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Curriculum Vitae  
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専門分野

群制御, 人工知能, 自己組織化, 複雑システム

学歴

- テキサス工科大学 Ph.D. (Mathematics), 2014年
- 京都大学 修士 (情報学), 2009年
- 京都大学 学士 (工学), 2007年

職歴

- 広島大学 教授, 2014年4月 -
- 大阪大学 准教授, 2019年11月 - 2024年3月
- 奈良先端科学技術大学院大学 助教, 2017年3月 - 2019年10月
- ペンシルバニア大学 電気システム工学科 博士研究員, 2014年10月 - 2017年2月

短期滞在

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

代表的な受賞

- 計測自動制御学会 著述賞. 2021年
- Runner-up of the 2019 Best Paper Award, *IEEE Transactions on Network Science and Engineering*. 2019年
- 計測自動制御学会 関西支部 支部長賞 奨励賞. 2018年
- 計測自動制御学会 制御部門 制御部門大会賞. 2018年
- Summer Dissertation/Thesis Research Award, Texas Tech University. 2014年
- Cash Family Endowed Fellowship, Texas Tech University. 2013年
- 計測自動制御学会 論文賞. 2012年

研究助成 (科学研究費など)

- 科学研究費基盤研究 (B) 「異種マルチエージェントシステム制御における拡散的外部刺激の理論体系の確立と実検証」 (研究代表者, 2021/04-2025/03)
- 科学研究費基盤研究 (B) 「計測・通信品質が保証されない環境下の多目的フィードフォワード最適制御と強化学習」 (研究分担者, 2021/04-2025/03)
- 科学技術振興機構戦略的創造研究推進事業 CREST 「CyPhAI: Formal Analysis and Design of AI-intensive Cyber-Physical Systems」 (研究参加者, 2020-)
- 科学研究費若手研究 「ネットワークにおける伝播の解析と制御: モチーフを活用した多項式時間アルゴリズム」 (研究代表者, 2018/04-2021/03)
- 科学研究費基盤研究 (B) 「計測や通信の品質が保証されない環境下での事象トリガ調整型2自由度制御系」 (研究分担者, 2018/04-2021/03)

研究助成 (企業・財団など)

- 大阪大学大学院情報科学研究科情報科学研究科スタートアッププログラム 「深層展開によるモデルベース制御系設計: 汎用性・有効性・使用性への挑戦」 (研究代表者, 2021/05-2022/03)
- 公益財団法人電気通信普及財団研究調査助成 「深層学習を用いた超高精度な行列因子分解」 (研究調査代表者, 2020/04-2021/03)
- モビリティ基盤数理研究ユニット動的ネットワーク制御チーム (メンバー, 2019-)
- 公益財団法人電気通信普及財団海外渡航旅費援助 (2019)

- 奈良先端科学技術大学院大学次世代融合領域研究推進プロジェクト「計測・解析・制御が融合したデータ駆動型細胞制御システムの開発」(共同研究者, 2019/04-2021/03)
- 国立情報学研究所自由提案公募型共同研究「製品開発プロセスをロバスト化するための経営資源割当手法」(研究代表者, 2019/04-2020/03)
- 国立情報学研究所自由提案公募型共同研究「幾何計画による非負システムに対する最適制御系設計」(研究代表者, 2018/04-2019/03)
- 産学連携 株式会社ダイヘン (共同研究者, 2017-2020)

## 研究業績

### 著書

- [1] 永原正章, 岡野訓尚, 小蔵正輝, and 若生将史, ネットワーク化制御. コロナ社, 2019. 計測自動制御学会著述賞.

### 著書 (book chapter)

- [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.

### 招待講演等

- [1] “Shepherding as a paradigm for swarm control,” *2024 IEEE International Conference on Cyborg and Bionic Systems*, 2024.
- [2] “群制御アルゴリズムの発展：牧羊犬からドローン，サイボーグインセクト群へ,” 電子情報通信学会システム数理と応用研究会, 2024.
- [3] “深層展開を用いたモデルベース制御系設計論,” 日本OR学会2024年確率系合同部会, 2024.
- [4] “深層展開を用いたモデルベース制御系設計,” *Society5.0 に資する適応学習制御調査研究会第10回適応学習制御入門セミナー*, 2024.
- [5] “26年後の気象制御に向けた現在の取り組み,” 計測自動制御学会「データモデル駆動による先進的流体・気象制御調査研究会」第一回研究会, 2024.
- [6] “Enhancing Control System Design through Deep Unfolding: A Systematic Approach,” *University of Hawaii at Manoa*, 2023.
- [7] “Perspectives on Artificial Intelligence,” *2nd Japanese-Canadian Frontiers of Science (JCFoS) Symposium*, 2023.
- [8] “When deep unfolding meets control engineering,” *37th International Technical Conference on Circuits\Systems, Computers and Communications*, 2022.
- [9] “深層展開を用いた汎用性の高いシステム制御技術の開発,” 電子情報通信学会コミュニケーションシステム研究会, 2022.
- [10] “深層展開を用いたモデルベース制御系設計,” 第66回システム制御情報学会研究発表講演会, 2022.

