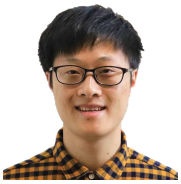
Yuchen Zhang



Email: YuchenZhang95@163.com · Phone: (+86)151-5809-8966 · Homepage

Address: ZJUT, 288, Liuhe Road, Hangzhou, P.R. China, 310023

Research Interests

Multi-sensor fusion estimation, set-based estimation and optimization, privacy-preserving estimation, data-driven estimation and control

Education

Zhejiang University of Technology Sep. 2017 – Jan. 2024

- Major: Ph.D., Control Science and Engineering
- Supervisor: Prof. Li Yu and Prof. Bo Chen
- ETCS: 69 GPA: 3.71/4.0 Ranking: 4/98

Zhejiang University of Technology Sep. 2013 – Jun. 2017

- Major: Bachelor of Engineering, Electrical Engineering and Automation
- Supervisor: Prof. Li Yu
- ETCS: 210 GPA: 3.27/4.0 Ranking: 32/121

Visiting Experience

Research Assistant at University of Macau Jul. 2023 – Oct. 2023

- Project: Distributed Control of Interconnected Positive Systems with Constraints
- Supervisor: Prof. Jason J. R. Liu, Faculty of Science and Technology

Visiting PhD Student at City University of Hong Kong Jul. 2018 – Oct. 2018

- Project: Secure Estimation and Control of Networked Systems under Cyber-Attacks
- Supervisor: Prof. Daniel W. C. HO, Department of Mathematics

Projects

Distributed Secure State Estimation for Large Scale Interconnected Cyber-Physical Systems under Cyber Attacks, National Natural Science Foundation of China Jan. 2020 – Dec. 2023

- PI: Li Yu
- Modeled large-scale interconnected systems and analyzed their observability
- Designed distributed estimators for large-scale interconnected systems
- Designed distributed fusion estimators to addressed the redundant information caused by overlapping states in interconnected systems

Cyber-Attack Detection and Secure State Estimation in Cyber-Physical Systems: From Perspective of Distributed Fusion, National Natural Science Foundation of China Jan. 2020 – Dec. 2023

- PI: Bo Chen
- Analyzed the privacy issues in distributed estimators
- Designed a noise contamination mechanism to achieve private multiplication
- Designed a private weighted sum aggregation scheme
- Designed privacy-protecting distributed estimators for cyber-physical systems

Attack Detection and Secure State Estimation for Networked Fusion Systems, Zhejiang Provincial Natural Science Foundation of China Jan. 2020 – Dec. 2023

- PI: Bo Chen
- Conducted surveys for cyber attacks, privacy security, and secure state estimation algorithms

Talks

2. Oral Presentation in International Conference on Intelligent Robotics and Applications. Shenyang, China, 2019.
1. Oral Presentation in Hong Kong and Macao Doctoral Academic Exchange Conference. Harbin, China, 2023.

Academic Services

4. Reviewer of Journal of the Franklin Institute
3. Reviewer of IEEE Control Systems Letters
2. Reviewer of Systems & Control Letters
1. Reviewer of Automatica

Honors and Awards

1. Chinese National Scholarship for Doctoral Students (2020)

Publications

Papers under Review

4. **Y. Zhang**, B. Chen*, Jason J. R. Liu, Z. Wang, and L. Yu. "Distributed zonotopic fusion estimation for multi-sensor systems." **IEEE Transactions on Automatic Control** (Under Review).
3. **Y. Zhang**, B. Chen*, and L. Yu. "Privacy-aware distributed estimation for interconnected systems." **Automatica** (Reject provisionally - may be resubmitted as Regular Paper).
2. **Y. Zhang**, B. Chen*, L. Yu, and D. W. C. Ho. "Distributed estimation for time-varying interconnected dynamic systems with arbitrary coupling structures." **IEEE Transactions on Network Science and Engineering** (Minor Revision).
1. A. Mao, **Y. Zhang**, Z. Wang, and B. Chen*. "Minimal sensor activation for detectable networked discrete event systems." **IEEE Control Systems Letters** (Under Review).

