Masaki Ogura

Curriculum Vitae
Friday 21st February, 2020

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AREAS OF EXPERTISE

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

EDUCATION

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

PROFESSIONAL APPOINTMENTS

Nov 2019 –	*Associate Professor* Department of Bioinformatic Engineering, Graduate School of Information Science and Technology, Osaka University, Japan
Apr 2018 – Oct 2019	*Assistant Professor* Graduate School of Science and Technology, Division of Information Science Nara Institute of Science and Technology, Japan
Mar 2017 – Mar 2018	*Assistant Professor* Graduate School of Information Science Nara Institute of Science and Technology, Japan
Nov 2014 – Feb 2017	*Postdoctoral Researcher* 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, *IEEE Transactions on Network Science and Engineering*
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{\upshape, 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. H{\"u}per and J. Trumpf, Eds. CreateSpace, 2013, pp. 291–300.

Refereed Journal Articles

Refereed Conference Proceedings

[1] T. Kimura and M. Ogura, "Distributed collaborative 3D-deployment of UAV base stations for on-demand coverage," in *IEEE INFOCOM 2020 {\upshape (accepted)}*, 2020. (acceptance rate \textit{19.8%})

[2] 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 {\upshape (accepted)}*, 2020.

[3] 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.

[4] 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.

[5] 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.

[6] 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.

[7] 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.

[8] 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. \textbf{(Young Author Award Finalist)}

[9] W. Mei and M. Ogura, "Instability analysis of Markov jump linear systems by spectral optimization," in *SICE Annual Conference 2018*, 2018, pp. 419–422.

[10] 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.

[11] 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.

[12] M. Ogura, J. Tagawa, and N. Masuda, "Distributed agreement on activity driven networks," in *2018 American Control Conference*, 2018, pp. 4147–4152.

[13] 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.

[14] M. Ogura and V. M. Preciado, "Katz centrality of Markovian temporal networks: analysis and optimization," in *2017 American Control Conference*, 2017, pp. 5001–5006.

[15] 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.

[16] 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.

[17] 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.

[18] 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.

[19] 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.

[20] 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.

[21] 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.

[22] 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.

[23] 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.

[24] 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.

[25] 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.

[26] 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.

[27] 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.

[28] 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.

[29] M. Ogura and V. M. Preciado, "Disease spread over randomly switched large-scale networks," in *2015 American Control Conference*, 2015, pp. 1782–1787.

[30] 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.

[31] 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.

[32] 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.

[33] M. Ogura and C. F. Martin, "Stability of switching systems and generalized joint spectral radius," in *2013 European Control Conference*, 2013, pp. 3185–3190.

[34] 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.

[35] 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.

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

[37] 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.

[38] 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.

[39] M. Nagahara, M. Ogura, and Y. Yamamoto, "A novel approach to repetitive control via sampled-data $H^$ filters," in *7th Asian Control Conference*, 2009, pp. 160–165.

[40] M. Nagahara, M. Ogura, and Y. Yamamoto, "Interpolation of nonuniformly decimated signals via sampled-data $H^$ optimization," in *SICE Annual Conference 2008*, 2008, pp. 1151–1154.

[41] M. Ogura, M. Nagahara, and Y. Yamamoto, "Optimal wavelet expansion via sampled-data $H^$ control theory," in *SICE Annual Conference 2007*, 2007, pp. 1422–1426.

Invited and Hourly Talks

[1] "åź¿äiŢèÍĺçŤżæşŢãĄńãĆĺãĆŃéĂĄä£ąéŻżåŁŻåĹűå¿ą," *2019åźťåžęæňąäÿŰäżčãĆŕãĆďãĆďãĆňãĆźæŁĂèąŞèňŻåžğïijĺ*, 2020.

[2] "ãČ⬡ãĆČãĆĺãČŕãĆijãĆŕåŇŰåĹűå¿ą–ãĆţãĆďãĆŘãĆijãĆŢãĆčãĆÿãĆńãĆńãĆůãĆźãĆĘãĆäãĆŠçŘĘèğčãĄŮïijŇåĹűå¿ą ," *2020åźť1æIJĺéńŸä£ąéãijåĹűå¿ąéĂŽä£ąçăŤçľűäijŽïijĺçŹžèąĺäžĹåőŽïijľ*, 2020.

