

MENGMOU LI

Department of Systems and Control Engineering, Tokyo Institute of Technology

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ACADEMIC QUALIFICATIONS

- Sept 2016 - Aug 2020 **The University of Hong Kong, Hong Kong**
PhD, Department of Electrical and Electronic Engineering
Thesis: *Control Approaches to Distributed Optimization and Network Problems*
Supervisor: Prof. Graziano Chesi
- Sept 2012 - June 2016 **Zhejiang University, Hangzhou, China**
Bachelor of Science, Department of Physics {GPA Rank: 6/84}
Major in Physics and minor in Japanese
- Sept 2009 - June 2012 **Huizhou No.1 Middle School, Huizhou, Guangdong, China**
Ranked approximately 422/290000, College Entrance Examination on Science

ACADEMIC POSITIONS

- Aug 2023 - **Tokyo Institute of Technology, Tokyo, Japan**
Specially Appointed Assistant Professor
Department of Systems and Control Engineering
- Aug 2022 - Aug 2023 **Tokyo Institute of Technology, Tokyo, Japan**
Postdoctoral Researcher, Department of Systems and Control Engineering
Advisor: Prof. Takeshi Hatanaka
- Feb 2021 - July 2022 **University of Cambridge, Cambridge, UK**
Research Associate, Department of Engineering
Advisor: Prof. Ioannis Lestas
- Oct 2020 - Jan 2021 **The Hong Kong University of Science and Technology, Hong Kong**
Post-doctoral Fellow, Department of Electronic and Computer Engineering
Advisor: Prof. Li Qiu
- Sept 2019 - Dec 2019 **Osaka University, Osaka, Japan**
Visiting Researcher, Graduate School of Engineering
Host: Prof. Takeshi Hatanaka
- Jan 2019 - Mar 2019 **The University of Hong Kong, Hong Kong**
Research Assistant, Department of Electronic and Electronic Engineering
Advisor: Prof. Graziano Chesi
- Oct 2018 - Dec 2018 **Chinese Academy of Sciences, Beijing, China**
Visiting Student, Key Laboratory of Systems and Control
Host: Prof. Yiguang Hong

SKILLS

Research Interests

Optimization, Distributed Control, Robust Control, Power Systems, Cyber-Physical Systems

Analytical

Nonlinear Systems, Systems and Control, Convex Optimization, Game Theory

Languages

English, Mandarin, Japanese (N1), Cantonese, Teochew

HONORS

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| 2016 - 2020 | UPF Scholarship: HKU Foundation Postgraduate Fellowship |
| 2015 | National Scholarship, Department of Physics, Zhejiang University |
| 2014 | National Scholarship, Department of Physics, Zhejiang University |

PROFESSIONAL SERVICES

Chairmanship

2023 Student Activities Co-Chairs, *IFAC World Congress 2023*, Yokohama, Japan

Referee for Journals and Conferences

Automatica

IEEE Transactions on Automatic Control

IEEE Transactions on Control of Network Systems

IEEE Transactions on Control Systems Technology

IEEE Control Systems Letters

IEEE Transactions on Circuits and Systems I: Regular Papers

IEEE Transactions on Circuits and Systems II: Express Briefs

International Journal of Control, Automation and Systems

IET Generation, Transmission & Distribution

IEEE Conference on Decision and Control

American Control Conference

European Control Conference

TEACHING

Qualification

Jan, 2017 Certificate in Teaching and Learning in Higher Education, HKU

Teaching Assistant

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|-------------|--------------------|---|
| 2022 | Supervisor | Cambridge - 3F2-Systems and Control |
| 2021 | Demonstrator | Cambridge - IB Labs I2 Vehicle motion control/I3 Position control |
| 2019 - 2020 | Teaching Assistant | HKU CCST9015 - Electronic Technologies in Everyday Life |
| 2018 | Lab demonstrator | HKU ELEC3245 - Control and instrumentation |
| 2017 | Lab demonstrator | HKU ELEC3222/4242 - Robotics |

PUBLICATIONS

* Corresponding author

Preprints

1. **M. Li***, T. Hatanaka, M. Nagahara, "On the Generalization of Multivariable Popov Criterion for Slope-Restricted Nonlinearities", preparing.
2. T. W. Nguyen, R. Ito, **M. Li**, K. Hirata, "Toward a Standardized Framework for Developing Zero-Energy House Simulation Environments Using Reproducible Validation Tests", *The 11th SICE Multi-Symposium on Control Systems, 2024*, preparing.
3. A.D. Carnerero, T. Tanaka, **M. Li**, Y. Wasa, K. Hirata, Y. Ushifusa, T. Hatanaka, "Achieving Net-Zero Energy Houses With Photovoltaic Panels and Batteries".
4. **M. Li***, T. Tanaka, A.D. Carnerero, Y. Wasa, K. Hirata, Y. Fujisaki, Y. Ushifusa, T. Hatanaka, "Stochastic Optimal Investment Strategy for Net-Zero Energy Houses", submitted to *IET Renewable Power Generation*.

