

Masaki Ogura  
Curriculum Vitae  
Monday 9<sup>th</sup> March, 2020

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**AREAS OF EXPERTISE**

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

**EDUCATION**

Aug 2014	Ph.D. in Mathematics, <i>Texas Tech University</i>
Mar 2009	M.Sc. in Informatics, <i>Kyoto University</i>
Mar 2007	B.Eng., <i>Kyoto University</i>

**PROFESSIONAL APPOINTMENTS**

Nov 2019 –	<i>Associate Professor</i> Department of Bioinformatic Engineering, Graduate School of Information Science and Technology, Osaka University, Japan
Apr 2018 – Oct 2019	<i>Assistant Professor</i> Graduate School of Science and Technology, Division of Information Science Nara Institute of Science and Technology, Japan
Mar 2017 – Mar 2018	<i>Assistant Professor</i> Graduate School of Information Science Nara Institute of Science and Technology, Japan
Nov 2014 – Feb 2017	<i>Postdoctoral Researcher</i> Department of Electrical and Systems Engineering University of Pennsylvania

**SHORT TERM VISITS**

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

## SELECTED AWARDS AND HONORS

Feb 2019	Runner-up of the 2019 Best Paper Award, <i>IEEE Transactions on Network Science and Engineering</i>
Apr 2014	Summer Dissertation/Thesis Research Award, Texas Tech University
Jul 2013	Cash Family Endowed Fellowship, Texas Tech University
Jun 2012	Best Paper Award, The Society of Instrument and Control Engineers

## PUBLICATIONS

### Book Chapters

- [1] M. Ogura and V. M. Preciado, “Optimal Containment of Epidemics in Temporal and Adaptive Networks,” in *Temporal Networks Epidemiology*. Springer, 2017, pp. 241–266.
- [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, in press, 2015.
- [3] 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] 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* (accepted for publication), 2020.
- [2] M. Ogura, M. Kishida, and J. Lam, “Geometric programming for optimal positive linear systems,” *IEEE Transactions on Automatic Control* (accepted for publication), 2020.
- [3] , , and , “,” , vol. 56, no. 3, 2020.
- [4] 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.
- [5] , , , and , “,” , vol. 56, no. 3, 2020.
- [6] 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.
- [7] 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* (accepted for publication), 2019.
- [8] 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.

- [9] 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.
- [10] , , and , “,” , vol. 55, no. 3, 2019.
- [11] 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.
- [12] 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.
- [13] M. Ogura and V. M. Preciado, “Second-order moment-closure for tighter epidemic thresholds,” *Systems & Control Letters*, vol. 113, pp. 59–64, 2018.
- [14] 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.
- [15] 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.
- [16] 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.
- [17] 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.
- [18] M. Ogura and V. M. Preciado, “Epidemic processes over adaptive state-dependent networks,” *Physical Review E*, vol. 93, p. 062316, 2016.
- [19] M. Ogura and V. M. Preciado, “Stability of Markov regenerative switched linear systems,” *Automatica*, vol. 69, pp. 169–175, 2016.
- [20] 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)**
- [21] M. Ogura and C. F. Martin, “Stability analysis of linear systems subject to regenerative switchings,” *Systems & Control Letters*, vol. 75, pp. 94–100, 2015.
- [22] 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.
- [23] 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.
- [24] 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.

- [25] M. Ogura and Y. Yamamoto, “Dissipativity of pseudorotational behaviors,” *IEEE Transactions on Automatic Control*, vol. 58, no. 4, pp. 823–833, 2013.
- [26] 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] Y. Abe, M. Ogura, H. Tsuji, A. Miura, and S. Adachi, “Resource and network management for satellite communications systems: a chance-constrained approach,” in *IFAC World Congress 2020* (accepted), 2020.
- [2] T. Kimura and M. Ogura, “Distributed collaborative 3D-deployment of UAV base stations for on-demand coverage,” in *IEEE INFOCOM 2020* (accepted), 2020. (acceptance rate

### Invited and Hourly Talks

- [1] “,” 2019, 2020.
- [2] “—,” 2020, 2020.
- [3] “Optimization of positive linear systems via geometric programming,” *Shenzhen University*, 2019.
- [4] “Optimization of positive linear systems via geometric programming,” *Guandong University of Technology*, 2019.
- [5] “,” 2019, 2019.
- [6] “Synthesis of positive linear systems by geometric programming,” *University of Hong Kong*, 2019.
- [7] “,” , 2019.
- [8] “,” , 2019.
- [9] “,” 279, 2018.
- [10] “Networked epidemic spreading: modeling, analysis, and control,” *National Insitutite of Informatics*, 2018.
- [11] “,” , 2018.
- [12] “Network epidemiology and control theory,” *University of Hong Kong*, 2018.
- [13] “,” 62, 2018.
- [14] “,” , 2017.
- [15] “How can we “control” spreading processes over complex networks?” 4, 2017.
- [16] “,” *ERATO* , 2017.
- [17] “Analysis and control of spreading processes over complex networks,” *Washington State University*, 2017.
- [18] “Analysis and control of spreading processes over complex networks,” *Tokyo University of Agriculture and Technology*, 2016.

- [19] “Dynamical systems over time-varying networks,” *Workshop on Recent Advances in Systems and Control*, Kyoto University, 2015.
- [20] “Dynamical systems over time-varying networks,” *Tokyo Institute of Technology*, 2015.
- [21] “Stability analysis of switched linear systems with non-traditional switching signals,” in *GRASP special seminar*, University of Pennsylvania, 2014.
- [22] “Mean stability of switched linear systems,” *Université Catholique de Louvain*, 2013.

## **TEACHING ACTIVITIES**

### **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

- 2020– **Program Committee member:** International Conference on Complex Networks and their Applications
- Jan 2020– **Associate Editor:** Journal of The Franklin Institute
- Local Arrangements Vice Chair:** SICE Annual Conference 2018
- Associate Editor:** The 5th IFAC Workshop on Distributed Estimation and Control in Networked Systems (2015)
- Journal reviewer:** Annual Reviews in Control; Automatica; Applied Mathematics and Computation; Asian Journal of Control; Computer Communications; European Journal of Control European Physical Journal B; Foundations of Computational Mathematics; IEEE Control Systems Letters; IEEE Intelligent Systems; IEEE Transactions on Automatic Control; IEEE Transactions on Circuits and Systems; IEEE Transactions on Control of Network Systems; 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; Neurocomputing; Nonlinear Analysis: Hybrid Systems; Physica A; Physics Letters A; SIAM Journal on Control and Optimization; Stochastics and Dynamics; Systems and Control Letters; Research in Engineering Design

Masaki Ogura, March 2020