

Masaki Ogura  
Curriculum Vitae  
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## AREAS OF EXPERTISE

Control theory, network science, optimization, stochastic processes, biological physics

## EDUCATION

- Ph.D. in Mathematics, *Texas Tech University*. 2014
- M.Sc. in Informatics, *Kyoto University*. 2009
- B.Eng., *Kyoto University*. 2007

## PROFESSIONAL APPOINTMENTS

- Professor, Graduate School of Advanced Science and Engineering, Hiroshima University, Japan. Apr 2024–present
- Visiting Professor, Department of Bioinformatic Engineering, Graduate School of Information Science and Technology, Osaka University, Japan. Apr 2024–present
- Associate Professor, Department of Bioinformatic Engineering, Graduate School of Information Science and Technology, Osaka University, Japan. Nov 2019–Mar 2024
- Visiting Associate Professor, Division of Information Science, Graduate School of Science and Technology, Nara Institute of Science and Technology, Japan. Apr 2020–Mar 2021
- Assistant Professor, Graduate School of Information Science, Nara Institute of Science and Technology, Japan. Mar 2017–Oct 2019
- Postdoctoral Researcher, Department of Electrical and Systems Engineering, University of Pennsylvania, Oct 2014–Feb 2017

## SHORT TERM VISITS

- Department of Mechanical Engineering, University of Hong Kong. 2018, 2019
- ICTEAM Institute, Université catholique de Louvain, Belgium. 2013

## SELECTED AWARDS AND HONORS

- Runner-up of the 2019 Best Paper Award, *IEEE Transactions on Network Science and Engineering*. 2019
- Summer Dissertation/Thesis Research Award, Texas Tech University. 2014
- Cash Family Endowed Fellowship, Texas Tech University. 2013

- Best Paper Award, The Society of Instrument and Control Engineers. 2012

## PUBLICATIONS

### Book Chapters

- [1] K. Sakurama, K. Kashima, T. Ikeda, N. Hayashi, K. Hoshino, M. Ogura, and C. Zhao, “System-Control-Based Approach to Car-Sharing Systems,” in *Advanced Mathematical Science for Mobility Society*. Springer Singapore, 2024, pp. 127–171.
- [2] V. M. Preciado, M. Zargham, C. Nowzari, S. Han, M. Ogura, A. Jadbabaie, and G. J. Pappas, “Bio-inspired Framework for Allocation of Protection Resources in Cyber-Physical Networks,” in *Principles of Cyber-Physical Systems*. Cambridge University Press, 2020, pp. 293–322.
- [3] M. Ogura and V. M. Preciado, “Optimal Containment of Epidemics in Temporal and Adaptive Networks,” in *Temporal Networks Epidemiology*. Springer, 2017, pp. 241–266.
- [4] M. Ogura and C. F. Martin, “Linear Switching Systems and Random Products of Matrices,” in *Mathematical System Theory – Festschrift in Honor of Uwe Helmke on the Occasion of his Sixtieth Birthday*, K. Hüper and J. Trumpf, Eds. CreateSpace, 2013, pp. 291–300.

### Refereed Journal Articles

- [1] Y. Bai, P. T. T. Ngoc, H. D. Nguyen, D. L. Le, Q. H. Ha, K. Kai, Y. X. S. To, Y. Deng, J. Song, N. Wakamiya, H. Sato, and M. Ogura, “Swarm navigation of cyborg-insects in unknown obstructed soft terrain,” *Nature Communications* (accepted for publication), 2024.
- [2] A. Fujioka, M. Ogura, and N. Wakamiya, “Cyclic pursuit formation control for arbitrary desired shapes,” *Journal of the Franklin Institute*, 2024.
- [3] J. Aizawa, M. Ogura, M. Shimono, and N. Wakamiya, “Firing pattern manipulation of neuronal networks by deep unfolding-based model predictive control,” *IET Control Theory Applications*, vol. 18, no. 15, pp. 2003–2013, 2024.
- [4] A. Li, M. Ogura, and N. Wakamiya, “Swarm shepherding using bearing-only measurements,” *Philosophical Transactions of the Royal Society A* (accepted for publication), vol. 383, p. 20240145, 2024.
- [5] C. Zhao, B. Zhu, M. Ogura, and J. Lam, “Probability rate optimization of positive Markov jump linear systems via DC programming,” *Asian Journal of Control*, vol. 26, no. 5, pp. 2242–2249, 2024.
- [6] W. Imahayashi, Y. Tsunoda, and M. Ogura, “Route design in sheepdog system–traveling salesman problem formulation and evolutionary computation solution–,” *Advanced Robotics*, vol. 38, no. 9-10, pp. 632–646, 2024.
- [7] J. J. R. Liu, M. Ogura, Q. Li, and J. Lam, “Learning-based stabilization of Markov jump linear systems,” *Neurocomputing*, vol. 584, p. 127618, 2024.
- [8] R. Liu, M. Ogura, E. F. Dos Reis, and N. Masuda, “Effects of concurrency on epidemic spreading in Markovian temporal networks,” *European Journal of Applied Mathematics*, vol. 35, no. 3, pp. 430–461, 2024.