- [11] “深層展開と制御工学が会合するとき,” 電子情報通信学会信号処理研究会, 2022.
- [12] “Panel Discussion: What have we learned so far?” *59th IEEE Conference on Decision and Control*, 2020.
- [13] “アメリカでの学位取得後の職探し,” 海外で活躍する若者たち：コロナを乗り切る留学・就職・長期滞在のノウハウ, 2020.
- [14] “社会的距離戦略の数理：ネットワーク科学の観点から,” 第1回SICEポストコロナ未来社会ワークショップ, 2020.
- [15] “感染症×制御工学×ネットワーク,” *Multi-Scale Neural Networks Laboratory*, 京都大学, 2020.
- [16] “ネットワーク化制御—サイバーフィジカルシステムを理解し, 制御するために—,” 2020年1月高信頼制御通信研究会, 2020.
- [17] “Optimization of positive linear systems via geometric programming,” *Guandong University of Technology*, 2019.
- [18] “Optimization of positive linear systems via geometric programming,” *Shenzhen University*, 2019.
- [19] “Synthesis of positive linear systems by geometric programming,” *University of Hong Kong*, 2019.
- [20] “ネットワークにおける最適資源配置,” ネットワーク科学セミナー2019, 2019.
- [21] “複雑ネットワークの最適設計：なぜ私がネットワーク科学と制御工学のはざまにいるのか,” 足立研セミナー, 2019.
- [22] “幾何計画法の制御応用,” 電子情報通信学会信号処理研究会, 2019.
- [23] “ネットワークにおける確率的伝播モデルの解析と制御,” 日本オペレーションズ・リサーチ学会第279回待ち行列研究部会, 2018.
- [24] “重要人物はだれ？～つながりを科学する,” 生駒市立中学校出前授業, 2018.
- [25] “Network epidemiology and control theory,” *University of Hong Kong*, 2018.
- [26] “テンポラルネットワークの数理モデリング,” 第62回システム制御情報学会研究発表講演会, 2018.
- [27] “じゃんけんでまなぶ複雑ネットワーク,” 生駒市立中学校出前授業, 2017.
- [28] “伝播の解析と制御：確率微分方程式によるアプローチ,” *ERATO河原林プロジェクト複雑ネットワーク・地図グラフセミナー*, 2017.
- [29] “How can we “control” spreading processes over complex networks?” 第4回数理モデリング研究会, 2017.
- [30] “Analysis and control of spreading processes over complex networks,” *Washington State University*, 2017.
- [31] “Analysis and control of spreading processes over complex networks,” *Tokyo University of Agriculture and Technology*, 2016.
- [32] “Dynamical systems over time-varying networks,” *Tokyo Institute of Technology*, 2015.
- [33] “Dynamical systems over time-varying networks,” *Workshop on Recent Advances in Systems and Control*, Kyoto University, 2015.
- [34] “Stability analysis of switched linear systems with non-traditional switching signals,” in *GRASP special seminar*, University of Pennsylvania, 2014.
- [35] “Mean stability of switched linear systems,” *Université Catholique de Louvain*, 2013.

## 解説・総説

- [1] 小蔵正輝 and 岸田昌子, “深層展開を用いたモデルベース制御系設計,” システム/制御/情報, vol. 68, no. 11, pp. 428–433, 2024.
- [2] 趙成岩 and 小蔵正輝, “DC計画を用いたカーシェアリングネットワークの最適化,” システム/制御/情報, vol. 67, no. 10, pp. 427–432, 2023.
- [3] 櫻間一徳 and 小蔵正輝, “移動体の群制御—I,” システム/制御/情報, vol. 67, no. 2, pp. 87–94, 2023.
- [4] 木村達明 and 小蔵正輝, “UAV空中基地局ネットワークの自律分散型配置法,” システム/制御/情報, vol. 66, no. 11, pp. 434–439, 2022.
- [5] 小蔵正輝, “複雑ネットワーク解析における非バックトラック,” 電子情報通信学会誌, vol. 105, no. 1, pp. 27–32, 2022.
- [6] 永原正章 and 小蔵正輝, “パンデミックとシステム・制御・ネットワーク理論,” 計測と制御, vol. 60, no. 9, pp. 641–646, 2021.
- [7] 小蔵正輝, 岸田昌子, and 林参, “大規模非負システムの幾何計画による最適設計,” 計測と制御, vol. 60, no. 1, pp. 59–64, 2021.
- [8] 小蔵正輝, “中心性を使った感染症の制御,” 経済セミナー, no. 717, pp. 42–46, 2020.
- [9] 小蔵正輝, “フェイルセーフな海外研究生活,” システム/制御/情報, vol. 11, pp. 449–454, 2018.
- [10] 小蔵正輝, “複雑ネットワークにおける最適資源配置—Geometric program によるアプローチ—,” 電子情報通信学会基礎・境界ソサイエティ *IEICE Fundamentals Review*, vol. 12, no. 3, pp. 191–200, 2018.
- [11] 小蔵正輝, “テンポラルネットワーク上の伝播過程,” 計測と制御, vol. 55, no. 11, pp. 942–947, 2016.

