

GIACOMO BAGGIO

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Department of Information Engineering
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APPOINTMENTS	Assistant Professor Department of Information Engineering <i>University of Padova, Italy</i>	Oct. 2019 – Present
	Postdoctoral Scholar Department of Mechanical Engineering <i>University of California, Riverside, USA</i> - Advisor: Prof. F. Pasqualetti	Mar. 2018 – Sep. 2019
	Visiting Scholar Department of Engineering <i>University of Cambridge, UK</i> - Advisor: Prof. R. Sepulchre	Sep. 2015 – June 2016
EDUCATION	Ph.D. in Information Engineering Department of Information Engineering <i>University of Padova, Italy</i> - Advisor: Prof. A. Ferrante - Final grade: cum laude	Feb. 2018
	“Laurea Magistrale” (M.Sc. equivalent), Automation Engineering <i>University of Padova, Italy</i> - Final grade: 110/110 cum laude	April 2014
	“Laurea Triennale” (B.Sc. equivalent), Mechatronics Engineering <i>University of Padova, Italy</i> - Final grade: 110/110 cum laude	Sept. 2011
HONORS & AWARDS	Roberto Tempo Best CDC Paper Award <i>IEEE Control Systems Society</i>	2020
	IEEE Control Systems Letters Outstanding Paper Award <i>IEEE Control Systems Society</i>	2020
	Best Student Paper Award (co-author) <i>American Control Conference (ACC), 2019</i>	2019
	Best Student Paper Award (student author) <i>European Control Conference (ECC), 2018</i>	2018
	Outstanding Master Thesis Recognition <i>Department of Information Engineering, University of Padova, Italy</i>	2014
TEACHING EXPERIENCE	University of Padova Instructor:	

- Systems Theory, “Laurea Magistrale” (M.Sc.), Mechatronics Engineering 2020-21
- Systems Theory, “Laurea Magistrale” (M.Sc.), Mechatronics Engineering 2019-20

Teaching assistant:

- Estimation and Filtering, “Laurea Magistrale” (M.Sc.), Automation Engineering 2016-17

University of Cambridge

Teaching assistant:

- Signals and Systems (3F1), *Engineering Tripos Part IIA* 2015-16

INVITED TALKS

Invited talk @ Data-driven Analysis and Control of Dynamical Systems
SIAM DS 21 minisymposium 2021

Invited talk @ Controlling Complex Networks: *When Control Theory Meets Network Science*
Networks 2021 satellite symposium 2021

Invited talk @ Numerical ODEs, Matrix Analysis and Data Science (NOMADS) seminars
Gran Sasso Science Institute 2020

Invited talk @ Polytechnic University of Turin,
Department of Mathematical Sciences, Turin 2018

Invited talk @ University of Padova,
Department of Mathematics, Padova 2017

PUBLICATIONS

Journal Papers

1. G. Baggio, D. S. Bassett, and F. Pasqualetti,
“Data-driven Control of Complex Networks”,
Nature Communications, vol. 12, no. 1, pp. 1-13, 2021.
2. G. Baggio, V. Rutten, G. Hennequin, and S. Zampieri,
“Efficient Communication in Complex Dynamical Networks: The Role of Matrix Non-Normality”,
Science Advances, vol. 6, no. 22, eaba2282, 2020.
3. T. Menara, G. Baggio, D. S. Bassett, and F. Pasqualetti,
“Conditions for Feedback Linearization of Network Systems”,
IEEE Control Systems Letters, vol. 4, no. 3, pp. 578-583, July 2020.
4. T. Menara, G. Baggio, D. S. Bassett, and F. Pasqualetti,
“Stability Conditions for Cluster Synchronization in Networks of Heterogeneous Kuramoto Oscillators”,
IEEE Transactions on Control of Network Systems, vol. 7, no. 1, pp. 302-314, March 2020.
5. G. Baggio, V. Katewa and F. Pasqualetti,
“Data-Driven Minimum-Energy Controls for Linear Systems,”
IEEE Control Systems Letters, vol. 3, no. 3, pp. 589-594, July 2019.
6. G. Baggio, A. Ferrante, and R. Sepulchre,
“Conal Distances Between Rational Spectral Densities”,
IEEE Transactions on Automatic Control, vol. 64, no. 5, pp. 1848-1857, May 2019.

