Wenjun Mei

Dept. Mechanics and Engineering Science
College of Engineering, Peking University
100871 Beijing, China

Phone: +86-17800236071
Email: mei@pku.edu.cn
Homepage: www.meiwenjun.site

Date: Sep. 30, 2021

Research Interests

Modeling, analysis, and control of networked multi-agent systems, including social, economic and engineering networks, population games and evolutionary dynamics, network games and optimization.

Research Experience

Peking University, Beijing September 2021 -

Assistant professor

ETH Zurich, Switzerland June 2018 - May 2021

Postdoctoral researcher, Adviser: Professor Florian Dörfler

University of California, Santa Barbara Jan. 2012 - Mar. 2018

Graduate Research Assistant, Adviser: Professor Francesco Bullo

Education

Ph.D., Mechanical Engineering, University of California, Santa Barbara 2011 - 2018

· Dissertation title: Modeling and Analysis of Social Network Dynamics: Propagation, Learning and Structural Balance

· Adviser: Professor Francesco Bullo

· Area of study: Dynamical Systems and Control

· GPA: 4.0/4.0

B.S., Theoretical and Applied Mechanics, Peking University 2007 - 2011

· Thesis: Event-triggered control of second-ordered multi-agent systems

· Adviser: Professor Tianguang Chu

· First three years' GPA ranking: 3rd

Publications

Note: * indicates the corresponding author.

Submitted, preprints, and working papers

1. W. Mei*, F. Bullo, G. Chen, J. Hendrickx, and F. Dörfler, "Rethinking the Micro-Foundation of Opinion Dynamics: Rich Consequences of an Inconspicuous Change", submitted, arXiv:1909.06474, 2021
2. E. Y. Huang, D. Paccagnan, W. Mei*, and F. Bullo, "Assign and Appraise: Achieving Optimal Performance in Collaborative Teams," *IEEE Transactions on Automatic Control*, conditionally accepted, 2020.
3. W. Mei, G. Chen*, and F. Dörfler, "Structural Balance and Interpersonal Appraisals Dynamics: Beyond All-to-All and Two-Faction Networks," submitted to *Automatica*, 2020.
4. W. Mei* and F. Dörfler, "Weighted-median Opinion Dynamics with Compromise Behavior" (in preparation, manuscript available).
5. B. Wang, W. Mei*, C. Altafini, F. Dörfler, "Weighted-Median Opinion Dynamics with Antagonistic Relations", working paper
6. F. Liu, S. Cui, W. Mei*, "Modeling, Analysis, and Manipulation of Memory-Involved Co-evolution between Appraisal Dynamics and Opinion Dynamics," working paper.

Journal articles

1. N. Pagan, W. Mei*, F. Dörfler, "A Meritocratic Network Formation Model for the Rise of Social Media Influencers", *Nature Communications*, 12:6865, 2021.
2. F. Liu, S. Cui, W. Mei*, F. Dörfler, and M. Buss, "Interplay Between Homophily-Based Appraisal Dynamics and Influence-Based Opinion Dynamics: Modeling and Analysis", *IEEE Control Systems Letters*, 5(1):181-186,2020.
3. W. Mei*, P. Cisneros-Velarde, N. E. Friedkin, and F. Bullo, "Dynamic Social Balance and Convergent Appraisals via Homophily and Influence Mechanisms," *Automatica*, 2019, 110: 108580, doi: 10.1016/j.automatica.2019.108580. (**Full paper**)
4. W. Mei*, N. E. Friedkin, K. Lewis, and F. Bullo, "Dynamical Models of Appraisal Networks Explaining Collective Learning," *IEEE Transactions on Automatic Control*, 2018, 63(9):2898-2912, doi: 10.1109/TAC.2017.2775963. (**Full paper**)
5. W. Mei*, S. Mohagheghi, S. Zampieri, and F. Bullo, "On the Dynamics of Deterministic Epidemic Propagation over Networks," *Annual Reviews in Control*, 44:116-128, 2017 doi: 10.1016/j.arcontrol.2017.09.002.
6. W. Mei* and F. Bullo, "Competitive Propagation: Models, Asymptotic Behavior and Quality-Seeding Games," *IEEE Transactions on Network Science and Engineering*, 4(2):83-99, 2017, doi: 10.1109/TNSE.2017.2651070.
7. W. Mei* and F. Bullo, "Sequential Decision Aggregation with Social Pressure," *Mathematics of Control, Signals and Systems*, 28(3):23, 2016, doi: 10.1007/s00498-016-0174-5.
8. G. Chen*, W. Su, W. Mei, and F. Bullo, "Convergence Properties of the Heterogeneous Deffuant-Weisbuch Model", *Automatica*, 2020, 114: 108825, doi: 10.1016/j.automatica.2020.108825. (**Full paper**)