## 査読付き論文

- [1] A. Fujioka, M. Ogura, and N. Wakamiya, “Cyclic pursuit formation control for arbitrary desired shapes,” *Journal of the Franklin Institute*, vol. 362, no. 2, p. 107467, 2025.
- [2] A. Li, M. Ogura, and N. Wakamiya, “Swarm herding using bearing-only measurements,” *Philosophical Transactions of the Royal Society A*, vol. 383, no. 2289, p. 20240145, 2025.
- [3] 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*, vol. 16, p. Article number: 221, 2025.
- [4] 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.
- [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] 多川純平, 小蔵正輝, and 杉本謙二, “Sparse Activity-Drivenネットワークにおける平均合意の収束性能解析,” 計測自動制御学会論文集, vol. 60, no. 6, pp. 377–383, 2024.
- [9] 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.

- [10] 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.
- [11] 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.
- [12] M. Ogura and N. Wakamiya, “Reduced-order model predictive control of a fish schooling model,” *Nonlinear Analysis: Hybrid Systems*, vol. 49, p. 101342, 2023.
- [13] 和田弘匡, 小蔵正輝, 岸田昌子, and 若宮直紀, “深層展開を用いた静的出力フィードバック安定化におけるハイパーパラメータの考察,” *計測自動制御学会論文集*, vol. 59, no. 7, pp. 309–320, 2023.
- [14] 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.
- [15] 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.
- [16] 相澤純平, 小蔵正輝, 岸田昌子, and 若宮直紀, “時相深層展開を用いたモデル予測制御の多重振り子系に対する有効性の検証,” *システム制御情報学会論文誌*, vol. 36, no. 4, pp. 91–98, 2023.
- [17] A. Li, M. Ogura, and N. Wakamiya, “Communication-free shepherding navigation with multiple steering agents,” *Frontiers in Control Engineering*, vol. 4, 2023.
- [18] A. Fujioka, M. Ogura, and N. Wakamiya, “Shepherding algorithm for heterogeneous flock with model-based discrimination,” *Advanced Robotics*, vol. 37, no. 1-2, pp. 99–114, 2023.
- [19] 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.
- [20] M. Nagahara, M. Ogura, and Y. Yamamoto, “Iterative greedy LMI for sparse control,” *IEEE Control Systems Letters*, vol. 6, pp. 986–991, 2022.
- [21] 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.
- [22] 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)
- [23] R. Himoto, M. Ogura, and N. Wakamiya, “Iterative algorithm for shepherding unresponsive sheep,” *Mathematical Biosciences and Engineering*, vol. 19, no. 4, pp. 3509–3525, 2022.
- [24] 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.
- [25] 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.
- [26] 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.
- [27] 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.
- [28] 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.

- [29] 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.
- [30] 八木聖太, 小蔵正輝, 岸田昌子, 木村達明, and 林和則, “Geometric programによる送信電力制御アルゴリズムのロバスト安定化,” *電子情報通信学会論文誌B*, vol. J103-B, no. 12, pp. 644–651, 2020.
- [31] 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.
- [32] 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.
- [33] 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.
- [34] 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)
- [35] 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.
- [36] 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.
- [37] 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.
- [38] 蓼沼知秀, 小蔵正輝, and 杉本謙二, “観測信号と操作信号の損失にロバストなラウンドロビンスケジューリング切り替え制御系,” *計測自動制御学会論文集*, vol. 56, no. 3, pp. 89–97, 2020.
- [39] 今林亘, 韓心又, 小蔵正輝, and 杉本謙二, “フィードバック誤差学習制御におけるフィルタ設計と強正実性の達成,” *計測自動制御学会論文集*, vol. 56, no. 3, pp. 141–148, 2020.
- [40] 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.
- [41] 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.
- [42] 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.
- [43] 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.
- [44] 蓼沼知秀, 小蔵正輝, and 杉本謙二, “信号損失を考慮したゲイン切り替え型状態オブザーバの設計,” *計測自動制御学会論文集*, vol. 55, no. 3, pp. 164–171, 2019.
- [45] 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.
- [46] 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.
- [47] M. Ogura and V. M. Preciado, “Second-order moment-closure for tighter epidemic thresholds,” *Systems & Control Letters*, vol. 113, pp. 59–64, 2018.

- [48] 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.
- [49] 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.
- [50] 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.
- [51] 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.
- [52] M. Ogura and V. M. Preciado, “Epidemic processes over adaptive state-dependent networks,” *Physical Review E*, vol. 93, p. 062316, 2016.
- [53] M. Ogura and V. M. Preciado, “Stability of Markov regenerative switched linear systems,” *Automatica*, vol. 69, pp. 169–175, 2016.
- [54] 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.**
- [55] M. Ogura and C. F. Martin, “Stability analysis of linear systems subject to regenerative switchings,” *Systems & Control Letters*, vol. 75, pp. 94–100, 2015.
- [56] 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.
- [57] 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.
- [58] 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.
- [59] M. Ogura and Y. Yamamoto, “Dissipativity of pseudorotational behaviors,” *IEEE Transactions on Automatic Control*, vol. 58, no. 4, pp. 823–833, 2013.
- [60] 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.**

