Zhicheng ZHANG — CV

Graduate School of Information Science and Technology
Division of Operations Research, Osaka University
1-5 Yamadaoka, Suita, Osaka, 565-0871, Japan
✉ zhicheng-zhang@ist.osaka-u.ac.jp • 🌐 zc-zhang.github.io

"There is nothing certain, but the uncertain."   *– Proverb*

Z. Zhang is currently a Ph.D. Candidate (Informatics) at Osaka University. His research interests include sparse modeling, robust optimization and networked control. He is a student member of SIAM, INFORMS and IEEE.

Education

Osaka University   Osaka, Japan
   Ph.D. Candidate, Informatics   *2020.10 – present*
   Fields: Probabilistic Control under Uncertainty
   Advisor: Prof. Yasumasa Fujisaki

The University of Kitakyushu   Fukuoka, Japan
   Visiting Master Student, EECS   *2019.09 – 2020.09*
   Fields: Sparse Modeling and Optimal Control
   Advisor: Prof. Masaaki Nagahara

Guilin University of Electronic and Technology   Guilin, China
   M.S., Mathematics   *2017.09 – 2020.06*
   Fields: ODEs and Dynamical Systems Theory
   Advisor: Prof. Zhongjun Ma

Changzhou Institute of Technology   Changzhou, China
   B.A., Japanese (Major)   *2013.09 – 2017.06*
   B.S., Applied Mathematics (Minor)

Research Interests

○ Decision Making under Uncertainty

  ♣ Robust optimization   ♣ Stochastic Programming

○ Sparse Modeling

  ♣ Sparse Optimization   ♣ Sparse Optimal Control

○ Networked Control

  ♣ Nonlinear Multi-agent Systems   ♣ Time-delays in Networks

Honors and Awards

○ 2020 Guangxi Outstanding Graduates, China, 2020 (top 1%)
○ Outstanding Master's Thesis of GUET, China, 2020 (top 3%)
○ Postgraduate Scholarship, First Prize, GUET, China, 2019, 2020 (top 3%)
○ Graduate Fellowship for Study Abroad, GUET, China, 2019
○ National Scholarship for Master's Student, China, 2019 (top 3%)

Research Projects and Academic Foundations

Practical Stability of Nonlinear Dynamical Systems
Collaborator, *School of Mathematics and Computing Science, GUET*   *2017.10 – 2018.06*
○ The Innovation Project of GUET Graduate Education, Grant No. 2017YJCX79 (CNY 10,000)

Stability of Impulsive Ordinary Differential Equations and its Applications
Co-Investigator (CI), *School of Mathematics and Computing Science, GUET*   *2018.10 – 2019.06*
○ The Innovation Project of GUET Graduate Education, Grant No. 2018YJCX60 (CNY 10,000)

Intermittent Feedback Control of Nonlinear Multi-Agent Systems
Principal Investigator (*PI*), *School of Mathematics and Computing Science, GUET*   *2018.12 – 2020.06*
○ Cultivation of Excellent Thesis Project of GUET Graduate Education, Grant No. 2018YJSPY01 (CNY 10,000)

Cooperative Control of Multi-Agent Networked Systems
Principal Investigator (*PI*), *School of Mathematics and Computing Science, GUET*   *2019.09 – 2020.08*
○ The Study Abroad Program for Graduate Student of GUET, Grant No. GDYX2019015 (JPY 1,800,000)

Partial Component Synchronization of Nonlinear Networks and its Control Applications
Collaborator, *School of Mathematics and Computing Science, GUET*   *2019.01 – 2021.12*
○ Guangxi Natural Science Foundation, China, Grant No. 2018GXNSFAA281068 (CNY 50,000)

Positions of Responsibility

○ **Teaching Assistant** for Undergraduate courses like *Mathematical Analysis*, *Advanced Algebra*, and *Calculus*.

○ **Teaching Assistant** for Graduate courses like *operations research*, and *research seminars*.

