

# GIACOMO BAGGIO

Last update: February 20, 2021

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APPOINTMENTS	<b>Assistant Professor</b> Department of Information Engineering <i>University of Padova, Italy</i>	Oct. 2019 – Present
	<b>Postdoctoral Scholar</b> Department of Mechanical Engineering <i>University of California, Riverside, USA</i> - Advisor: Prof. F. Pasqualetti	Mar. 2018 – Sep. 2019
	<b>Visiting Scholar</b> Department of Engineering <i>University of Cambridge, UK</i> - Advisor: Prof. R. Sepulchre	Sep. 2015 – June 2016
EDUCATION	<b>Ph.D. in Information Engineering</b> Department of Information Engineering <i>University of Padova, Italy</i> - Advisor: Prof. A. Ferrante - Final grade: cum laude	Feb. 2018
	<b>“Laurea Magistrale” (M.Sc. equivalent), Automation Engineering</b> <i>University of Padova, Italy</i> - Final grade: 110/110 cum laude	April 2014
	<b>“Laurea Triennale” (B.Sc. equivalent), Mechatronics Engineering</b> <i>University of Padova, Italy</i> - Final grade: 110/110 cum laude	Sept. 2011
HONORS & AWARDS	<b>Roberto Tempo Best CDC Paper Award</b> <i>IEEE Control Systems Society</i>	2020
	<b>IEEE Control Systems Letters Outstanding Paper Award</b> <i>IEEE Control Systems Society</i>	2020
	<b>Best Student Paper Award (co-author)</b> <i>American Control Conference (ACC), 2019</i>	2019
	<b>Best Student Paper Award (student author)</b> <i>European Control Conference (ECC), 2018</i>	2018
	<b>Outstanding Master Thesis Recognition</b> <i>Department of Information Engineering, University of Padova, Italy</i>	2014
TEACHING EXPERIENCE	<b>University of Padova</b> 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 @ 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**, 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.
2. 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.
3. 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.
4. **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.
5. **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.
6. 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.
7. **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.

8. **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.
9. 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.
10. **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.
11. **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)*, Denver, CO, USA, 2020, Accepted.
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 (Ninth 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