#### 査読付き国際会議論文

- [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, pp. 165–168.
- [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] 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.
- [4] Y. Deng, A. Li, M. Ogura, and N. Wakamiya, “Collision-free herding control of a single target within a swarm,” in *2023 IEEE International Conference on Systems, Man, and Cybernetics*, 2023, pp. 5218–5223.
- [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. 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**.
- [13] 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.
- [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 ISCIE 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, 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.
- [26] 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.
- [27] 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.
- [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. Ogura and V. M. Preciado, “Katz centrality of Markovian temporal networks: analysis and optimization,” in *2017 American Control Conference*, 2017, pp. 5001–5006.
- [37] 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.
- [38] 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.
- [39] 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. 平成29年度計測自動制御学会関西支部支部長賞奨励賞.
- [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] 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.
- [42] 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.
- [43] 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.

- [44] 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.
- [45] 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.
- [46] 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.
- [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] M. Ogura and Y. Yamamoto, "Dissipativity of pseudorational behaviors," in *19th International Symposium on Mathematical Theory of Networks and Systems*, 2010, pp. 849–853.
- [59] 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.
- [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.

## 学会発表

- [1] 前田暖斗 and 小蔵正輝, “R35欠損個体の混在するバッタ群の動態解析,” 電子情報通信学会システム数理と応用研究会 (発表予定), 2025.
- [2] Y. Bai, S. Kotsuki, and M. Ogura, “A robust control framework for precipitation regulation under NWP model uncertainty,” *EGU General Assembly 2025* (accepted), 2025.
- [3] Y. Higuchi, R. Nagai, M. Ogura, S. Kotsuki, and N. Wakamiya, “Evaluation of the effectiveness of black-box optimization methods in weather intervention design,” *Japan Geoscience Union Meeting 2025* (to be presented), 2025.
- [4] 指江愛理 and 小蔵正輝, “群行動モデルのパラメータが異種魚群の振る舞いに及ぼす影響の評価,” 信学技報, vol. 124, no. 274, MSS2024-38, pp. 50–55, 2024.
- [5] 永井陸斗, 樋口裕太, 岡崎淳史, 小蔵正輝, and 若宮直紀, “ブラックボックス最適化手法の気象制御に向けた有効性評価,” 第67回自動制御連合講演会, pp. 11J–3, 2024.
- [6] M. Ogura, “When deep unfolding meets control engineering,” *Medical and Informatics Workshop and School of Informatics and Data Science Seminar*, 2024.
- [7] 武内勇太郎, 岡野訓尚, and 小蔵正輝, “深層展開を用いたイベントトリガ制御系設計,” 第68回システム制御情報学会研究発表講演会, pp. 22I–4, 2024.
- [8] A. Li, R. Oshima, Y. Murakami, M. Ogura, and N. Wakamiya, “Divide-and-rule strategies for shepherding swarms with inherent noise,” 計測自動制御学会第11回制御部門マルチシンポジウム, pp. 1A7–2, 2024.
- [9] 永井陸斗, 小蔵正輝, 小槻峻司, and 若宮直紀, “Control Simulation Experimentにおける制御方策のモデル予測制御との比較を通じた有効性評価,” 信学技報, vol. 123, no. 265, MSS2023-42, pp. 63–68, 2023.
- [10] 相澤純平, 小蔵正輝, 下野昌宣, and 若宮直紀, “時相深層展開を用いたMPCによるニューロンネットワークのモジュール発火制御,” 第66回自動制御連合講演会, pp. 412–413, 2023.
- [11] 小蔵正輝, “群制御とshepherding problem,” 第17回数理モデリング研究会, 2023.
- [12] 小蔵正輝, “Moment closureを用いたネットワーク化SISモデルの解析,” 線形代数的グラフ理論とその応用, 2023.
- [13] 藤岡杏奈, 小蔵正輝, and 若宮直紀, “循環的追跡法に基づく自律分散型フォーメーション手法の提案と評価,” 信学技報, vol. 123, no. 100, MSS2023-15, pp. 72–77, 2023. **2023年システム数理と応用研究会優秀論文賞.**
- [14] 小蔵正輝 and 若宮直紀, “最遠個体追跡法の解析,” 第67回システム制御情報学会研究発表講演会, pp. 211–5, 2023.
- [15] A. Li, M. Ogura, and N. Wakamiya, “Evaluation of bearing-only shepherding algorithm on different types of flocks,” 第67回システム制御情報学会研究発表講演会, pp. 251–3, 2023.
- [16] 佐藤文哉, 小蔵正輝, 下野昌宣, and 若宮直紀, “ノイズを含む神経細胞モデルに対するNeural SDEを用いた発火制御,” 計測自動制御学会第10回制御部門マルチシンポジウム, pp. 3A8–3, 2023.
- [17] 和田弘匡, 小蔵正輝, 岸田昌子, and 若宮直紀, “制約下でのゲイン設計における深層展開のハイパーパラメータ選定について,” 計測自動制御学会第10回制御部門マルチシンポジウム, pp. 2M4–1, 2023.
- [18] 秋口敬, 小蔵正輝, 李艾義, and 若宮直紀, “最遠個体追跡法に着想を得たリーダー型群れ誘導アルゴリズムの開発と評価,” 信学技報, vol. 122, no. 435, MSS2022-94, pp. 150–155, 2023.
- [19] C. Zhao and M. Ogura, “Probability rate optimization of positive Markov jump linear systems via DC programming,” 第10回計測自動制御学会制御部門マルチシンポジウム, pp. 1A6–1, 2023.