5. **M. Li***, K. Laib, T. Hatanaka, I. Lestas, “Convergence Rate Bounds for the Mirror Descent Method: IQCs, the Popov Criterion and Bregman Divergence”, resubmitted to *Automatica*.
6. G. Zuo, **M. Li**, L. Zhu, “Prescribed Finite-Time Synchronization of Networked Uncertain Euler-Lagrange Systems”, submitted to *Automatica*.

Journal Papers

1. **M. Li***, J. Watson, I. Lestas, “Distributed Optimal Secondary Frequency Control for Power Systems With Delay Independent Stability,” *IEEE Transactions on Automatic Control*, Early Access.
2. **M. Li***, I. Lestas, L. Qiu, “Parallel Feedforward Compensation for Output Synchronization: Fully Distributed Control and Indefinite Laplacian,” *Systems & Control Letters*, vol. 164, pp. 105250, 2022.
3. L. Su, **M. Li**, V. Gupta, G. Chesi, “Distributed Resource Allocation Over Time-Varying Balanced Digraphs With Discrete-time Communication,” *IEEE Transactions on Control of Network Systems*, vol. 9, no. 1, pp. 487–499, 2022.
4. **M. Li***, G. Chesi, Y. Hong, “Input-Feedforward-Passivity-Based Distributed Optimization Over Jointly Connected Balanced Digraphs,” *IEEE Transactions on Automatic Control*, vol. 66, no. 9, pp. 4117–4131, 2021.
5. **M. Li***, L. Su, T. Liu, “Distributed Optimization With Event-triggered Communication via Input Feedforward Passivity,” *IEEE Control Systems Letters*, vol. 5, no. 1, pp. 283–288, 2021.
6. **M. Li***, S. Yamashita, T. Hatanaka, G. Chesi, “Smooth Dynamics for Constrained Distributed Optimization With Heterogeneous Delays,” *IEEE Control Systems Letters*, vol. 4, no. 3, pp. 626–631, 2020.
7. S. Yamashita, **M. Li**, T. Hatanaka, “Robustification of Continuous-Time ADMM Against Communication Delays Under Non-Strict Convexity: A Passivity-Based Approach,” *SICE Journal of Control, Measurement, and System Integration*, vol. 13, no. 6, pp. 299–305, 2020.
8. **M. Li**, L. Su, G. Chesi, “Consensus of Heterogeneous Multi-Agent Systems With Diffusive Couplings via Passivity Indices,” *IEEE Control Systems Letters*, vol. 3, no. 2, pp. 434–439, 2019.
9. **M. Li***, “Generalized Lagrange Multiplier Method and KKT Conditions With an Application to Distributed Optimization,” *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 66, no. 2, pp. 252–256, 2019.

Conference Papers

1. R. Xiong, H. Jing, **M. Li**, Y. Shi, M. Taya, T. Hatanaka, Y. Nakahira and P. Tang, “Optimizing HVAC Systems for Energy Efficiency and Comfort: A Scalable and Robust Multi-Zone Control Approach with Uncertainty Considerations”, *2023 ASCE International Conference on Computing in Civil Engineering (i3CE 2023)*, 2023.
2. **M. Li***, K. Laib, I. Lestas, “Convergence Rate Bounds for the Mirror Descent Method: IQCs and the Bregman Divergence,” *2022 IEEE 61st Conference on Decision and Control (CDC)*, 6326–6331, 2022.
3. L. Zhu, Y. Zeng, **M. Li**, “Distributed Formation Control via Distributed Optimization,” *17th IEEE International Conference on Control & Automation (ICCA)*, 874–879, 2022.
4. **M. Li***, G. Chesi and Y. Hong, “Input-Feedforward-Passivity-Based Distributed Optimization Over Directed and Switching Topologies,” *58th IEEE Conference on Decision and Control (CDC)*, 6056–6061, 2019.

5. **M. Li***, T. Liu, “Distributed Robust Resource Allocation With Convex-Concave Uncertain Objective Functions,” *57th Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE)*, 368–373, 2018.