

# JINXIAN WU

👤 Ph.D. Candidate

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## STATEMENT

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Jinxian Wu is a fourth-year Ph.D. student at the Beijing Institute of Technology. His research focuses on distributed model predictive control (DMPC), specifically on the convex optimization theory and the distributed optimization methods for DMPC.

## EDUCATION

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**Beijing Institute of Technology (BIT)**, Beijing, China

2022 - 2026 (expc.)

Ph.D. candidate in School of Automation

Research Directions: Optimization in Control; Model Predictive Control

Supervisor: Prof. Yuanqing Xia, & Prof. Li Dai

**Beijing Institute of Technology (BIT)**, Beijing, China

2019 - 2022

M.Eng. in School of Automation, June 2022

Research Directions: Fuzzy clustering; Fuzzy association rule mining

Supervisor: Prof. Li Dai

**Qingdao University (QDU)**, Shandong, China

2015 - 2019

B.Eng. in Automation, June 2019

## PUBLICATIONS ( \* : corresponding author)

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### Journal Papers

- [J10] Chenlong Fu, **Jinxian Wu**, Li Dai, & Yuanqing Xia. (2025). Distributed MPC-based Trajectory Tracking Control for a Multi-quadrotor UAV Slung Load System, *IET Control Theory & Applications*, accepted.
- [J9] Songshi Dou, **Jinxian Wu\***, Shengyu Zhang, Xianhao Chen, & Kwan L Yeung. (2025). MATCH-MAKER: Maintaining QoS-aware and Predictable Load Balancing Performance for LEO Mega-Constellations, *IEEE Transactions on Communication*, doi: 10.1109/TCOMM.2025.3618176, early access.
- [J8] Songshi Dou, Shengyu Zhang, Zhenglong Li, **Jinxian Wu**, Xianhao Chen, & Lawrence K. Yeung. (2025). SPACECACHE+: Towards Pervasive Content Delivery via Low-Earth Orbit Mega-Constellations, *IEEE Transactions on Services Computing*, 18(5), 3206 - 3220.

- [J7] **Jinxian Wu**, Li Dai, Songshi Dou, Yunshan Deng, & Yuanqing Xia. (2025). Toward Improved Performance of Inner Convex Approximation for Suboptimal Nonlinear MPC, *IEEE Transactions on Cybernetics*, 55(9), 4322-4332.
- [J6] Yunshan Deng, Yuanqing Xia, Zhongqi Sun, Yuan Zhang, **Jinxian Wu**, & Xiangyu Kong. (2025). Convex MPC with Unreachable Setpoint for A Class of Affine System, *IEEE Robotics and Automation Letters*, 10(8), 8340-8347.
- [J5] **Jinxian Wu**, Li Dai, Songshi Dou, & Yuanqing Xia. (2025). Accelerated Successive Convex Approximation for Nonlinear Optimization-Based Control, *IEEE Transactions on Automatic Control*, 70(9), 6237-6244.
- [J4] **Jinxian Wu**, Li Dai, & Yuanqing Xia. (2025). Iterative Non-Convex Distributed MPC with Flexible Termination Strategy, *IEEE Transactions on Automatic Control*, 70(5), 3008-3023, (**Full paper**).
- [J3] **Jinxian Wu**, Li Dai, & Yuanqing Xia. (2024). Iterative Distributed Model Predictive Control for Heterogeneous Systems with Non-convex Coupled Constraints. *Automatica*, 166, 111700, (**Regular Paper**).
- [J2] **Jinxian Wu**, Li Dai, & Yuanqing Xia. (2024). Iterative Distributed Model Predictive Control for Nonlinear Systems with Coupled Non-convex Constraints and Costs, *International Journal of Robust and Nonlinear Control*, 34(11), 7220-7244.
- [J1] Li Dai, Yaling Ma, Runze Gao, **Jinxian Wu**, & Yuanqing Xia. (2023). Cloud-based Computational Model Predictive Control Using a Parallel Multi-block ADMM Approach. *IEEE Internet of Things Journal*, 10(12), 10326 - 10343.

