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Curriculum Vitae Tuesday 2<sup>nd</sup> July, 2019

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#### 専門分野

ネットワーク科学, 制御工学, 最適化, 確率過程, 設計工学

#### 学歴

2014年8月 テキサス工科大学 Ph.D. (Mathematics)

 2009年3月
 京都大学 修士(情報学)

 2007年3月
 京都大学 学士(工学)

#### 職歴

2017年3月- 奈良先端科学技術大学院大学 助教

2014年11月-2017年2月 ペンシルバニア大学 電気システム工学科 博士研究員

### 短期滞在

2018年7月 香港大学(香港)

2013年11月 ルーヴァン・カトリック大学 (ベルギー)

#### 代表的な受賞

2019年2月 IEEE Transactions on Network Science and Engineering 準最優秀論文賞

2018年3月 計測自動制御学会 制御部門 制御部門大会賞 2018年1月 計測自動制御学会 関西支部 支部長賞 奨励賞

2014年4月 テキサス工科大学 Summer Dissertation/Thesis Research Award

2013年7月 テキサス工科大学 Cash Family Endowed Fellowship

2012年6月 計測自動制御学会 論文賞

# 研究助成

- 国立情報学研究所 自由提案公募型共同研究 2019年度
- 国立情報学研究所 自由提案公募型共同研究 2018年度
- 科学研究費 若手研究 2018年度~2020年度 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
- 科学研究費 基盤研究B 2018年度~2021年度 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(代表者 杉本謙二)

#### 研究業績

### 著書

[1] 永原編著 and 小蔵ほか著, ネットワーク化制御(刊行予定). コロナ社, 2019.

### 著書(book chapter)

- [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.

#### 招待講演等

- [1] "Synthesis of positive linear systems by geometric programming," *University of Hong Kong* (to be presented), 2019.
- [2] "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.
- [3] "Networked epidemic spreading: modeling, analysis, and control," *National Institutite of Informatics*, 2018.
- [4] "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.
- [5] "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.
- [6] "Network epidemiology and control theory," University of Hong Kong, 2018.
- [7] "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.
- [8] "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.
- [9] "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.
- [10] "How can we "control" spreading processes over complex networks?" 第4回数理モデリング研究会, 2017.
- [11] "Analysis and control of spreading processes over complex networks," Washington State University, 2017.
- [12] "Analysis and control of spreading processes over complex networks," *Tokyo University of Agriculture and Technology*, 2016.
- [13] "Dynamical systems over time-varying networks," Workshop on Recent Advances in Systems and Control, Kyoto University, 2015.
- [14] "Dynamical systems over time-varying networks," Tokyo Institute of Technology, 2015.
- [15] "Stability analysis of switched linear systems with non-traditional switching signals," in *GRASP special seminar*, University of Pennsylvania, 2014.
- [16] "Mean stability of switched linear systems," Université Catholique de Louvain, 2013.

### 解説・総説

- [1] 小蔵, "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, 2019.
- [2] 小蔵, "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.
- [3] 小蔵, "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] M. Ogura, W. Mei, and K. Sugimoto, "Synergistic effects in networked epidemic spreading dynamics," *IEEE Transactions on Circuits and Systems II: Express Briefs* (accepted for publication), 2019.
- [2] 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.
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#### 査読付き国際会議論文

- [1] M. Ogura, M. Kishida, K. Hayashi, and J. Lam, "Geometric programming for optimizing stability of distributed power control algorithms," in *SICE Annual Conference 2019* (accepted), 2019.
- [2] M. Ogura, W. Mei, and K. Sugimoto, "Upper-bounding dynamics on networked synergistic susceptible-infected-susceptible model," in *SICE Annual Conference 2019* (accepted), 2019.
- [3] M. Ogura, M. Kishida, K. Hayashi, and J. Lam, "Resource allocation for robust stabilization of Foschini-Miljanic Algorithm," in 2019 American Control Conference (accepted), 2019.
- [4] 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.
- [5] 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)
- [6] W. Mei and M. Ogura, "Instability analysis of Markov jump linear systems by spectral optimization," in *SICE Annual Conference 2018*, 2018, pp. 419–422.
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- [8] 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.
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- [10] 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.
- [11] M. Ogura and V. M. Preciado, "Katz centrality of Markovian temporal networks: analysis and optimization," in *2017 American Control Conference*, 2017, pp. 5001–5006.
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- [17] 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.
- [18] 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.
- [19] M. Ogura, M. Wakaiki, J. P. Hespanha, and V. M. Preciado, "L²-gain analysis of regenerative switched linear systems under sampled-data state-feedback control," in *2016 American Control Conference*, 2016, pp. 709–714.
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- [29] 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.
- [30] M. Ogura and C. F. Martin, "Stability of switching systems and generalized joint spectral radius," in *2013 European Control Conference*, 2013, pp. 3185–3190.
- [31] 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.
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#### 学会発表

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#### 教育経験

奈良先端科学技術大学院大学

- 情報科学特別講義 (2018)
- 知能システム制御特論 (2017, 2018)

### 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)
- 数值解析 (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

- 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ト制御調査研究会,委員
- 2018年: Local Arrangements Vice Chair, SICE Annual Conference 2018
- 2017年 $\sim$ : 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