Journal Papers

11. **Y. Zhang**, B. Chen*, and L. Yu. "Overlapping fusion estimation for discrete time-varying interconnected systems." **IEEE Control Systems Letters**, 7: 2125-2130, 2023. **[PDF]**.
10. **Y. Zhang**, B. Chen*, and L. Yu. "Distributed zonotopic estimation for interconnected systems: A fusing overlapping states strategy." **Automatica**, 155: 111144, 2023. **[PDF]**.
9. X. Yan, B. Chen*, **Y. Zhang**, and L. Yu. "Distributed encryption fusion estimation against full eavesdropping." **Automatica**, 153: 111025, 2023. **[PDF]**.
8. X. Yan, B. Chen*, **Y. Zhang**, Li Yu. "Guaranteeing differential privacy in distributed fusion estimation." **IEEE Transactions on Aerospace and Electronic Systems**, 59(3): 3416-3423, 2023. **[PDF]**.
7. D. Xu, B. Chen*, **Y. Zhang**, and L. Yu. "Distributed anti-eavesdropping fusion estimation under energy constraints." **IEEE Transactions on Automatic Control**, 68(12): 7795-7802, 2023. **[PDF]**.
6. Z. Hu, B. Chen*, **Y. Zhang**, and L. Yu. "Kalman-Like filter under binary sensors." **IEEE Transactions on Instrumentation and Measurement**, 71: 9503111, 2022. **[PDF]**.
5. X. Yan, **Y. Zhang**, D. Xu, and B. Chen*. "Distributed confidentiality fusion estimation against eavesdroppers." **IEEE Transactions on Aerospace and Electronic Systems**, 58(4): 3633-3642, 2022. **[PDF]**.
4. **Y. Zhang**, B. Chen*, L. Yu, and D. W. C. Ho. "Distributed Kalman filtering for interconnected dynamic systems." **IEEE Transactions on Cybernetics**, 52(11): 11571–11580, 2021. **[PDF]**.
3. M. Xu, **Y. Zhang**, D. Zhang, B, Chen*. "Distributed robust dimensionality reduction fusion estimation under DoS attacks and uncertain covariances." **IEEE Access**, 9: 10328-10337, 2021. **[PDF]**.
2. **Y. Zhang**, B. Chen*, and L. Yu. "Distributed fusion Kalman filtering under binary sensors." **International Journal of Robust and Nonlinear Control**, 30(6): 2570–2578, 2020. **[PDF]**.
1. **Y. Zhang**, B. Chen*, and L. Yu. "Fusion estimation under binary sensors." **Automatica**, 115: 108861, 2020. **[PDF]**.

Conference Papers

1. **Y. Zhang**, B. Chen*, L. Yu, and H. Song. "Bounded recursive optimization approach for pose estimation in robotic visual servoing." **In Intelligent Robotics and Applications: 12th International Conference (ICIRA)**,

Springer International Publishing, 11740: 488–497, 2019. **[PDF]**.

Patents

3. Bo Chen, **Yuchen Zhang**, Li Yu, Wenan Zhang, Zhen Hong. (2019). Bounded Recursive Optimization Based Robotic Pose Estimation Approach. CN 201910896428.1 (**Authorized**).
2. Bo Chen, **Yuchen Zhang**, Li Yu, Wenan Zhang, Zhen Hong. (2019). Binary Sensor Based Bounded Recursive Optimization Fusion Filtering for Blood Oxygen Content Estimation. CN 201910896450.6 (**Authorized**).
1. Bo Chen, **Yuchen Zhang**, Li Yu, Zhen Hong, Wenan Zhang. (2019). Binary Sensor Based Fusion Kalman Filtering for Blood Oxygen Content Estimation. CN 201910896449.3 (**Authorized**).

Contributions in Co-authored Papers

2. For papers where I am the second author, I provided research ideas and collaborated with the first author to complete the work.
1. For papers where I am the third author, I helped to revise papers and provided suggestions to improve the work.

Research Proposal

Referees

Bo Chen (Professor)

- Affiliation: Department of Automation, Zhejiang University of Technology
- Address: ZJUT, 288, Liuhe Road, Hangzhou, P.R. China, 310023
- Phone: (+86) 151-5813-3007
- E-mail: bchen@aliyun.com

Zheming Wang (Professor)

- Affiliation: Department of Automation, Zhejiang University of Technology
- Address: ZJUT, 288, Liuhe Road, Hangzhou, P.R. China, 310023
- Email: wangzheming@zjut.edu.cn

Li Yu (Professor)

- Affiliation: Department of Automation, Zhejiang University of Technology
- Address: ZJUT, 288, Liuhe Road, Hangzhou, P.R. China, 310023
- Phone: (+86) 139-5807-3068
- Email: lyu@zjut.edu.cn

Daniel W. C. HO (Professor)

- Affiliation: Department of Mathematics, City University of Hong Kong
- Address: City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong SAR
- Phone: (+852) 3442-0250
- Email: madaniel@cityu.edu.hk