- [20] Y. Deng, M. Ogura, A. Li, and N. Wakamiya, “Shepherding algorithm for separating a single agent from swarm,” 第35回自律分散システム・シンポジウム, pp. 1C1–4, 2023.
- [21] 小蔵正輝, “非バックトラックを用いた複雑ネットワーク解析,” モビリティ数理基盤研究ユニット2022年後期第1回研究会, 2022.
- [22] T. Hayashi, M. Ogura, and N. Wakamiya, “Analysis of robustness to disturbances of multi-agent system inspired by ant foraging behavior,” in *54th ISCTE International Symposium on Stochastic Systems Theory and Its Applications*, 2022, p. 16.
- [23] 今林亘, 角田祐輔, and 小蔵正輝, “シーブドッグシステムにおける誘導経路設計-重み付き巡回セールスマン問題による定式化と進化的計算による解法-,” 第23回計測自動制御学会システムインテグレーション部門講演会, pp. 469–473, 2022.
- [24] 小蔵正輝 and 岸田昌子, “時相深層展開を用いた制御手法,” 2022年電子情報通信学会ソサイエティ大会, 2022.
- [25] 小槻峻司, O. Mao, 岡崎淳史, 徳田慶太, 小林亮太, 小蔵正輝, 薄良彦, and 稲村友彦, “気象制御の実現に向けた制御容易性・被害低減効果の定量化に関する初期検討,” 水文・水資源学会/日本水文学会2022年度研究発表会, 2022.
- [26] 小蔵正輝, “分担者としての研究プロジェクト参画,” 第89回情報科学研究科ランチセミナー, 2022.
- [27] 相澤純平, 小蔵正輝, 岸田昌子, and 若宮直紀, “時相深層展開を用いたモデル予測制御の多重振り子系に対する有効性の検証,” 第66回システム制御情報学会研究発表講演会, pp. 253–3, 2022.
- [28] R. Liu, M. Ogura, E. F. D. Reis, and N. Masuda, “Impacts of concurrency on epidemic spreading in Markovian temporal networks,” *Fifth Northeast Regional Conference on Complex Systems*, pp. 1A–2, 2022.
- [29] 藤岡杏奈, 小蔵正輝, and 若宮直紀, “異種エージェントの混在した群れに対するモデルベースshepherding制御アルゴリズムの提案と評価,” 第9回計測自動制御学会制御部門マルチシンポジウム, pp. 1D1–3, 2022.
- [30] 小蔵正輝, “非バックトラックを活用した複雑ネットワーク解析,” 2022年電子情報通信学会総合大会, チュートリアルセッション, 2022.
- [31] A. Li, M. Ogura, and N. Wakamiya, “A distributed approach for shepherding with multiple steering agents,” 第34回自律分散システム・シンポジウム, pp. 2B2–3, 2022.
- [32] 岸田昌子 and 小蔵正輝, “時相深層展開の提案とその非線形制御への適用,” 第24回情報論的学習理論ワークショップ, 2021.
- [33] 和田弘匡, 小蔵正輝, 岸田昌子, and 若宮直紀, “深層展開を用いた静的出力フィードバック安定化問題におけるハイパーパラメータの考察,” 第64回自動制御連合講演会, pp. 1F2–5, 2021.
- [34] R. Himo, M. Ogura, and N. Wakamiya, “Shepherding algorithm for agents with heterogeneous sensitivities,” in *4th International Symposium on Swarm Behavior and Bio-Inspired Robotics 2021*, 2021.
- [35] 小蔵正輝, “誰でも簡単に使える制御をめざして,” 第59回情報科学研究科ランチセミナー, 2021.
- [36] N. Masuda, V. Preciado, and M. Ogura, “Analysis of the susceptible-infected-susceptible model in finite networks using the non-backtracking matrix,” *2021 SIAM Conference on Applied Linear Algebra*, 2021.
- [37] R. Liu, M. Ogura, E. F. D. Reis, and N. Masuda, “Modeling epidemic spreading in Markovian temporal networks with different degrees of concurrency,” *Fourth Northeast Regional Conference on Complex Systems*, 2021.
- [38] R. Liu, M. Ogura, E. F. D. Reis, and N. Masuda, “Modeling effects of concurrency on epidemic spreading in Markovian temporal networks,” in *Networks 2021: A Joint Sunbelt and NetSci Conference*, 2021.
- [39] M. Ogura and C. Zhao, “DC programming for optimization of dynamic buffer networks,” 第8回計測自動制御学会制御部門マルチシンポジウム, pp. 1D1–2, 2021.
- [40] M. Ogura and N. Wakamiya, “Reduced order model predictive control of a fish schooling model,” 第8回計測自動制御学会制御部門マルチシンポジウム, pp. 3D2–1, 2021.

