Ye Tian

Postdoctoral Fellow

Email: ye3@kth.se
Divison of Decision and Control Systems
School of Electrical Engineering and Computer Science
KTH Royal Institute of Technology
Malvinasväg 10, Stockholm, Sweden
Google Scholar page

Date: June 2025

Research Interests

Opinion dynamics in social networks, collective intelligence and group behavior in complex systems, multi-agent systems, social learning and game theory, Large Language Models

Education

Sep. 2014 - Sep. 2021

Ph.D., Control Theory and Control Engineering, Xidian University, China

- Dissertation title: Opinion Dynamics and Wisdom of Crowds in Social Networks
- Adviser: Prof. Long Wang

Oct. 2017 - Sep. 2019

Joint Ph.D. student, Center of Control, Dynamical Systems and Computation, University of California, Santa Barbara, USA

- Advisers: Prof. Francesco Bullo and Prof. Noah E. Friedkin

Sep. 2010 - June 2014

B.S., Applied Mathematics, Ningxia University, China

- Thesis: Formation Control of Heterogenous Multi-agent Systems
- Adviser: Prof. Jingying Ma
- GPA Ranking: 1/82

Research Experience

KTH Royal Institute of Technology Apr. 2025-present

Postdoctoral Fellow, Advisers: Prof. Karl Henrik Johansson and Prof. Angela Fontan

Topic: Networked systems and digital future

Nanyang Technological University July 2024-Jan. 2025

Research Fellow, Adviser: Prof. Chee Wei Tan

Topic: Networked systems and AI

Linköping University Mar. - Apr. 2024

Visiting Researcher, Adviser: Prof. Claudio Altafini

Topic: Wisdom of Crowds

Kyoto University Oct. 2022 - Apr. 2024

Postdoctoral Fellowship, Adviser: Prof. Kenji Kashima

Topic: Distributed Algorithm in Networked Systems Based on Data-driven Method

Southern University of Science and Technology Jul. - Sep. 2022

Visiting Scholar

Topic: Learning in Networked Systems

Peking University Oct. 2021 - Mar. 2022

Research assistant

Topic: Social Learning and the Wisdom of Crowds

University of California, Santa Barbara Oct. 2017 - Sep. 2019

Joint Ph.D. student, Advisers: Prof. Francesco Bullo and Prof. Noah E. Friedkin

Topic: Modeling and Analysis of Social Networks and Collective Behavior

Peking University Jan. - May 2017

Mentor for Undergraduate Student

Topic: Simulation Analysis of Opinion Dynamics

Xidian University Sep. 2014-Sep. 2021

Research Assistant, Adviser: Prof. Long Wang

Topic 1: Theory and Method for Cooperative Control of Multi-agent Systems

Topic 2: Intelligent Decision Making in Game Interactions

Topic 3: Analysis and Control of Complex Networked Systems

Publications

Journal articles

1. **Y. Tian**, L. Wang, "Opinion Dynamics in Social Networks with Stubborn Agents: An Issue-based Perspective", *Automatica,* 96: 213-223, 2018, doi: 10.1016/j.automatica.2018.06.041.

2. **Y. Tian**, P. Jia, A. MirTabatabaei, L. Wang, N. E. Friedkin, F. Bullo, "Social Power Evolution in Influence Networks with Stubborn Individuals", *IEEE Transactions on Automatic Control*, 67: 574-588, 2022, doi: 10.1109/TAC.2021.3052485.

3. **Y. Tian**, L. Wang, F. Bullo, "How Social Influence Affects the Wisdom of Crowds in Influence Networks", *SIAM Journal on Control and Optimization,* 61(4): 2334-2357, 2023, doi: 10.1137/22M1492751

4. **Y. Tian** and L. Wang, "Dynamics of Opinion Formation, Social Power Evolution and Naïve Learning in Social Networks" *Annual Reviews in Control,* 55: 182-193, 2023, doi: 10.1016/j.arcontrol.2023.04.001.

5. **Y. Tian**, Y. Kawano, W. Zhang, K. Kashima, "Distributed Perceiving the Social Power of stubborn individuals in influence networks". *IEEE Transactions on Automatic Control,* submitted, doi: 10.48550/arXiv.2506.01169

6. **Y. Tian**, C. W. Tan, "Laplacian regularized optimization and matrix forests in network dynamics and ranking systems." *ACM Computing surveys*. Submitted.

