher at Purdue University, West Lafayette, USA — Aug. 2022-Present
School of Engineering Technology
Advised by Prof. Xiaonan Lu

EDUCATION

Tongji University, China — Sep. 2016– Mar. 2021
School of Mathematical Sciences
Ph.D. in Applied Mathematics
Supervisor: Prof. Jitao Sun
Thesis: Analysis and Synthesis of Hybrid Systems Subject to Logic
Committee Chair: Dongmei Xiao (SJTU) Members: Wei Lin (Fudan), Fangfei Li (ECUST), Qun He (Tongji), Yu Zhang (Tongji) and Jitao Sun (Tongji)

University of Johannesburg, South Africa — Nov. 2019–Jul. 2020
Faculty of Engineering and the Built Environment
Visiting Ph.D. Student, Institute for Intelligent Systems
Supervisors: Prof. Qing-Guo WANG and Prof. Tshilidzi Marwala

University of Notre Dame, USA — Mar. 2019–Jul. 2019
College of Engineering
Visiting Ph.D. Student, Department of Electrical Engineering
Supervisor: Prof. Hai Lin

Henan Normal University, China — Sep. 2012– Jul. 2016
College of Mathematics and Information Science
B.S. in Mathematics and Applied Mathematics
GPA: 4.65/5, Rank: 1/200

RESEARCH INTERESTS

Control, optimization, game, and machine/reinforcement learning and their applications to **cyber-physical and safety-critical systems,** including networked control systems, power systems, and transportation systems.

RESEARCH AND TEACHING EXPERIENCES

Postdoc Research Associate Advanced Power ElectroniCS (APECS) Group — Jan. 2022- Aug. 2022
College of Engineering, Temple University, USA

Research Assistant, Research Associate Prof. Jitao Sun's Group — Sep.2016– Dec. 2021
School of Mathematical Sciences, Tongji University, China

Research Assistant Prof. Qing-Guo WANG's Group — Nov. 2019–Jul. 2020
Institute for Intelligent Systems, University of Johannesburg, South Africa

Research Assistant Distributed Cooperative Systems Research (DISCOVER) Lab — Mar. 2019–Jul. 2019
Department of Electrical Engineering, University of Notre Dame, USA

Teaching Assistant at Tongji University Sep. 2017–Dec. 2017

- Calculus

PUBLICATIONS

[1] **Junhui Zhang**, and Xiaonan Lu, "Secondary frequency and voltage regulation for inverter-based microgrids: a sparsity-promoting DAPI approach."

[2] **Junhui Zhang**, Lizhi Ding, Xiaonan Lu, and Wenyuan Tang, "Sparse and safe frequency regulation for inverter intensive microgrid." ***IEEE Industry Applications Society Annual Meeting***, Detroit, MI, USA, 2022.

[3] **Junhui Zhang**, Qing-Guo WANG, Tshilidzi Marwala, and Jitao Sun. "Neural network-based control for RRP-based networked systems under DoS attacks with power interval." ***Automatica***, 145:110555, 2022.

[4] **Junhui Zhang**, Jitao Sun, and Hai Lin. "Optimal DoS attack schedules on remote state estimation under multi-sensor round-robin protocol" ***Automatica***, 127: 109517, 2021.

[5] **Junhui Zhang**, and Jitao Sun. "Optimal stealthy linear-attack schedules on remote state estimation." ***IEEE Transactions on Signal Processing***, 69, 2807-2817, 2021.

[6] **Junhui Zhang**, Jitao Sun, and Chengcui Zhang. "Stochastic game in linear quadratic gaussian control for wireless networked control systems under DoS attacks." ***IEEE Transactions on Systems, Man, and Cybernetics: Systems***, 52 (2), 902-910, 2022. [🏆 ESI Highly Cited Paper.]

[7] **Junhui Zhang**, Anni Li, Wei D. Lu and Jitao Sun. "Stabilization of mode-dependent impulsive hybrid systems driven by DFA with mixed-mode effects." ***IEEE Transactions on Neural Networks and Learning Systems***, 31(5), 1616-1625, 2020.

[8] **Junhui Zhang**, and Jitao Sun. "Optimal cooperative multiple-attackers scheduling against remote state estimation of cyber-physical systems." ***Systems & Control Letters,*** 144:104771, 2020.

[9] **Junhui Zhang**, and Jitao Sun. "A game-theoretic approach to multi-channel transmission scheduling for multiple linear systems under DoS attacks." ***Systems & Control Letters***, 133:104546, 2019.

[10] **Junhui Zhang**, Qing-Guo WANG, and Jitao Sun. "On finite-time stability of nonautonomous nonlinear systems." ***International Journal of Control***, 93 (4), 783-787, 2020.

[11] **Junhui Zhang**, and Jitao Sun. "Exponential synchronization of complex networks with continuous dynamics and Boolean mechanism." ***Neurocomputing***, 307: 146-152, 2018.

[12] **Junhui Zhang**, Jitao Sun, and Qing-Guo WANG. "Finite-time stability of non-linear systems with impulsive effects due to logic choice." ***IET Control Theory & Applications,*** 12 (11), 1644-1648, 2018.

[13] **Junhui Zhang**, and Qing-Guo WANG. "A generalized neural network-based observer design framework in nonuse of intermediary ideal neural network," In preparation.

PROPOSAL WRITING

✧ "Analysis and synthesis of information-control systems based on signal temporal logic," Submitted to the National Natural Science Foundation of China.