- [9] C. Zhao, K. Sakurama, and M. Ogura, “Optimization of buffer networks via DC programming,” *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 70, no. 2, pp. 606–610, 2023.
- [10] M. Ogura and C. F. Martin, “Mean escape time of switched Riccati differential equations,” *Journal of the Franklin Institute*, vol. 360, no. 10, pp. 6827–6845, 2023.
- [11] M. Ogura and N. Wakamiya, “Reduced-order model predictive control of a fish schooling model,” *Nonlinear Analysis: Hybrid Systems*, vol. 49, p. 101342, 2023.
- [12] C. Zhao, B. Zhu, M. Ogura, and J. Lam, “Parameterized synthesis of discrete-time positive linear systems: A geometric programming perspective,” *IEEE Control Systems Letters*, vol. 7, pp. 2551–2556, 2023.
- [13] X. Gong, M. Ogura, J. Shen, T. Huang, and Y. Cui, “Optimal epidemics policy seeking on networks-of-networks under malicious attacks by geometric programming,” *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 53, no. 6, pp. 3845–3857, 2023.
- [14] M. Ogura and C. Nowzari, “Special issue: modeling, analysis, and control of epidemics in networks,” *Mathematical Biosciences and Engineering*, vol. 20, no. 5, pp. 8446–8447, 2023.
- [15] A. Li, M. Ogura, and N. Wakamiya, “Communication-free herding navigation with multiple steering agents,” *Frontiers in Control Engineering*, vol. 4, 2023.
- [16] A. Fujioka, M. Ogura, and N. Wakamiya, “Herding algorithm for heterogeneous flock with model-based discrimination,” *Advanced Robotics*, vol. 37, no. 1-2, pp. 99–114, 2023.
- [17] B. Zhu, J. Lam, and M. Ogura, “Log-log convexity of an optimal control problem for positive linear systems,” *Automatica*, vol. 146, p. 110553, 2022.
- [18] M. Nagahara, M. Ogura, and Y. Yamamoto, “Iterative greedy LMI for sparse control,” *IEEE Control Systems Letters*, vol. 6, pp. 986–991, 2022.
- [19] M. Kumazaki, M. Ogura, and T. Tachibana, “Dynamic service chain construction based on model predictive control in NFV environments,” *IEICE Transactions on Communications*, vol. E105-B, no. 4, pp. 399–410, 2022.
- [20] M. Kishida\* and M. Ogura\*, “Temporal deep unfolding for constrained nonlinear stochastic optimal controls,” *IET Control Theory & Applications*, vol. 16, no. 2, pp. 139–150, 2022. (\*equal contribution)
- [21] R. Himo, M. Ogura, and N. Wakamiya, “Iterative algorithm for herding unresponsive sheep,” *Mathematical Biosciences and Engineering*, vol. 19, no. 4, pp. 3509–3525, 2022.
- [22] T. Kimura and M. Ogura, “Distributed 3D deployment of aerial base stations for on-demand communication,” *IEEE Transactions on Wireless Communications*, vol. 20, no. 12, pp. 7728–7742, 2021.
- [23] K. Hashimoto, Y. Onoue, M. Ogura, and T. Ushio, “Event-triggered control for mitigating SIS spreading processes,” *Annual Reviews in Control*, vol. 52, pp. 479–494, 2021.
- [24] K. Sugimoto, T. Aihara, M. Ogura, and K. Hanada, “Gain scheduling for sampled-data state estimation over lossy networks,” *Transactions of the Institute of Systems, Control and Information Engineers*, vol. 34, no. 11, pp. 287–293, 2021.

