# Yuwen Ma

**Place of birth**: Jiangxi Province, P.R. China

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**Grade**: 3.85/4.0, Ranking 4/120 (M.E.). 89.2/100(B.E.)

## RESEARCH INTERESTS

- Multi-agent system, Multi-Robot system, Microgrids, Stability analysis, Robustness analysis.
- Cooperative control, Model predictive control, Distributed system optimization, Machine learning.

## EDUCATION

- **M.E., Shanghai Jiao Tong University**, department of Automation, Shanghai. 2021 − 2024.03
  Thesis title: *Output-feedback consensus controller of multi-agent systems without inter-controller communication.*
  Supervisor: Prof Xianwei Li
- **B.E., Beihang University**, school of Automation Science and Electrical Engineering, Beijing. 2017 − 2021
  Thesis title: *Design of flight attitude trajectory based on multiple differentiators.* Supervisor: Prof Li Fu

## RESEARCH PUBLICATIONS

### Journal Articles

1. **Y. Ma**, X. Li, S. Li and Z. Li, "Reduced-order consensus protocols with pure relative output: design, existence, and dual results" (submitted to IEEE Transactions on Automatic Control).
2. **Y. Ma**, X. Li, and S. Li, "A reduced-order protocol for linear multi-agent consensus without inter-controller communication," Acta Automatica Sinica, 2023, 49(9): 1836−1844 (Chinese version). [Publisher]

### Conference Proceedings

3. **Y. Ma**, X. Li, and S. Li, "Consensus of linear multi-agent systems with pure relative output through fully distributed reduced-order protocols," IFAC-PapersOnLine, 2023, 56(2): 10162−10167.[Publisher]
4. **Y. Ma**, X. Li, and S. Li, "A novel protocol with pure relative output information for consensus of linear multi-agent systems," in Proceedings of the 61st IEEE Conference on Decision and Control, Cancun, Mexico, 2022, pp.340−345. [Publisher]

## HARDWARE EXPERIENCE

- **China Industrial Intelligence**

  **Content:** Based on Ethernet's industrial DCS system network architecture, I completed the design and construction of industrial Internet of Things (IoT), including the control of servo motion, data interaction and monitoring, human-computer interaction interface.

  ∗*The competition is one of the highest level university competitions in China's automation fields.*

- **Robotic Arm Control of Model Aircraft**

  **Content:** This work contained the details of controlling a 3-DOF robotic arm with 4 servo motors using FPGA. Verilog code was used to simulate PWM signals with desired requirements (grab specific balls) to drive servo motors parallelly and with independent angles.

  ∗*This work is part of the Li Fu's National Natural Science Foundation of China*

- **Table Tennis Game Console**

  **Content:** In this work, I independently designed and debugged a physical table tennis game console on a printed circuit board (PCB). By using various digital chips, the circuit schematic was built in the Proteus, and the actual PCB drawing was completed in CAD.

## SELECTED AWARDS & EXPERIENCE

### Awards and Achievements

- **Grand Prize** in 7th China Industrial Intelligence Challenge, Shanghai. 2019
- **Grand Prize** of Disciplinary Competition Scholarship, Beihang University. 2020
- **First level** Scholarship, Shanghai Jiao Tong University. 2021−2023
- **The First Prize** of CASC Scholarship. 2022
- **National Scholarship**, Ministry of Education, China. (top 1% student). 2023
- **Excellent Graduate** of Shanghai Jiao Tong University. 2024

### Student services

- **Advanced individual** of Social Practice, Beihang University. 2020
- **Chair** in the Graduate Association of the School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University. 2022−2023

## SKILLS & HOBBIES

- Language: Chinese (native), English (professional proficiency, IELTS 7.0)
- Computer skills: Solidworks, Altium Designer, Proteus, Arduino.
- Programming language: Matlab, Python, C, $C_{++}$, Verilog.
- Hobbies: Photography, Cycling.