- [41] 相原敏孝, 小蔵正輝, 花田研太, and 杉本謙二, “信号損失に対処するゲイン切替型状態推定とバーストロスへの評価,” 第8回計測自動制御学会制御部門マルチシンポジウム, 2021.
- [42] 小蔵正輝, “ネットワーク上での感染症伝播モデルの制御,” IT連携フォーラムOACIS第63回技術座談会, 2021.
- [43] 小林恒輝, 小蔵正輝, and 杉本謙二, “深層学習技術を用いたむだ時間システムの安定化の有効性評価,” 信学技報, vol. 120, no. 292, RCC2020-16, pp. 31–34, 2020.
- [44] 小蔵正輝, “制御理論からバイオ情報へ,” 第39回情報科学研究科ランチセミナー, 2020.
- [45] M. Ogura, “Modelling, analysis, and control of networked epidemic processes,” *CiNet Friday Lunch Seminar*, 2020.
- [46] 木村達明 and 小蔵正輝, “ユーザQoS最大化のためのUAV空中基地局の自律分散配置法,” 信学技報, vol. 120, no. 183, NS2020-72, pp. 86–96, 2020.
- [47] M. Ogura, “Second-order moment closures for networked susceptible-infected-susceptible model,” *52nd ISCIE International Symposium on Stochastic Systems Theory and Its Applications*, 2020.
- [48] 小蔵正輝, “幾何計画による線形非負システムの最適化,” 真なるダイナミクスの追求による次世代システム制御理論の構築, 2020.
- [49] 熊崎雅哉, 小蔵正輝, and 橘拓至, “複数サービスチェーンにおけるモデル予測制御に基づいた最適VNF制御法,” 信学技報, 2020.
- [50] 小林恒輝, 小蔵正輝, 岸田昌子, 和田山正, and 杉本謙二, “深層学習を活用したフィードバック制御系設計,” 第64回システム制御情報学会研究発表講演会, pp. 276–278, 2020.
- [51] 森純平, 小蔵正輝, 小林泰介, and 杉本謙二, “確率的勾配降下法を用いたマルコフ過程のスパースな補間,” 第7回計測自動制御学会制御部門マルチシンポジウム, pp. 3I1–2, 2020.
- [52] 小蔵正輝, 岸田昌子, and 林参, “幾何計画による非負システムの最適設計,” 第7回計測自動制御学会制御部門マルチシンポジウム, pp. 1G2–2, 2020.
- [53] 今林亘, 小蔵正輝, and 杉本謙二, “BMIによるフィードバック誤差学習制御系の強正実化について,” 第7回計測自動制御学会制御部門マルチシンポジウム, pp. 1C1–3, 2020.
- [54] T. Kimura and M. Ogura, “Distributed deployment of unmanned aerial vehicle base stations for maximizing ground user QoS,” 2020年電子情報通信学会総合大会, pp. BS–1–7, 2020. ネットワークシステム英語セッション奨励賞.
- [55] 阿部侑真, 小蔵正輝, 辻宏之, 三浦周, and 足立修一, “大規模衛星通信システムのネットワーク最適化,” 信学技報, vol. 119, no. 417, SAT2019-72, pp. 29–32, 2020.
- [56] 小林恒輝, 小蔵正輝, 岸田昌子, 和田山正, and 杉本謙二, “Neural Ordinary Differential Equationを用いた静的出力フィードバック安定化の検討,” 信学技法, vol. 119, no. 395, RCC2019-73, pp. 19–22, 2020.
- [57] 小林恒輝, 小蔵正輝, and 杉本謙二, “機会制約付き最適化問題におけるARIMAモデルを用いたデータセンターの省電力運用,” 第62回自動制御連合講演会, pp. 2B1–04, 2019.
- [58] 小蔵正輝, 今林亘, 会田雅樹, and 杉本謙二, “社会ネットワークにおける振動ダイナミクスのスパース安定化,” 第62回自動制御連合講演会, pp. 1A2–03, 2019.
- [59] 小林恒輝, 小蔵正輝, 岸田昌子, 和田山正, and 杉本謙二, “深層展開による出力フィードバック安定化の検討,” 信学技法, vol. 119, no. 270, RCC2019-65, pp. 59–62, 2019.
- [60] 八木聖太, 小蔵正輝, 岸田昌子, 杉本謙二, and 林和則, “公平性を担保した送信電力制御アルゴリズムのロバスト安定化,” 信学技法, vol. 119, no. 270, RCC2019-63, pp. 49–52, 2019.
- [61] 熊崎雅哉, 小蔵正輝, and 橘拓至, “サービスチェーンにおけるモデル予測制御を用いた最適VNF配置・経路選択法,” 超知性ネットワーキングに関する分野横断型研究会, 2019.