[3] "Optimization of positive linear systems via geometric programming," *Guandong University of Technology*, 2019.

[4] "Optimization of positive linear systems via geometric programming," *Shenzhen University*, 2019.

[5] "ãČ⬡ãĆČãĆĺãČŕãĆijãĆŕãĄńãĄŞãĆŃæIJĂéĄľèşĞæžŘéĚ⬡çi ő," *ãČ⬡ãĆČãĆĺãČŕãĆijãĆŕçğŚå⬡ęãĆżãČ§ãĆŁãČij*, 2019.

[6] "Synthesis of positive linear systems by geometric programming," *University of Hong Kong*, 2019.

[7] "èďĞéŻŚãČ⬡ãĆČãĆĺãČŕãĆijãĆŕãĄőæIJĂéĄľèĺ⬡èÍĺïijŽãĄłãĄIJçğĄãĄŇãČ⬡ãĆČãĆĺãČŕãĆijãĆŕçğŚå⬡ęãĄĺåĹűå¿ą *èűşçńŃçăŤãĆżãČ§ãĆŁãČij*, 2019.

[8] "åź¿äiŢèÍĺçŤżæşŢãĄőåĹűå¿ąå£IJçŤĺ," *éŻżå⬡ŘæČĚåăśéĂŽä£ąå⬡ęäijŽ ä£ąåŘůåĞęçŘĘçăŤçľűäijŽ*, 2019.

[9] "Networked epidemic spreading: modeling, analysis, and control," *National Insitutite of Informatics*, 2018.

[10] "ãČ⬡ãĆČãĆĺãČŕãĆijãĆŕãĄńãĄŞãĆŃçćžçŐĞçŽĎäijİæŠ⬡ãČćãČĞãČńãĄőèğčæđŘãĄĺåĹűå¿ą," *æŮěæIJňãĆłãČŽãČňãČijãĆůãČğãČşãĆžãČżãČłãĆţãČijãČĄå⬡ęäijŽ çňń279åŽđå¿ĚãĄąèąŇåĹŮçăŤçľűéČĺäijŽ*, 2018.

[11] "éĞ⬡èęĄäžžçĽľãĄŕãĄąãĆŇïij§ïıđ ãĄđãĄłãĄÑãĆŁãĆŠçğŚå⬡ęãĄŹãĆŃ," *çŤ§éğŠåÿĆçńŃäÿ⬡å⬡ęæăąåĞžåĽ⬡æŐĹæě⬡*, 2018.

[12] "Network epidemiology and control theory," *University of Hong Kong*, 2018.

[13] "ãČĘãČşãČİãČľãČńãČ⬡ãČČãČĺãČŕãČijãĆŕãĄőæŢřçŘĘãČćãČĞãČłãČşãĆř," *çňń62åŽđãĆůãĆźãČĘãČăåĹűå¿ąæČĚåăśå⬡ęäijŽçăŤçľűçŹžèąĺèňŻæijŤäijŽ*, 2018.

[14] "ãĄŸãĆČãĆŞãĄŚãĆŞãĄğãĄ¿ãĄłãĄűèďĞéŻŚãČ⬡ãČČãČĺãČŕãČijãĆŕ," *çŤ§éğŠåÿĆçńŃäÿ⬡å⬡ęæăąåĞžåĽ⬡æŐĹæě⬡*, 2017.

[15] "How can we "control" spreading processes over complex networks?" *çňň4åŻđæŢřçŘĘãČćãČĞãČłãČşãĆřçäŤçľűäijŽ*, 2017.

[16] "äijİæŠ◌ãĄőèğčæđŘãĄĺåĹűå¿ąïijŽçćžçŐĞå¿őåĹĘæŰźçÍŃåijŔãĄąñãĆĹãĆŃãĆćãČŮãČ◌ãČijãČĄ," *ERATOæšşåŐ§æđŮãČŮãČ◌ãĆÿãĆğãĆŕãČĹ èď'ĞéŻŚãČ◌ãČČãČĹãČŕãČijãĆŕãČżåIJřåŻşãĆřãČľãČŢãĆżãČ§ãČŁãČij*, 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\upshape{, }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\upshape{, }University of Pennsylvania*, 2014.

[22] "Mean stability of switched linear systems," *Universit\'e 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

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, February 2020