- [25] M. Nagahara, B. Krishnamachari, M. Ogura, A. Ortega, Y. Tanaka, Y. Ushifusa, and T. W. Valente, “Control, intervention, and behavioral economics over human social networks against COVID-19,” *Advanced Robotics*, vol. 35, no. 11, pp. 733–739, 2021.
- [26] C. Zhao, M. Ogura, M. Kishida, and A. Yassine, “Optimal resource allocation for dynamic product development process via convex optimization,” *Research in Engineering Design*, vol. 32, no. 1, pp. 71–90, 2021.
- [27] X. Chen, M. Ogura, and V. M. Preciado, “SDP-Based moment closure for epidemic processes on networks,” *IEEE Transactions on Network Science and Engineering*, vol. 7, no. 4, pp. 2850–2865, 2020.
- [28] M. Ogura, M. Kishida, and J. Lam, “Geometric programming for optimal positive linear systems,” *IEEE Transactions on Automatic Control*, vol. 65, no. 11, pp. 4648–4663, 2020.
- [29] W. Mei, C. Zhao, M. Ogura, and K. Sugimoto, “Mixed  $H_2/H_\infty$  control of delayed Markov jump linear systems,” *IET Control Theory Applications*, vol. 14, no. 15, pp. 2076–2083, 2020.
- [30] C. Zhao, M. Ogura, and K. Sugimoto, “Stability optimization of positive semi-Markov jump linear systems via convex optimization,” *SICE Journal of Control, Measurement, and System Integration*, vol. 13, no. 5, pp. 233–239, 2020.
- [31] M. Kishida\*, M. Ogura\*, Y. Yoshida, and T. Wadayama, “Deep learning-based average consensus,” *IEEE Access*, vol. 8, pp. 142 404–142 412, 2020. (\*equal contribution)
- [32] N. Masuda, V. M. Preciado, and M. Ogura, “Analysis of the susceptible-infected-susceptible epidemic dynamics in networks via the non-backtracking matrix,” *IMA Journal of Applied Mathematics*, vol. 85, no. 2, pp. 214–230, 2020.
- [33] X. Chen, M. Ogura, and V. M. Preciado, “Bounds on the spectral radius of digraphs from motif counts,” *SIAM Journal on Matrix Analysis and Applications*, vol. 41, no. 2, pp. 525–553, 2020.
- [34] M. Ogura and V. M. Preciado, “Stability of SIS spreading processes in networks with non-Markovian transmission and recovery,” *IEEE Transactions on Control of Network Systems*, vol. 7, no. 1, pp. 349–359, 2020.
- [35] M. Ogura, W. Mei, and K. Sugimoto, “Synergistic effects in networked epidemic spreading dynamics,” *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 67, no. 3, pp. 496–500, 2020.
- [36] Y. Abe, M. Ogura, H. Tsuji, A. Miura, and S. Adachi, “Resource and network management framework for a large-scale satellite communications system,” *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, vol. E103, no. 2, pp. 492–501, 2020. **Telecom System Technology Student Award**, Telecommunication Advancement Foundation.
- [37] M. Ogura, J. Harada, M. Kishida, and A. Yassine, “Resource optimization of product development projects with time-varying dependency structure,” *Research in Engineering Design*, vol. 30, no. 3, pp. 435–452, 2019.
- [38] M. Ogura, V. M. Preciado, and N. Masuda, “Optimal containment of epidemics over temporal activity-driven networks,” *SIAM Journal on Applied Mathematics*, vol. 79, no. 3, pp. 986–1006, 2019.