7. B. Zhu and **G. Baggio**,
“On the Existence of a Solution to a Spectral Estimation Problem *à la* Byrnes–Georgiou–Lindquist”
IEEE Transactions on Automatic Control, vol. 64, no. 2, pp. 820-825, 2019.
8. **G. Baggio** and A. Ferrante,
“Parametrization of Minimal Spectral Factors of Discrete-Time Rational Spectral Densities”
IEEE Transactions on Automatic Control, vol. 64, no. 1, pp. 396-403, 2019.
9. **G. Baggio**,
“Further Results on the Convergence of the Pavon–Ferrante Algorithm for Spectral Estimation”
IEEE Transactions on Automatic Control, vol. 63, no. 10, pp. 3510-3515, 2018.
10. N. Bof, **G. Baggio**, and S. Zampieri,
“On the Role of Network Centrality in the Controllability of Complex Networks”
IEEE Transactions on Control of Network Systems, vol. 4, no. 3, pp. 643-653, 2017.
11. **G. Baggio** and A. Ferrante,
“On Minimal Spectral Factors with Zeroes and Poles lying on Prescribed Regions”
IEEE Transactions on Automatic Control, vol. 61, no. 8, pp. 2251-2255, 2016.
12. **G. Baggio** and A. Ferrante,
“On the Factorization of Rational Discrete-Time Spectral Densities”,
IEEE Transactions on Automatic Control, vol. 61, no. 4, pp. 969-981, 2016.

Conference Papers

1. **G. Baggio** and F. Pasqualetti,
“Learning Minimum-Energy Controls from Heterogeneous Data”,
American Control Conference (ACC), pp. 3991-3996, Denver, CO, USA, 2020.
2. T. Menara, **G. Baggio**, D. S. Bassett, and F. Pasqualetti
“A Framework to Control Functional Connectivity in the Human Brain”,
IEEE Conference on Decision and Control (CDC), pp. 4697-4704, Nice, France, 2019.
3. **G. Baggio**, S. Zampieri, and C. W. Scherer,
“Gramian Optimization with Input-Power Constraints”,
IEEE Conference on Decision and Control (CDC), pp. 5686-5691, Nice, France, 2019.
4. F. Ticozzi, **G. Baggio**, and L. Viola,
“Quantum Information Encoding from Stabilizing Dynamics”
IEEE Conference on Decision and Control (CDC), pp. 413-418, Nice, France, 2019.
5. **G. Baggio**, V. Katewa, F. Pasqualetti, and S. Zampieri,
“The Shannon Capacity of Linear Dynamical Networks”,
European Control Conference (ECC), pp. 602-607, Naples, Italy, 2019.
6. T. Menara, **G. Baggio**, D. S. Bassett, and F. Pasqualetti,
“Exact and Approximate Stability Conditions for Cluster Synchronization of Kuramoto Oscillators”,
American Control Conference (ACC), pp. 205-210, Philadelphia, PA, USA, 2019.
(Best Student Paper Award Winner)
7. **G. Baggio**, V. Rutten, G. Hennequin, and S. Zampieri,

- “Information Transmission in Dynamical Networks: The Normal Network Case” *IEEE Conference on Decision and Control (CDC)*, pp. 2543-2548, Miami, FL, USA, 2018.
8. **G. Baggio** and S. Zampieri,
“On the Relation between Non-normality and Diameter in Linear Dynamical Networks”,
European Control Conference (ECC), pp. 1839-1844, Limassol, Cyprus, 2018.
(**Best Student Paper Award Winner**)
 9. G. Michieletto, S. Milani, A. Cenedese, and **G. Baggio**,
“Improving Consensus-based Distributed Camera Calibration via Edge Pruning and Graph Traversal Initialization”,
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 3166-3170, Calgary, Canada, 2018.
 10. **G. Baggio** and R. Sepulchre,
“LTI Stochastic Processes: a Behavioral Perspective”,
Proceedings of 20th IFAC World Congress, pp. 2806-2811, Toulouse, France, 2017.
 11. **G. Baggio**, “On the Convergence of a Matricial Fixed-Point Iteration Connected with Spectral Estimation”,
Proceedings of 20th IFAC World Congress, pp. 7415-7420, Toulouse, France, 2017.
 12. **G. Baggio**, F. Ticozzi, and L. Viola, “Quantum State Preparation by Controlled Dissipation in Finite Time: From Classical to Quantum Controllers”,
IEEE Conference on Decision and Control (CDC), pp. 1072-1077, Maui, HI, USA, 2012.

PROFESSIONAL ACTIVITIES

Peer Review activity

International journals: IEEE Transactions on Automatic Control ◦ Automatica ◦ Control Systems Letters ◦ Systems and Control Letters ◦ IEEE Transactions on Control of Network Systems ◦ IEEE Transactions on Control Systems Technology ◦ IEEE Transactions on Network Science and Engineering ◦ European Journal of Control ◦ IEEE Access.

International conferences: IEEE Control and Decision Conference (CDC) ◦ IEEE American Control Conference (ACC) ◦ European Control Conference (ECC) ◦ IFAC World Congress ◦ IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys) ◦ Indian Control Conference (ICC).

Editorial Activity

Complex Networks 2020 (9th International Conference on Complex Networks & Their Applications), Member of the Program Committee

Complex Networks 2021 (10th International Conference on Complex Networks & Their Applications), Member of the Program Committee

European Control Conference (ECC) 2021, Associate Editor

Session Chair/Organizer

IEEE CDC 2019, Chair of the session “Control of Networks II”

Professional Affiliations

IEEE, Member

2019–Present

IEEE Control System Society (CSS), Member

2019–Present