9. N. E. Friedkin*, A. V. Proskurnikov, W. Mei, and F. Bullo, "Mathematical Structures in Group Decision-Making on Resource Allocation Distributions," *Scientific Reports*, 9(1):1377, 2019, doi: 10.1038/s41598-018-37847-2.
10. G. Chen*, X. Duan, W. Mei, and F. Bullo, "Linear Stochastic Approximation Algorithms and Group Consensus over Random Signed Networks," *IEEE Transactions on Automatic Control*, 64(5):1874-1889, doi: 10.1109/TAC.2018.2867257. (**Full paper**)

Conferences, workshops, and non-peer-reviewed articles

1. W. Mei*, F. Bullo, G. Chen, J. Hendrickx, and F. Dörfler, "Rethinking the Micro- Foundation of Opinion Dynamics: Rich Consequences of an Inconspicuous Change", extended abstract, In the *3rd IFAC Conference on Cyber-Physical & Human-Systems*, Beijing, China, December 2020.
2. W. Mei*, G. Chen, and F. Dörfler, "Structural Balance and Interpersonal Appraisals Dynamics: Beyond All-to-All and Two-Faction Networks", In the*3rd IFAC Conference on Cyber-Physical & Human-Systems*, Beijing, China, December 2020.
3. F. Liu, S. Cui, W. Mei*, F. Dörfler, and M. Buss, "Interplay Between Homophily-Based Appraisal Dynamics and Influence-Based Opinion Dynamics: Modeling and Analysis", In *IEEE Conference on Decision and Control*, Jeju Island, Korea, December 2020, accepted.
4. W. Mei*, N. E. Friedkin, K. Lewis, and F. Bullo, "Dynamical Models of Appraisal Networks Explaining Collective Learning," In *IEEE Conference on Decision and Control*, Las Vegas, NV, USA, December 2016, doi: 10.1109/CDC.2016.7798803.
5. W. Mei and F. Bullo*, "Modeling and Analysis of Competitive Propagation with Social Conversion," In *IEEE Conference on Decision and Control*, Los Angeles, CA, USA, pp. 6203-6208, December 2014, doi: 10.1109/CDC.2014.7040361.
6. W. Mei, N. E. Friedkin, K. Lewis, and F. Bullo, "Team Learning and Performance Evolution via Assign/Appraise Dynamics," In *the 30th Southern California Control Workshop*, San Diego, CA, USA, June 2016.
7. W. Mei* and F. Bullo, "LaSalle Invariance Principle for Discrete-time Dynamical Systems: A Concise and Self-contained Tutorial," arXiv:1710.03710, 2017.

Invited Seminar Talks

"Rethinking the Micro-Foundation of Opinion Dynamics"

May 2021, Princeton University

May 2020, Peking University

Jan. 2020, Academy of Mathematics and Systems Science, Chinese Academy of Science.

Nov. 2019, University of Padova

Nov. 2019, Politecnico di Torino

Oct. 2019, University of Applied Sciences of Western Switzerland

"Dynamical Models of Appraisal Networks Explaining Collective Learning"

April 2018, Academy of Mathematics and Systems Science, Chinese Academy of Science.