- [39] W. Mei and M. Ogura, “Kronecker weights for instability analysis of Markov jump linear systems,” *IET Control Theory & Applications*, vol. 13, no. 3, pp. 360–366, 2019.
- [40] M. Wakaiki, M. Ogura, and J. P. Hespanha, “LQ-optimal sampled-data control under stochastic delays: gridding approach for stabilizability and detectability,” *SIAM Journal on Control and Optimization*, vol. 56, no. 4, pp. 2634–2661, 2018.
- [41] M. Ogura, A. Cetinkaya, T. Hayakawa, and V. M. Preciado, “State feedback control of Markov jump linear systems with hidden-Markov mode observation,” *Automatica*, vol. 89, pp. 65–72, 2018.
- [42] M. Ogura and V. M. Preciado, “Second-order moment-closure for tighter epidemic thresholds,” *Systems & Control Letters*, vol. 113, pp. 59–64, 2018.
- [43] M. Ogura and V. M. Preciado, “Optimal design of switched networks of positive linear systems via geometric programming,” *IEEE Transactions on Control of Network Systems*, vol. 4, no. 2, pp. 213–222, 2017.
- [44] M. Ogura, M. Wakaiki, H. Rubin, and V. M. Preciado, “Delayed bet-hedging resilience strategies under environmental fluctuations,” *Physical Review E*, vol. 95, p. 052404, 2017.
- [45] M. Ogura, V. M. Preciado, and R. M. Jungers, “Efficient method for computing lower bounds on the  $p$ -radius of switched linear systems,” *Systems & Control Letters*, vol. 94, pp. 159–164, 2016.
- [46] M. Ogura and V. M. Preciado, “Epidemic processes over adaptive state-dependent networks,” *Physical Review E*, vol. 93, p. 062316, 2016.
- [47] M. Ogura and V. M. Preciado, “Stability of Markov regenerative switched linear systems,” *Automatica*, vol. 69, pp. 169–175, 2016.
- [48] M. Ogura and V. M. Preciado, “Stability of spreading processes over time-varying large-scale networks,” *IEEE Transactions on Network Science and Engineering*, vol. 3, no. 1, pp. 44–57, 2016. Runner-up of **2019 IEEE TNSE Best Paper Award**.
- [49] M. Ogura and C. F. Martin, “Stability analysis of linear systems subject to regenerative switchings,” *Systems & Control Letters*, vol. 75, pp. 94–100, 2015.
- [50] M. Ogura and C. F. Martin, “A limit formula for joint spectral radius with  $p$ -radius of probability distributions,” *Linear Algebra and its Applications*, vol. 458, pp. 605–625, 2014.
- [51] M. Ogura and C. F. Martin, “Stability analysis of positive semi-Markovian jump linear systems with state resets,” *SIAM Journal on Control and Optimization*, vol. 52, pp. 1809–1831, 2014.
- [52] M. Ogura and C. F. Martin, “Generalized joint spectral radius and stability of switching systems,” *Linear Algebra and its Applications*, vol. 439, no. 8, pp. 2222–2239, 2013.
- [53] M. Ogura and Y. Yamamoto, “Dissipativity of pseudorotational behaviors,” *IEEE Transactions on Automatic Control*, vol. 58, no. 4, pp. 823–833, 2013.
- [54] M. Nagahara, M. Ogura, and Y. Yamamoto, “ $H^\infty$  design of periodically nonuniform interpolation and decimation for non-band-limited signals,” *SICE Journal of Control, Measurement, and System Integration*, vol. 4, no. 5, pp. 341–348, 2011. **2012 SICE Best Paper Award**.

## Refereed Conference Proceedings

- [1] W. Imahayashi, T. Tokugawa, K. Koitabashi, Y. Tsunoda, M. Ogura, and S. Muto, “Actual experiment using mobile robot in sheepdog system -guidance route design using traveling salesman problem-,” in *SICE Festival 2024 with Annual Conference* (accepted), 2024.
- [2] J. Aizawa, M. Ogura, M. Shimono, and N. Wakamiya, “Manipulation of neuronal network firing patterns using temporal deep unfolding-based MPC,” in *2023 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference*, 2023, pp. 15–21.
- [3] Y. Deng, A. Li, M. Ogura, and N. Wakamiya, “Collision-free shepherding control of a single target within a swarm,” in *2023 IEEE International Conference on Systems, Man, and Cybernetics*, 2023, pp. 5218–5223.
- [4] A. Fujioka, M. Ogura, and N. Wakamiya, “Proposal and evaluation of pursuit formations based on cyclic pursuit dynamics,” in *2023 International Symposium on Nonlinear Theory and its Applications*, 2023, pp. 30–33.
- [5] M. Ogura and V. M. Preciado, “Asynchronous temporal interactions promote disparity in networks,” in *2023 International Symposium on Nonlinear Theory and its Applications*, 2023, p. 25.
- [6] C. Zhao, X. Gong, Y. Ebihara, and M. Ogura, “Impulse-to-peak optimization of positive linear systems via DC programming,” in *22nd IFAC World Congress*, 2023, pp. 5544–5549.
- [7] A. Fujioka, M. Ogura, and N. Wakamiya, “Shepherding heterogeneous flocks: overview and prospect,” in *22nd IFAC World Congress*, 2023, pp. 11 523–11 526.
- [8] Y. Deng, A. Li, M. Ogura, and N. Wakamiya, “Collision-free property analysis for the shepherding swarm,” in *SICE Annual Conference 2023*, 2023, pp. 1072–1073.
- [9] J. Aizawa, M. Ogura, M. Shimono, and N. Wakamiya, “Temporal deep unfolding-based MPC for controlling firing patterns of neuronal network,” in *2023 RISP International Workshop on Nonlinear Circuits, Communications and Signal Processing*, 2023.
- [10] A. Li, M. Ogura, and N. Wakamiya, “Proposal of a bearing-only shepherding algorithm with limited sensing capabilities,” in *AROB-ISBC-SWARM 2023*, 2023, pp. GS34–1.
- [11] Y. Deng, M. Ogura, A. Li, and N. Wakamiya, “Shepherding control for separating a single agent from a swarm,” in *1st IFAC Workshop on Control of Complex Systems*, 2022, pp. 217–222.
- [12] A. Li, M. Ogura, Y. Tsunoda, and N. Wakamiya, “Proposal of farthest-agent targeting algorithm with indirect chasing,” in *SICE Annual Conference 2022*, 2022, pp. 92–94.
- [13] A. Fujioka, M. Ogura, and N. Wakamiya, “Shepherding algorithm based on variant agent detection for heterogeneous flock,” in *SICE Annual Conference 2022*, 2022, pp. 87–91. Finalists of **SICE Annual Conference 2022 Young Author’s Award**.
- [14] M. Ogura, K. Kobayashi, and K. Sugimoto, “Static output feedback synthesis of time-delay linear systems via deep unfolding,” in *17th IFAC Workshop on Time Delay Systems*, 2022, pp. 214–215.

