

SHIYU ZHOU

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EDUCATION

City University of Hong Kong, Hong Kong SAR

• *Ph.D. Candidate* | GPA: 4.02/4.3

Sept. 2022 - Present
Supervisor: Prof. [Gang Feng \(IEEE Fellow\)](#)
Co-supervisor: Prof. [Dong Sun \(IEEE Fellow\)](#)

Beihang University, Beijing, China

• *M.Eng. in Control Science and Engineering* | GPA: 91.97/100 | Rank: 1/30

Sept. 2019 - July 2022
Supervisor: Prof. [Zhang Ren](#)
Co-supervisor: Prof. [Xiwang Dong](#)

Northwestern Polytechnical University, Xi'an, China

• *B.Eng. in Automation* | GPA: 92.38/100 | Rank: 1/118

Sept. 2015 - July 2019

RESEARCH INTEREST

- Cooperative control of multi-agent systems with applications to unmanned aerial vehicles and unmanned ground vehicles.
- Fixed-time convergence algorithms for complex control systems and non-cooperative games.
- The safety of unmanned systems and the security of cyber-physical systems.

PUBLICATIONS

Journal Papers

1. Shiyu Zhou, Dong Sun, Gang Feng*, "Distributed adaptive fixed-time formation tracking for heterogeneous multi-agent systems", *Automatica*, vol. 183, no. 112632, 2026. [[PDF](#)][[DOI](#)]
2. Shiyu Zhou, Dong Sun, Gang Feng*, "Fixed-time formation tracking for heterogeneous linear multiagent systems with a nonautonomous leader", *IEEE Transactions on Control of Network Systems*, vol. 12, no. 2, pp. 1733-1743, 2025. [[PDF](#)][[DOI](#)]
3. Shiyu Zhou, Xiwang Dong*, Yongzhao Hua, Jianglong Yu, Zhang Ren, "Predefined formation-containment control of high-order multi-agent systems under communication delays and switching topologies", *IET Control Theory and Applications*, vol. 12, no. 15, pp. 1661-1672, 2021. [[PDF](#)][[DOI](#)]
4. Shiyu Zhou, Dong Sun, Gang Feng*, "Collision-free fixed-time formation tracking for Euler-Lagrange systems", *IEEE Transactions on Automatic Control*, 2025, under review.
5. Shiyu Zhou, Xiwang Dong, Dong Sun, Gang Feng*, "Fixed-time formation-containment tracking of heterogeneous multi-agent systems", *IEEE Transactions on Cybernetics*, 2025, under review.
6. Shiyu Zhou*, Dong Sun, "Group formation tracking for heterogeneous linear multi-agent systems under switching topologies", *Journal of Automation and Intelligence*, vol. 4, no. 2, pp. 108-114, 2025.
7. Shiyu Zhou, Yongzhao Hua*, Xiwang Dong, Jianglong Yu, Zhang Ren, "Time-varying output formation-tracking of heterogeneous multi-agent systems with time-varying delays and switching topologies", *Measurement and Control*, vol. 54, no. 9, pp. 1371-1382, 2021.
8. Shiyu Zhou, Yongzhao Hua, Xiwang Dong*, Qingdong Li, Zhang Ren, "Predefined containment control for general linear multi-agent systems with time-varying delays and switching topologies", *Advanced Control for Applications: Engineering and Industrial Systems*, vol. 2, no. 2, pp. 1-12, 2019.
9. Weihao Li, Shiyu Zhou, Mengji Shi*, Jiangfeng Yue, Boxian Lin, Kaiyu Qin, "Collision avoidance time-varying group formation tracking control for multi-agent systems", *Applied Intelligence*, vol. 55, no. 175, pp. 1-12, 2025.

Conference Papers

10. Shiyu Zhou*, Dong Sun, Gang Feng, "Time-varying output group formation tracking control for heterogeneous multiagent systems with switching topologies", *IEEE International Conference on Control and Automation*, 2024.
11. Shiyu Zhou, Zhipeng Shen, Jianglong Yu*, Xiwang Dong, Zhang Ren, "Output group formation-tracking control for heterogeneous systems with collision avoidance and connectivity maintenance", *Chinese Control Conference*, 2022.
12. Shiyu Zhou, Xiwang Dong*, Qingke Tan, Qing Wang, Zhang Ren, "Time-varying group formation-tracking for general linear multi-agent systems with switching topologies and time-varying delays", *IEEE International Conference on Industrial Technology*, 2021.
13. Shiyu Zhou, Xiaobao Wei, Xiwang Dong*, Yongzhao Hua, Zhang Ren, "Output group formation-tracking control for heterogeneous systems with collision avoidance and connectivity maintenance", *Chinese Control Conference*, 2021.
14. Shiyu Zhou, Yongzhao Hua, Xiwang Dong*, Qingdong Li, Zhang Ren, "Formation-containment control for general linear multi-agent systems with time-varying delays and switching topologies", *IEEE International Conference on Control and Automation*, 2020.
15. Zhipeng Shen, Shiyu Zhou, Jianglong Yu, Hailong Huang*, "Neural network-accelerated trajectory optimization for launch vehicle landing", *IEEE International Conference on Control Science and Systems Engineering*, 2023.
16. Qing Wang, Shiyu Zhou, Siqian Zhou, Xiwang Dong*, Jianglong Yu, Zhang Ren, "Predefined finite-time output containment of nonlinear multi-agent systems with undirected topology", *IEEE International Conference on Control, Automation, Robotics and Vision*, 2020.