Professional Service

Reviewer (Journals & Conferences)

○ International Journal of Robust and Nonlinear Control (IJRNC)

○ IEEE Transactions on Systems, Man and Cybernetics (IEEE TSMC)

○ IFAC Symposium on Robust Control Design (ROCOND 2022)

○ IFAC World Congress (2023)

○ European Control Conference (2024)

Publications

Peer Review Journals

[J2] Z. Zhang and Y. Fujisaki, "Sparse feedback controller: From open-loop solution to closed-loop realization," *SICE Journal of Control, Measurement, and System Integration*, 2023, Vol.. 16, No. 1, 286–296. arXiv.2303.15175 Doi: 10.1080/18824889.2023.2237234.

[J1] Z. Zhang, Z. Ma and Y. Wang, "Partial component consensus of leader-following multi-agent systems via intermittent pinning control," *Physica A: Statistical Mechanics and its Applications*, 2019, 536: 122569. Doi: 10.1016/j.physa.2019.122569.

Proceeding Conferences

[C6] Z. Zhang and Y. Fujisaki, "Data-driven sparse feedback control synthesis," Submitted to *SICE International Symposium on Control System* (*ISCS'24*), Hiroshima, Mar., 2024. Tokyo, Nov., 2023, p.4A3.

[C5] Z. Zhang and Y. Fujisaki, "Risk assessment for sparse optimization with relaxation," *The 55th ISCIE International Symposium on Stochastic System Theory and Its Applications* (*SSS'23*), Tokyo, Nov., 2023, p.4A3.

[C4] Z. Zhang and Y. Fujisaki, "Risk-aware sparse predictive control", *Preprint of the 22nd IFAC Word Congress*, Yokohama, Jul., 2023, pp. 1477-1480.

[C3] Z. Zhang and Y. Fujisaki, "Sparse feedback control realization using linear dynamic compensator," *SICE International Symposium on Control System* (*ISCS'23*), Kusatsu, Mar. 2023, p. 3M1.4.

[C2] Z. Zhang and Y. Fujisaki, "Sparse robust control design via scenario optimization", *Proceeding ISCIE International Symposium on Stochastic System Theory and Its Applications* (*SSS'21*), Kusatsu, Oct., 2022, pp. 61-64.

[C1] Z. Zhang and M. Nagahara, "Linear quadratic tracking control with sparsity-promoting regularization," *2021 American Control Conference* (*ACC'21*), IEEE, May 2021. pp. 3812–3817.

Preprints

[P2] Z. Zhang, Z. Ma, Y. Wang and K. Li, "Wait-and-track characteristics for a generic multiagent system under control input attacks," Submitted to *IEEE Transactions on Control of Network Systems*, 2023.

[P1] Z. Zhang and Z. Ma, "Lag synchronization for large-scale complex networks under stochastic input disturbances," *Chaos: An Interdisciplinary Journal of Nonlinear Science*. 2023, (under review)

Thesis

[T1] Master's Thesis: Consensus of Classes of Nonlinear Multi-agent Network Systems via Intermittent Control, *China National Knowledge Infrastructure (CNKI)*, June, 2020 (in Chinese)

[T2] Ph.D. Thesis: Modeling, Robustness and Stability for Sparse Optimal Control of Dynamical Systems, (Revised)

Technical Strengths

- **Languages:** Chinese (native), Japanese (N2), and English (fluent).
- **Skills:** LaTeX, Matlab, Python, Julia

Personal Information

- Born in Dec. 1994, in Jiangsu Province, China
- Citizenship: Chinese

References

- **Yasumasa Fujisaki**
  Department of Information and Physical Sciences
  Osaka University
  fujisaki@ist.osaka-u.ac.jp

- **Masaaki Nagahara**
  Graduate School of Advanced Science and Engineering
  Hiroshima University
  nagam@hiroshima-u.ac.jp

- **Zhongjun Ma**
  School of Mathematics and Computing Science
  Guilin University of Electronic and Technology
  mazhongjun@guet.edu.cn