- [15] M. Kishida and M. Ogura, “Temporal deep unfolding for nonlinear stochastic optimal control,” in *7th International Conference on Advances in Control & Optimization of Dynamical Systems*, 2022, pp. 908–913.
- [16] M. Ogura and N. Wakamiya, “Model predictive control of fish schooling model with reduced-order prediction model,” in *60th IEEE Conference on Decision and Control*, 2021, pp. 4115–4120.
- [17] M. Kishida and M. Ogura, “Temporal deep unfolding for nonlinear maximum hands-off control,” in *SICE Annual Conference 2021*, 2021, pp. 1007–1010.
- [18] K. Kobayashi, M. Ogura, T. Kobayashi, and K. Sugimoto, “Deep unfolding-based output feedback control design for linear systems with input saturation,” in *SICE International Symposium on Control Systems 2021*, 2021, pp. 33–39.
- [19] M. Kumazaki, M. Ogura, and T. Tachibana, “Service chain construction with efficient VNF sharing based on model predictive control,” in *2020 International Conference on Emerging Technologies for Communications*, 2020, pp. M1–5.
- [20] K. Sugimoto, M. Ogura, K. Hanada, and T. Aihara, “Sampled-data suboptimal state estimation over lossy networks,” in *52nd ISCTE International Symposium on Stochastic Systems Theory and Its Applications*, 2020, pp. 79–83.
- [21] C. Zhao, M. Ogura, and K. Sugimoto, “Finite-time control of discrete-time positive linear systems via convex optimization,” in *SICE Annual Conference 2020*, 2020, pp. 1230–1235.
- [22] T. Kimura and M. Ogura, “Distributed collaborative 3D-deployment of UAV base stations for on-demand coverage,” in *IEEE International Conference on Computer Communications 2020*, 2020, pp. 1748–1757. Acceptance rate **19.8 percent**.
- [23] Y. Abe, M. Ogura, H. Tsuji, A. Miura, and S. Adachi, “Resource and network management for satellite communications systems: a chance-constrained approach,” in *21st IFAC World Congress*, 2020, pp. 3304–3309.
- [24] M. Aida, C. Takano, and M. Ogura, “On the fundamental equation of user dynamics and the structure of online social networks,” in *NetSci-X 2020*, 2020, pp. 155–170.
- [25] M. Ogura, W. Mei, and K. Sugimoto, “Upper-bounding dynamics on networked synergistic susceptible-infected-susceptible model,” in *SICE Annual Conference 2019*, 2019, pp. 1430–1431.
- [26] M. Ogura, M. Kishida, and A. Yassine, “Optimizing product development projects under asynchronous and aperiodic system-local interactions,” in *21st International DSM Conference*, 2019, pp. 97–106.
- [27] M. Ogura, M. Kishida, K. Hayashi, and J. Lam, “Geometric programming for optimizing stability of distributed power control algorithms,” in *SICE Annual Conference 2019*, 2019, pp. 679–680.
- [28] M. Ogura, M. Kishida, K. Hayashi, and J. Lam, “Resource allocation for robust stabilization of Foschini-Miljanic Algorithm,” in *2019 American Control Conference*, 2019, pp. 4030–4035.
- [29] M. Kumazaki, M. Ogura, and T. Tachibana, “VNF management with model predictive control for multiple service chains,” in *IEEE International Conference on Consumer Electronics – Taiwan*, 2019.