## Conference Papers

- [C2] Zixuan Fan, **Jinxian Wu**, Li Dai, & Yuanqing Xia. (2023). Trajectory Planning Based on MINVO Basis for Autonomous Vehicles in Lane Change Scenarios. In *Proceedings of the 2023 Chinese Control Conference*. IEEE.
- [C1] **Jinxian Wu**, Li Dai, Yaling Ma, Weidong Zou, & Yuanqing Xia. (2021). Distributed Fuzzy Clustering Based Association Rule Mining: Design, Deployment and Implementation. In *Proceedings of the 2021 China Automation Congress*. (**Best paper award**)

## Manuscripts

- [M7] Songshi Dou, **Jinxian Wu**, Zehua Guo, & Kwan L. Yeung. (2025). Rethinking Nearest-Is-Best: Toward Load-aware Ground Station Assignment for LEO Satellite Networks, submitted to *IEEE* conference.

- [M6] **Jinxian Wu**, Li Dai, Songshi Dou, Yunshan Deng, & Yuanqing Xia. (2025). Nonlinear Distributed Model Predictive Control with Privacy-Preserving Guarantees, submitted to *IEEE Transactions on Automatic Control*.
- [M5] Songshi Dou, Feihu Jin, **Jinxian Wu**, A-long Jin, & Kwan L Yeung. (2025). SPACEMEET: Bringing Conferencing Closer through In-Orbit Conferencing Services, submitted to *IEEE conference*.
- [M4] Yunshan Deng, Yuanqing Xia, Zhongqi Sun, Li Dai, & **Jinxian Wu**. (2025). Successive Suboptimal Model Predictive Control Using Sequential Convex Programming, submitted to *International Journal of Robust and Nonlinear Control*.
- [M3] **Jinxian Wu**, Li Dai, Songshi Dou, Yunshan Deng, & Yuanqing Xia. (2025). Distributed Quasi-Newton Method for Nonlinear Optimization-Based Control, submitted to *Automatica*.
- [M2] Yunshan Deng, Yuanqing Xia, Zhongqi Sun, **Jinxian Wu**, Jie Lin, & Li Dai. (2025). Nonlinear Model Predictive Control Using Sequential Convex Programming, submitted to *IEEE Transactions on Automatic Control*.
- [M1] Pushen Cai, Huahui Xie, **Jinxian Wu**, & Li Dai. (2025). Distributed Model Predictive Control of Multi-Agent Systems for Tracking Periodic Unreachable Trajectory with Collision Avoidance, submitted to *Journal of the Franklin Institute*.

## PATENTS

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- [P1] Li Dai, Yaling Ma, Runze Gao, **Jinxian Wu** et al. (2022). An automotive energy management method based on container and model predictive control. Chinese Patent, CN202210816336.X.

## TALKS & PRESENTATIONS

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“Distributed Fuzzy Clustering Based Association Rule Mining: Design, Deployment and Implementation”, 2021 China Automation Congress, Kunming, Yunnan, China, August 2022.

“Multi-Robot Trajectory Planning under Stochastic Uncertainty via Linearized Chance Constraints”, 2025 China Automation Congress, Harbin, Heilongjiang, China, October 2025.

## RESEARCH GRANTS

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Principal Investigator, *Optimization-based control for resource-constrained autonomous unmanned systems*, BIT Research and Innovation Promoting Project (Grant No.2024YCX035), November 2024 to November 2025.

## TEACHING EXPERIENCE

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Theory and Application of Stochastic Process (Fall 2019, Teaching assistant)

## ACADEMIC SERVICES

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### Reviewer for Journals

- IEEE Transactions on Automatic Control
- IEEE Transactions on Control Systems Technology
- IEEE Transactions on Control of Network Systems
- IEEE Transactions on Intelligent Transportation Systems
- Automatica
- System & Control Letters
- Nonlinear Dynamics

## HONORS & AWARDS

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<b>National Scholarship Award (Top 1%),</b> Chinese Ministry of Education	2025
<b>Huawei Scholarship Award (Top 1%),</b> Huawei Technologies Co Ltd	2024
<b>Outstanding Ph.D. Student (Top 5%),</b> Beijing Institute of Technology	2024
<b>Outstanding Graduates (Top 1%),</b> Beijing Institute of Technology	2022
<b>Best Paper Award of CAC 2021 (Top 0.5%),</b> Chinese Association of Automation	2021
<b>Outstanding Master Student (Top 5%),</b> Beijing Institute of Technology	2021