HONORS AND AWARDS

Scholarships

- **China National Scholarship (Graduate)**, Ministry of Education 2021
- **China National Scholarship (Undergraduate)**, Ministry of Education 2016, 2017, 2018
- Research Tuition Scholarship, City University of Hong Kong 2025
- First Prize Scholarship, Beihang University 2020, 2021
- First Prize Scholarship, Northwestern Polytechnical University 2016, 2017, 2018

Awards

- Outstanding Academic Performance Award for Research Degree Students, City University of Hong Kong 2025
- Outstanding Open Science Author of the Year 2022, Wiley China 2022
- Finalist for Excellent Dissertation Award, Chinese Society of Aeronautics and Astronautics 2022
- Excellent Master Dissertation Award, Beihang University 2022
- Excellent Bachelor Dissertation Award, Northwestern Polytechnical University 2019
- Honorable Mention, Interdisciplinary Contest in Modeling 2017
- First Prize, China Undergraduate Mathematical Contest in Modeling 2017
- First Prize, Northwestern Polytechnical University Eighth Smart Car Competition 2018
- First Prize, May Day Mathematical Contest in Modeling 2017, 2018
- Second Prize, National University Students Electrical Math Modeling Competition 2017
- Second Prize, Social Practice and Science Contest on Energy Saving and Emission Reduction 2017
- Third Prize, China Post-Graduate Mathematic Contest in Modeling 2020
- Third Prize, Chinese Mathematics Competitions (Non-Mathematics Major) 2017

Honors

- Outstanding Graduate Student of Beijing, Beijing Municipal Education Commission 2022
- Outstanding Graduate Student, Beijing Association of Automation 2022
- Top Ten Outstanding Graduate Students, Beihang University 2021
- Outstanding Undergraduate Student, Northwestern Polytechnical University 2019
- Merit Student, Beihang University 2021, 2022
- Merit Student, Northwestern Polytechnical University 2016, 2017, 2018
- Top Five Runner, City University of Hong Kong 2025

RESEARCH PROJECTS

Fixed-time cooperative control of multi-agent systems under denial-of-service attacks and its application

1. *This project aims to explore and develop novel theories and methodologies for the fixed-time cooperative control problem of multi-agent systems under denial-of-service attacks, ensuring secure and reliable control in complex communication environments.*
 - Funded by the **Research Grants Council of Hong Kong** (Grant No. CityU-11205024).
 - **Research Focus**
 - Adaptive fixed-time cooperative control of multi-agent systems under directed communication graphs.
 - Fixed-time cooperative control of multi-agent systems under denial-of-service attacks over directed communication graphs.

Theory and application for cooperative control of heterogeneous swarm systems in complex environments

2. *This project is designed to address high-security requirements for large-scale heterogeneous swarm systems operating in complex and denial environments, improving their robustness and adaptability.*
 - Funded by the **Science and Technology Innovation 2030 - Key Project of "New Generation Artificial Intelligence"** (Grant No. 2020AAA0108200).
 - **Research Focus**
 - Cooperative control of heterogeneous multi-agent systems under time-varying delays and switching topologies.
 - Robust cooperative control under parameter uncertainties and external disturbances.
 - Distributed collision and obstacle avoidance for heterogeneous multi-agent systems.

SKILLS AND INTERESTS

- **Language:** Chinese (Native), English (Fluent; TOEFL: 95)
- **Programming:** MATLAB, Python, C/C++, $\LaTeX$, AI Prompt
- **Interests:** Marathon (Top 5 Runner of CityUHK), Badminton, Hiking, Photography

PROFESSIONAL SERVICES

- Reviewer: IEEE Transactions on Automatic Control, Systems and Control Letters, IEEE/CAA Journal of Automatica Sinica
- Memberships: IEEE Student Member, IEEE Control and Systems Society Member