✧ "Analysis and synthesis of hybrid systems subject to logic," Tongji University International Interdisciplinary Program under Grant No. 2019XKJC-008 (60K RMB). 2019

AWARDS AND HONORS

- Outstanding Doctoral Dissertation Award by Tongji University 2021
- Academic Pioneer Award-The Highest Honor for the Most Outstanding Graduate Students at Tongji University.
  [Reported on Tongji News https://news.tongji.edu.cn/info/1003/76035.htm, Sina and Sohu Media]
  (Only ten are selected at Tongji annually) 2020
- Scholarship Award for Excellent Doctoral Students by Tongji University (10K RMB) (Top 3%) 2020
- Scholarship Award for Visiting Ph.D. Students by University of Johannesburg (100K Rand) 2019-2020

- National Scholarship Award by the Ministry of Education of China (30K RMB) (Top 2%) 2018
- The Third Prize in The Fourteenth National Post-Graduate Mathematical Contest in Modeling held by the China Academic Degrees & Graduate Education Development Center 2017
- National Scholarship Award for First-year Doctoral Students by the Ministry of Education of China (30K RMB) (Top 1/20) 2016
- Outstanding Graduate of Henan Normal University 2016
- Outstanding Thesis of Henan Normal University (Top 10%) 2016
- Merit Student of Henan Province 2016
- Honorable Mention in the American Mathematical Contest in Modeling held by the Consortium for Mathematics and Its Application 2015
- National Endeavor Scholarship Award by the Education Department of Henan Province (5K RMB) (Top 5%) 2014
- The First Prize of Henan Province in the Sixth Mathematics Competition of Chinese College Students held by the Chinese Mathematical Society 2014
- The First Prize of Henan Province in the Mathematical Contest in Modeling held by the China Society for Industrial and Applied Mathematics 2014

PRESENTATIONS AND CONFERENCES

- *Presentation* at the 2022 IEEE Industry Applications Society (IAS) Annual Meeting
  "*Sparse and Safe Frequency Regulation for Inverter Intensive Microgrids.* " Detroit, MI, USA Oct. 2022
- *Poster* at the 2022 IEEE Energy Conversion Congress and Exposition (ECCE) Annual Meeting
  "Sparse and Safe Frequency Regulation for Inverter Intensive Microgrids." Detroit, MI, USA Oct. 2022
- *Presentation* at APECS group, Temple University
  "*Sparse and Safe Frequency Regulation for Inverter Intensive Microgrids.* " Philadelphia, PA, USA Apr. 2022
  "Safety Operation of Distributed Inverted-based Microgrids with Control Barrier Function." Philadelphia, PA, USA Feb.2022
  "Introduction to Control Barrier Function and Its Applications." Philadelphia, PA, USA Jan. 2022
- *Presentation* at Prof. Karl Henrik Johansson's group, KTH Royal Institute of Technology Jul. 2021
- *Presentation* at Prof. Lacra Pavel's group, University of Toronto Jul. 2021
- *Presentation* at Intelligent Control and Estimation of Things Laboratory, Arizona State University Jul. 2021
- *Presentation* at Resilient Cyber-Physical Systems Lab, University of California, Irvine Jun.2021
- *Presentation* at You Research Group, Cornell University Jun.2021
  "Decision Making in Security of Cyber-Physical Systems: From Optimization to Game Theory." (Online)
- *Presentation* at Network Security Lab, University of Washington
  " Optimal Schedules against Remote State Estimation: From Attacker's Perspective." (Online) May.2021
  " Decision Making in Security of Cyber-Physical Systems: From Optimization to Game Theory."(Online) Apr. 2021
- *Presentation* at DISCOVER Lab, University of Notre Dame
  "Attack Detection based on Machine Learning" South Bend, IN, USA Jun. 2019
  "*Model, Analysis of Hybrid Systems and Security of Networked Systems*" South Bend, IN, USA Apr. 2019
- Center for Information & Systems Engineering Graduate Student Workshop 2022, Boston University, Boston, MA, USA Apr. 2022
- Annual Meeting of Shanghai Society of Nonlinear Sciences, Tongji University, Shanghai, China. Oct. 2019
- 2019 TCCT Workshop on Cooperative Control and Multi-Agent Systems, Tongji University, Shanghai, China. Jul. 2019
- The 2017 International Conference on Data Sciences, Fudan University, Shanghai, China. Dec.2017
- Annual Meeting of Shanghai Society for Bioinformatics, Fudan University, Shanghai, China. Dec.2017

ACADEMIC SERVICES

IEEE Member	2022-Present
IEEE Student Member	2019-2021
Session Chair of 2022 IEEE IAS Annual Meeting	Oct. 2022
Member of IEEE Control Systems Society	2022-Present
Member of IEEE Industry Applications Society	2022-Present
Member of the IAS Industrial Power Converters Committee	2022-Present
Assistant for Conference Organization *Annual Meeting of Shanghai Society of Nonlinear Sciences,* Tongji University, Shanghai, China.	Oct. 2019
Assistant for Deputy Editor-in-Chief of ISA Transactions	Nov. 2019- Jul. 2020

Reviewer

Automatica (3)
IEEE Transactions on Smart Grid (1)
IEEE Transactions on Industrial Informatics (1*3)
IEEE Transactions on Systems, Man and Cybernetics: Systems (1)
Chaos, Solitons and Fractals (1)
ISA Transactions (1*2)
Nonlinear Dynamics (1*2)
Journal of Modelling, Identification and Control (1)
Journal of Modern Power Systems and Clean Energy (1)
Mathematical Problems in Engineering (1)
IEEE Conference on Decision and Control
American Control Conference

SKILLS

Languages: Chinese (native), English
Software: Matlab, C, Python, and Latex

REFERENCES

Jitao Sun
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