- [62] 岸田昌子, 小蔵正輝, 吉田悠一, and 和田山正, “Deep learning-based average consensus,” 第22回情報論的学習理論ワークショップ, 2019.
- [63] 森純平, 小蔵正輝, and 杉本謙二, “深層学習を用いたマルコフ過程の補間に関する検討,” 信学技法, vol. 119, no. 270, RCC2019-54, pp. 7–10, 2019. 高信頼制御通信研究専門委員会ベストポスター賞.
- [64] 小蔵正輝, “プロジェクトマネジメントと非負システム,” 真なるダイナミクスの追求によるシステム制御理論の躍進を目指すシンポジウム2019, 2019.
- [65] 会田雅樹, 高野知佐, and 小蔵正輝, “ユーザダイナミクスの基礎方程式とオンライン社会ネットワークの構造について,” 信学技法, vol. 119, no. 158, IN2019-21, pp. 37–42, 2019. 第26回情報ネットワーク研究賞.
- [66] 小蔵正輝, “Epidemic spreading processes over adaptive activity-driven networks,” 第9回数理モデリング研究会, 2019.
- [67] 森純平, 小蔵正輝, A. Cetinkaya, and 杉本謙二, “Particle Swarm Optimizationを用いたマルコフ過程の補間,” 第63回システム制御情報学会研究発表講演会, pp. 159–161, 2019.
- [68] 八木聖太, 小蔵正輝, 岸田昌子, 杉本謙二, and 林和則, “構造的な不確かさをもつ環境における分散送信電力制御アルゴリズムのロバスト安定化,” 信学技法, vol. 119, no. 31, RCS2019-30, pp. 43–46, 2019.
- [69] 原田潤一, 小蔵正輝, and 杉本謙二, “確率的に不確かなネットワークにおける最適資源配置,” 第6回計測自動制御学会制御部門マルチシンポジウム, pp. 3D1–5, 2019.
- [70] 熊崎雅哉, 小蔵正輝, and 橘拓至, “複数サービスチェーンに対するモデル予測制御を用いたVNFインスタンス管理法,” 2019年電子情報通信学会総合大会, pp. B–6–13, 2019.
- [71] 蓼沼知秀, 小蔵正輝, and 杉本謙二, “有限パケットロス下におけるゲイン切り替え型オブザーバベース安定化制御,” 第6回計測自動制御学会制御部門マルチシンポジウム, pp. 2F2–6, 2019.
- [72] 趙成岩, 小蔵正輝, and 杉本謙二, “時変通信環境における分散送信電力制御アルゴリズム,” 信学技法, vol. 118, no. 423, RCC2018-113, pp. 35–36, 2019.
- [73] 阿部侑真, 小蔵正輝, 辻宏之, 三浦周, and 足立修一, “Geometric Programmingによる衛星通信ネットワーク設計法の検討,” 信学技法, vol. 118, no. 344, RCC2018-98, pp. 223–227, 2018.
- [74] M. Ogura, W. Mei, and K. Sugimoto, “Stability analysis of synergistic spreading processes,” 50th ISCIE International Symposium on Stochastic Systems Theory and Its Applications, pp. 2B4–1, 2018.
- [75] 多川純平, 小蔵正輝, and 杉本謙二, “Simplicial activity-drivenネットワークにおける合意制御,” 第61回自動制御連合講演会, pp. 1421–1425, 2018.
- [76] 原田潤一, 小蔵正輝, 岸田昌子, and 杉本謙二, “設計プロジェクトにおける追加タスクの影響を最小化するためのロバスト最適化,” 日本機械学会第28回設計工学・システム部門講演会, 2018.
- [77] 小蔵正輝, “設計構造行列のすすめ,” 第6回数理モデリング研究会, 2018.
- [78] 廣島健亮, 小蔵正輝, 杉本謙二, and 橘拓至, “サービスチェーンにおけるVNFインスタンス管理のためのモデル予測制御,” 2018年電子情報通信学会総合大会, pp. B–6–9, 2018.
- [79] 多川純平, 小蔵正輝, 増田直紀, and 杉本謙二, “Activity-drivenネットワークにおける平均合意の収束性能解析,” 第5回計測自動制御学会制御部門マルチシンポジウム, pp. Su23–3, 2018.
- [80] 蓼沼知秀, 小蔵正輝, and 杉本謙二, “ゲイン切り替えを用いた不定期サンプリング状態オブザーバの設計,” 第5回計測自動制御学会制御部門マルチシンポジウム, pp. Su43–5, 2018.
- [81] 小蔵正輝 and 原田潤一, “非負システムの最適制御問題の対数凸性,” 第5回計測自動制御学会制御部門マルチシンポジウム, pp. Fr63–3, 2018.
- [82] M. Ogura and V. M. Preciado, “Exact second-order moment closure for networked SIS models,” NetSci-X 2018, 2018.