April 2018, Peking University.

May 2018, Shanghai Jiaotong University.

Student Mentoring Experience

Mohammed Khosravi, Ph.D. student, Automatic Control Laboratory, ETH Zurich. 2020-

Nicolo Pagan, Ph.D. student, Automatic Control Laboratory, ETH Zurich. 2019-

Pedro Cisneros-Velarde, Ph.D. student, Dept. Mechanical Engineering, UC Santa Barbara. 2017-2018

Cedric Uschatz, Master Thesis, Automatic Control Laboratory, ETH Zurich. 2020-

Lazar Rakic, master student semester project, ETH Zurich. 2019

Cheng Li, master student semester project, Master Thesis, ETH Zurich. 2019-2020

Bangxin Wang, undergraduate student project, ETH Zurich. 2020

Academic Service

· Editorial board of *The Journal of Mathematical Sociology*

· Organizer of the CDC'2020 Workshop on "Dynamics in Social and Economic Networks"

Technical Reviewer

IEEE Transactions on Automatic Control, Automatica, IEEE Control Systems Magazine, Systems & Control Letters, IEEE Transactions on Control of Network Systems, SIAM Journal on Applied Dynamical Systems, IEEE Transactions On Signal and Information Processing over Networks, PLOS ONE, IEEE Transactions on Knowledge and Data Engineering, Royal Society Open Science, Physica A, IEEE Control Systems Letters, Journal of Mathematical Sociology, IFAC World Congress, IEEE Conference on Decision and Control, American Control Conference, European Control Conference.

Grant Writing Experience

Assistance in writing the proposal for grant N000014-17-S-F006 funded by the US Army Research Office

1. Multidisciplinary University Research Initiative (MURI) program
2. Title: Dynamic Multi-Layer and Multi-Scale Networks of Heterogeneous Agents

Teaching Experience

Lecturer: ETH Zurich

1. Advanced Topics in Control: Distributed Systems 2021 Spring

Teaching Assistant: ETH Zurich

Game Theory and Control 2020 Spring, 2019 Spring

Linear Systems Theory 2019 Fall, 2018 Fall

Teaching Assistant: University of California, Santa Barbara

Dynamics 2017 Spring

Control Systems Design 2014 Spring
Strength of Materials 2012 Winter

Network Science IGERT Summer Bootcamp, University of California, Santa Barbara

Lecture on Graph Theory and Linear Algebra 2016 Summer

Undergraduate Research Experience

State Key Laboratory of Turbulence and Complex System, Beijing, China PR 2010 - 2011

Undergraduate Research Associate, Adviser: Professor Tianguang Chu
Topic: Event-triggered control of a class of second -order multi-agent systems

Peking University, Beijing, China PR 2010 - 2011

Undergraduate Research Associate, Adviser: Professor Kaixin Liu
Unrefereed Publication: W. Mei, S. Mao, "Dynamic Behavior of Ultra Thin Film NiTi/NbTi Shape Memory Composite," *Series of Selected Papers from Chun-Tsung Scholars, Peking University*, 2009

Professional Memberships

IEEE Member, IEEE Control System Society Membership, SIAM Early Career Membership, SIAM Control & Systems Theory Membership

Awards and Honors

The People's Choice Award in the Third Wave Ventures Boya Entrepreneur Contest 2016
The Most-Innovative Award in the California China Startup Competition 2016
First Prize in Jiang Ze-Han Cup Mathematical Modeling Contest 2010
Chun-Tsung Scholars, Peking University 2010
Academic Excellence Award, Peking University 2009 and 2010
Starlight International Media Scholarship 2010
Boeing Scholarship for Excellent Student 2009
Suzhou Industrial Park Scholarship 2008

Social Activity

Vice president of Chinese Students and Scholars Association, UC Santa Barbara 2013 - 2014