7. L. Wang, **Y. Tian**, J. Du, "Opinion Dynamics in Social Networks (in Chinese)", *Scientia Sinica Informationis,* 48: 3-23, 2018, doi:10.1360/N112017-00096.

8. R. Wang, **Y. Tian**, K. Kashima, " Density estimation Based Soft Actor-Critic: Deep Reinforcement Learning for Static Output Feedback Control with Measurement Noise", *Advanced Robotics*, 2024, doi: 10.1080/01691864.2024.2309621.

9. Y. Shen, Y. Guan, **Y. Tian**, "Controllability of Descriptor Multi-agent Systems with Signed Networks", *SCIENCE CHINA Information Sciences*, 2024.

10. X. Lin, **Y. Tian**, Q. Jiao. "Epidemic Spreading in Influence Networks: Models and Equilibrium Analysis", *Automatica*, 2023, under review.

11. J. Ma, S. Zhang, W. Wang, C. W. Tan, L. Wang. "How the Winner Takes All: The Contagion of Competing Opinions in Social Networks with Community Structures", *Automatica*, 2025, submitted.

Conferences

1. **Y. Tian**, Y. Zheng, L. Wang, "Follower Consensus of Multi-agent Systems with Antagonistic Leaders", *Proceedings of Chinese Intelligent Networked Things Conference,* Guangzhou, China, 2015.

2. **Y. Tian**, G. Jing, L. Wang, "Opinion Containment in Social Networks over Issue Sequences", *IEEE Conference on Automation Science and Engineering in 2017,* Xi'an, China, 2017, doi: 10.1109/COASE.2017.8256294.

3. R. Wang, **Y. Tian**, K. Kashima, "Reinforcement Learning for Discrete-time Static Noisy State Feedback Control with Reward Estimation", *the 22nd IFAC World Congress,* Yokohama, Japan, *2023.*

4. **Y. Tian**, K. Kashima, "Optimizing the Wisdom of Crowds in Influence Networks with Sparse Interpersonal Influence Structures", *2023 62nd Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE)*, Tsu City, Japan, 2023.

Working papers

5. **Y. Tian**, K. Kashima, “Optimizing the Wisdom of Crowds in Influence Networks based on Data-driven Methods”.

6. **Y. Tian**, Long Wang, “The aggregation of knowledge in dynamical influence networks.” *Science China Information Sciences* (invited perspective paper).

7. **Y. Tian**, C. Altafini. “Opinion optimization and the wisdom of crowds in social networks”

IEEE Transactions on Automatic Control, Automatica, IEEE Transactions on Control of Network Systems, SIAM Journal on Control and Optimization, PLOS ONE, System & Control Letters, Mathematical Reviews, Chinese Control Conference, Europe Control Conference

Expertise

Mathematics: matrix analysis, nonlinear systems, real and functional analysis, convex optimization, game theory, probability theory, stochastic process, control theory, statistical analysis

Software: Matlab, C, SPSS, LaTex, Python

Undergraduate Research Experience

Xi’an Jiaotong University, Xi’an, China July 2013

Summer Camp for Outstanding Undergraduate Students, School of Mathematics and Statistics

Topic: Mechanical Fault Diagnosis Based on Fuzzy Mathematics

Ningxia University, Yinchuan, China Sep. 2012 - June 2013

Innovative Projects for Undergraduate Students

Topic 1: Statistical Research of Learning Condition of Mathematical Analysis

Topic 2: Image De-noising Algorithm Based on Dictionary Learning

Awards and Honors

National Scholarship for Doctoral Students, Xidian University 2018

China Scholarship Fund 2017

Excellent Graduation Thesis, Ningxia University	2014
National Scholarship, Ningxia University	2011
Yang Hucheng Scholarship	2008

References Available to Contact

- Long Wang

  Professor, Department of Industrial Engineering and Management

  Cheung Kong Chair Professor of Dynamics and Control

  Director of Center for Systems and Control

  Peking University

  Email: longwang@pku.edu.cn

- Francesco Bullo

  Professor, Department of Mechanical Engineering

  Center for Control, Dynamical Systems and Computation

  University of California, Santa Barbara

  Email: bullo@engineering.ucsb.edu

- Tongwen Chen

  Professor, Department of Electrical and Computer Engineering

  Tier 1 Canada Research Chair

  University of Alberta

  Email: tchen@ualberta.ca