- [83] 原田潤一 and 小蔵正輝, “製品開発における資源配置の最適化手法の提案,” 第60回自動制御連合講演会, pp. SaJ1-2, 2017.
- [84] 小蔵正輝, “複雑ネットワークにおける影響最大化：非負システムによるアプローチ,” 第60回自動制御連合講演会, pp. SuD2-5, 2017.
- [85] 山本一輝, 小蔵正輝, and 加嶋健司, “感染症伝搬モデルの確率可制御性解析,” 第61回システム制御情報学会研究発表講演会, pp. 262-4, 2017.
- [86] 若生将史 and 小蔵正輝, “確率的な時間遅れを含むシステムの最適制御,” 第4回計測自動制御学会制御部門マルチシンポジウム, pp. 3D2-2, 2017. 制御部門大会賞.
- [87] 若生将史 and 小蔵正輝, “不確かなサンプル時刻をもつシステムのロバスト安定性解析,” 第3回計測自動制御学会制御部門マルチシンポジウム, pp. 2C3-1, 2016.
- [88] 小蔵正輝, 永原正章, and V. M. Preciado, “伝染病拡散抑制のための最適制御,” 信学技法, vol. 115, no. 438, MICT2015-52, pp. 63-65, 2016.
- [89] M. Ogura and C. F. Martin, “A characterization of joint spectral radius with the  $p$ -radius of distributions,” in *AMS 2014 Spring Central Sectional Meeting*, 2014, pp. 1100-15-23.
- [90] M. Ogura and C. F. Martin, “Mean stability of stochastic difference equations over cones,” in *93rd Annual Meeting, Mathematical Association of America Texas Section*, 2013.
- [91] 若生将史, 小蔵正輝, and 山本裕, “擬有理型伝達関数に対するNehari問題,” 第54回システム制御情報学会研究発表講演会, 2010.
- [92] 小蔵正輝 and 山本裕, “擬有理型のビヘイビアに対する消散性,” 第54回システム制御情報学会研究発表講演会, pp. W35-6, 2010.
- [93] 小蔵正輝, 永原正章, and 山本裕, “繰り返し制御系のサンプル値 $H^\infty$ 設計,” 第38回制御理論シンポジウム, pp. 209-212, 2009.
- [94] 永原正章, 小蔵正輝, and 山本裕, “不等間隔デシメーションのサンプル値制御理論による補間,” 第52回システム制御情報学会研究発表講演会, pp. 5U3-1, 2008.
- [95] 小蔵正輝, 永原正章, and 山本裕, “サンプル値 $H^\infty$ 制御理論による最適ウェーブレット展開,” 第36回制御理論シンポジウム, pp. 131-134, 2007.
- [96] 小蔵正輝, 永原正章, and 山本裕, “サンプル値 $H^\infty$ 制御理論による最適ウェーブレット展開,” 第7回制御部門大会, pp. 64-4-1, 2007.

## 教育経験

### 広島大学情報科学部

- 人工知能概論 (2024-)
- 人工知能と機械学習 (2024)

### 広島大学工学部

- 線形代数学II (2024-)

### 大阪大学大学院情報科学研究科

- バイオネットワーク基礎理論 (2021-)
- バイオ情報工学入門 (2020-)
- バイオネットワーク工学 (2020-)

### 大阪大学基礎工学部

- 情報数学基礎 (2021-)
- 基礎工学のための情報学 I (2020-)
- 基礎工学 PBL(情報工学) (2020-)
- 情報科学ゼミナール (2020-)

#### 奈良先端科学技術大学院大学

- 機械学習と知能制御 (2019)
- 情報科学特別講義 (2018)
- 知能システム制御特論 (2017)

#### ペンシルバニア大学

- Convex Optimization in Systems and Control (Co-lecturer, Fall 2015)

#### テキサス工科大学

- 講師
  - Calculus II (Summer 2014, Spring 2014, Spring 2013)
  - Calculus I (Summer 2013, Fall 2012)
  - Trigonometry (Fall 2011)
  - College Algebra (Fall 2013, Spring 2012)
- ティーチングアシスタント
  - Advanced Calculus (Summer 2012)
  - Linear Algebra (Summer 2012)
  - Higher Mathematics for Engineers and Scientists I (Summer 2011)

#### 京都コンピュータ学院

- 制御工学 (2009, 2009)
- 電気回路 (2008)
- データ構造 (2008)
- 数値解析 (2009, 2010)

#### 京都大学 (ティーチング・アシスタント)

- 自然現象と数学 (2009)
- 現代制御論 (2008, 2009)

#### 学会活動

- 2020年～：Program Committee member, International Conference on Complex Networks and their Applications
- 2020年～：Associate Editor, Journal of The Franklin Institute
- 2019年度～：計測自動制御学会 関西支部 庶務幹事
- 2019年～：計測自動制御学会 制御部門 真なるダイナミクスの追求による次世代システム制御理論調査研究委員会, 委員
- 2018年度～：電子情報通信学会 高信頼制御通信研究会(RCC), 幹事補佐
- 2018年～：計測自動制御学会 制御部門 IoT時代に向けたイベントベース制御調査研究会, 委員
- 2018年：Local Arrangements Vice Chair, SICE Annual Conference 2018
- 2017年～：International Federation of Automatic Control, Technical Committee 1.5. Networked Systems, Member
- 2015年：5th IFAC Workshop on Distributed Estimation and Control in Networked Systems, Associate Editor