- [30] T. Tadenuma, M. Ogura, and K. Sugimoto, “Sampled-data state observation over lossy networks under round-robin scheduling,” in *5th IFAC Conference on Analysis and Control of Chaotic Systems*, 2018, pp. 197–202. **Young Author Award Finalist.**
- [31] W. Mei and M. Ogura, “Instability analysis of Markov jump linear systems by spectral optimization,” in *SICE Annual Conference 2018*, 2018, pp. 419–422.
- [32] M. Ogura, J. Wan, and S. Kasahara, “Model predictive control for energy-efficient operation of data centers with cold aisle containments,” in *6th IFAC Conference on Nonlinear Model Predictive Control*, 2018, pp. 241–246.
- [33] M. Ogura and J. Harada, “Resource allocation for containing epidemics from temporal network data,” in *23rd International Symposium on Mathematical Theory of Networks and Systems*, 2018, pp. 537–542.
- [34] M. Ogura, J. Tagawa, and N. Masuda, “Distributed agreement on activity driven networks,” in *2018 American Control Conference*, 2018, pp. 4147–4152.
- [35] X. Chen, M. Ogura, K. R. Ghusinga, A. Singh, and V. M. Preciado, “Semidefinite bounds for moment dynamics: Application to epidemics on networks,” in *56th IEEE Conference on Decision and Control*, 2017, pp. 2448–2454.
- [36] M. Wakaiki, M. Ogura, and J. P. Hespanha, “Linear quadratic control for sampled-data systems with stochastic delays,” in *2017 American Control Conference*, 2017, pp. 1978–1983.
- [37] M. Ogura and V. M. Preciado, “Katz centrality of Markovian temporal networks: analysis and optimization,” in *2017 American Control Conference*, 2017, pp. 5001–5006.
- [38] M. Ogura and V. M. Preciado, “Efficient containment of exact SIR Markovian processes on networks,” in *55th IEEE Conference on Decision and Control*, 2016, pp. 967–972. **29.**
- [39] M. Ogura, M. Wakaiki, and V. M. Preciado, “Dynamic analysis of bet-hedging strategies as a protection mechanism against environmental fluctuations,” in *55th IEEE Conference on Decision and Control*, 2016, pp. 4178–4183.
- [40] M. Wakaiki, M. Ogura, and J. P. Hespanha, “Robust stability under asynchronous sensing and control,” in *55th IEEE Conference on Decision and Control*, 2016, pp. 5962–5967.
- [41] M. Ogura, A. Cetinkaya, T. Hayakawa, and V. M. Preciado, “Efficient criteria for stability of large-scale networked control systems,” in *6th IFAC Workshop on Distributed Estimation and Control in Networked Systems*, 2016, pp. 13–18.
- [42] V. M. Preciado and M. Ogura, “Structural analysis of spreading processes from ego-nets,” in *6th IFAC Workshop on Distributed Estimation and Control in Networked Systems*, 2016, pp. 345–350.
- [43] M. Ogura, M. Wakaiki, J. P. Hespanha, and V. M. Preciado, “ $L^2$ -gain analysis of regenerative switched linear systems under sampled-data state-feedback control,” in *2016 American Control Conference*, 2016, pp. 709–714.
- [44] M. Ogura and V. M. Preciado, “Optimal design of networks of positive linear systems under stochastic uncertainty,” in *2016 American Control Conference*, 2016, pp. 2930–2935.



- [45] M. Ogura and V. M. Preciado, “Spreading processes over socio-technical networks with phase-type transmissions,” in *54th IEEE Conference on Decision and Control*, 2015, pp. 3548–3553.
- [46] M. Ogura and V. M. Preciado, “Cost-optimal switching protection strategy in adaptive networks,” in *54th IEEE Conference on Decision and Control*, 2015, pp. 3574–3579.
- [47] C. Nowzari, M. Ogura, V. M. Preciado, and G. J. Pappas, “A general class of spreading processes with non-Markovian dynamics,” in *54th IEEE Conference on Decision and Control*, 2015, pp. 5073–5078.
- [48] M. Ogura, M. Nagahara, and V. M. Preciado, “ $L^1$ -optimal disturbance rejection for disease spread over time-varying networks,” in *SWARM 2015: The First International Symposium on Swarm Behavior and Bio-Inspired Robotics*, 2015, pp. 377–378.
- [49] C. Nowzari, M. Ogura, V. M. Preciado, and G. J. Pappas, “Optimal resource allocation for containing epidemics on time-varying networks,” in *49th Asilomar Conference on Signals, Systems and Computers*, 2015, pp. 1333–1337.
- [50] M. Ogura and V. M. Preciado, “Disease spread over randomly switched large-scale networks,” in *2015 American Control Conference*, 2015, pp. 1782–1787.
- [51] M. Ogura, A. Cetinkaya, and V. M. Preciado, “State-feedback stabilization of Markov jump linear systems with randomly observed Markov states,” in *2015 American Control Conference*, 2015, pp. 1764–1769.
- [52] M. Ogura and R. M. Jungers, “Efficiently computable lower bounds for the  $p$ -radius of switching linear systems,” in *53rd IEEE Conference on Decision and Control*, 2014, pp. 5463–5468.
- [53] M. Ogura and C. F. Martin, “Mean stability of continuous-time semi-Markov jump linear positive systems,” in *2014 American Control Conference*, 2014, pp. 3261–3266.
- [54] M. Ogura and C. F. Martin, “On the mean stability of a class of switched linear systems,” in *52nd IEEE Conference on Decision and Control*, 2013, pp. 97–102.
- [55] M. Ogura and C. F. Martin, “Stability of switching systems and generalized joint spectral radius,” in *2013 European Control Conference*, 2013, pp. 3185–3190.
- [56] M. Ogura and C. F. Martin, “Stochastic properties of switched Riccati differential equations,” in *51st IEEE Conference on Decision and Control*, 2012, pp. 1319–1324.
- [57] M. Ogura, Y. Yamamoto, and J. C. Willems, “On the dissipativity of pseudorational behaviors,” in *49th IEEE Conference on Decision and Control*, 2010, pp. 1737–1742.
- [58] Y. Yamamoto, J. C. Willems, and M. Ogura, “Pseudorational behaviors and Bezoutians,” in *19th International Symposium on Mathematical Theory of Networks and Systems*, 2010, pp. 1917–1921.
- [59] M. Ogura and Y. Yamamoto, “Dissipativity of pseudorational behaviors,” in *19th International Symposium on Mathematical Theory of Networks and Systems*, 2010, pp. 849–853.
- [60] M. Ogura and Y. Yamamoto, “Hankel norm computation for pseudorational transfer functions,” in *48th IEEE Conference on Decision and Control held jointly with 2009 28th Chinese Control Conference*, 2009, pp. 5502–5507.

- [61] M. Nagahara, M. Ogura, and Y. Yamamoto, “A novel approach to repetitive control via sampled-data  $H^\infty$  filters,” in *7th Asian Control Conference*, 2009, pp. 160–165.
- [62] M. Nagahara, M. Ogura, and Y. Yamamoto, “Interpolation of nonuniformly decimated signals via sampled-data  $H^\infty$  optimization,” in *SICE Annual Conference 2008*, 2008, pp. 1151–1154.
- [63] M. Ogura, M. Nagahara, and Y. Yamamoto, “Optimal wavelet expansion via sampled-data  $H^\infty$  control theory,” in *SICE Annual Conference 2007*, 2007, pp. 1422–1426.

### **Invited and Hourly Talks**

- [1] “Shepherding as a paradigm for swarm control,” *2024 IEEE International Conference on Cyborg and Bionic Systems*, 2024.
- [2] “Enhancing Control System Design through Deep Unfolding: A Systematic Approach,” *University of Hawaii at Manoa*, 2023.
- [3] “Perspectives on Artificial Intelligence,” *2nd Japanese-Canadian Frontiers of Science (JC FoS) Symposium*, 2023.
- [4] “When deep unfolding meets control engineering,” *37th International Technical Conference on Circuits \Systems, Computers and Communications*, 2022.
- [5] “Optimization of positive linear systems via geometric programming,” *Guandong University of Technology*, 2019.
- [6] “Optimization of positive linear systems via geometric programming,” *Shenzhen University*, 2019.
- [7] “Synthesis of positive linear systems by geometric programming,” *University of Hong Kong*, 2019.
- [8] “Network epidemiology and control theory,” *University of Hong Kong*, 2018.
- [9] “Analysis and control of spreading processes over complex networks,” *Washington State University*, 2017.
- [10] “Analysis and control of spreading processes over complex networks,” *Tokyo University of Agriculture and Technology*, 2016.
- [11] “Stability analysis of switched linear systems with non-traditional switching signals,” in *GRASP special seminar*, University of Pennsylvania, 2014.
- [12] “Mean stability of switched linear systems,” *Université Catholique de Louvain*, 2013.

### **TEACHING ACTIVITIES**

#### **Osaka University**

- Basic Theory of Bio-networks (2021–present)
- Informatics for Engineering Science 1 (2020–present)
- Fundamentals of Information and Computer Sciences (2020–present)
- Bio-network Engineering (2020–present)

#### **Nara Institute of Science and Technology**

- Machine Learning and Intelligent Control (Spring 2019)
- Advanced Intelligent System Control (Spring 2017, 2018)

### **University of Pennsylvania**

Co-lecturer:

- Convex Optimization in Systems and Control (Fall 2015)

### **Texas Tech University**

Graduate Part-Time Instructor:

- Calculus II (Summer 2014, Spring 2014, Spring 2013)
- Calculus I (Summer 2013, Fall 2012)
- Trigonometry (Fall 2011)
- College Algebra (Fall 2013, Spring 2012)

Teaching Assistant:

- Advanced Calculus (Summer 2012)
- Linear Algebra (Summer 2012)
- Higher Mathematics for Engineers and Scientists I (Summer 2011)

### **Kyoto School of Computer Science**

Lecturer:

- Control Engineering (Fall 2009, Fall 2008)
- Electrical Circuits (Spring 2008)
- Data Structures (Spring 2008)
- Numerical Analysis (Spring 2010, Spring 2009)

### **Kyoto University**

Teaching Assistant:

- Modern Control Theory (Fall 2009, Fall 2008)

## **PROFESSIONAL SERVICE**

### **Editorial Work**

- Associate Editor, IET Control Theory & Applications, 2022–present.
- Associate Editor, Franklin Open, 2022–present.
- Associate Editor, Journal of The Franklin Institute, 2020–present.
- Associate Editor, The 5th IFAC Workshop on Distributed Estimation and Control in Networked Systems, 2015.

### **Organization of Conferences and Workshops**

- International Program Committee Secretary, 8th IFAC Conference on Nonlinear Model Predictive Control, 2024.
- Registration Chair, 10th IFAC Symposium on Robust Control Design, 2022.
- Program Committee member, International Conference on Complex Networks and their Applications, 2022.
- Program Committee member, International Conference on Complex Networks and their Applications, 2021.

- Program Committee member, International Conference on Complex Networks and their Applications, 2020.
- Program & Steering Committee member, 52nd ISCIE International Symposium on Stochastic Systems Theory and Its Applications, 2020.
- Local Arrangements Vice Chair, SICE Annual Conference 2018.

#### **PhD External Examiner**

- Ximing Chen, Department of Electrical and Systems Engineering, University of Pennsylvania, 2019.

#### **Journal Reviewer**

Advanced Robotics; Annual Reviews in Control; Automatica; Applied Mathematics and Computation; Applied Network Science; Asian Journal of Control; Computer Communications; Developments in the Built Environment; Discrete Mathematics; European Journal of Control European Physical Journal B; Foundations of Computational Mathematics; IEEE Access; IEEE/ACM Transactions on Computational Biology and Bioinformatics; IEEE Circuits and Systems Magazine; IEEE Control Systems Letters; IEEE Intelligent Systems; IEEE Transactions on Automatic Control; IEEE Transactions on Big Data; IEEE Transactions on Circuits and Systems I: Regular Papers; IEEE Transactions on Circuits and Systems II: Express Briefs; IEEE Transactions on Control of Network Systems; IEEE Transactions on Cybernetics; IEEE Transactions on Fuzzy Systems; IEEE Transactions on Signal Processing; IEEE Transactions on Systems, Man and Cybernetics: Systems; IEEE Transactions on Network Science and Engineering; IEEE Transactions on Neural Networks and Learning Systems; IET Control Theory & Applications; International Journal of Robust and Nonlinear Control; Journal of Aerospace Engineering; Journal of Biological Dynamics; Journal of Building Engineering; Journal of the Franklin Institute; Mathematics of Control, Signals, and Systems; Neural Networks; Neurocomputing; Nonlinear Analysis: Hybrid Systems; Operations Research and Decisions; Optimal Control, Applications and Methods; Philosophical Transactions of the Royal Society A; Physica A; Physics Letters A; SIAM Journal on Control and Optimization; SICE Journal of Control, Measurement, and System Integration; Stochastics and Dynamics; Systems and Control Letters; Research in Engineering Design;

#### **Research Advising**

PhD thesis supervision — completed

- Chengyan Zhao, Nara Institute of Science and Technology (Apr 2018–Mar 2021)

Master and Bachelor thesis supervision

- Deng Yaosheng, Master Thesis, Osaka University (Apr 2022–present)
- 2 BEng students, Osaka University (Apr 2022–present, one-year project)
- Junpei Aizawa, Master Thesis, Osaka University (Apr 2021–present)
- Anna Fujioka, Master Thesis, Osaka University (Apr 2021–present)
- Aiyi Li, Master Thesis, Osaka University (Apr 2021–present)
- Hirotada Wada, Master Thesis, Osaka University (Apr 2021–present)
- 3 BEng students, Osaka University (Apr 2021–Mar 2022, one-year project)
- 2 BEng students, Osaka University (Apr 2020–Mar 2021, one-year project)
- 6 MEng students, Osaka University (Apr 2017–Mar 2020, two-year project)

