



# Diego Deplano

## Curriculum Vitae

### Accademic positions and Education

- Since 2023 **Assistant Professor (RTD-A ING-INF/04)**, Department of Electrical and Electronic Engineering, University of Cagliari (UniCA), Italy.  
*This position has been financed by the European Union the National Recovery and Resilience Plan (NRPP), Project "e.INS Ecosystem of Innovation for Next Generation Sardinia" – Spoke 7 – CUP F53C22000430001 – MUR code: ECS00000038 – code selection rtda7S7\_23D\_1122\_09/G1*
- 2021-2023 **Postdoctoral fellow at the Automatic Control Lab**, Department of Electrical and Electronic Engineering, UniCA, Italy.
- 2021 **PhD in Electronic and Information Engineering**, UniCA, Italy.  
Title: Coordination of multi-agent systems: stability via nonlinear Perron-Frobenius theory and consensus for desynchronization and dynamic estimation.  
Advisors: Prof. Alessandro Giua and Prof. Mauro Franceschelli. Honors: Summa cum Laude
- 2017 **MSc in Electronic Engineering**, UniCa, Italy, Honors: Summa cum Laude.
- 2015 **BSc in Electrical and Electronic Engineering**, UniCA, Italy, Honors: Summa cum Laude.

### Biography

- Biosketch** Diego Deplano (IEEE M'17) is Assistant Professor (RTD-A ING-ING/04) at the Department of Electrical and Electronic Engineering, University of Cagliari, Italy. He received the B.S., M.S., and PhD degrees in Electronic Engineering "cum laude" from the University of Cagliari, Italy, respectively in '15, '17, and '21. He was awarded the best PhD Thesis defended in the area of Systems and Control Engineering at an Italian University by SIDRA (Italian Society of Professors and Researchers in Automation and Control). He has been a member of the Technical Committee on Networks and Communication Systems since '22. He spent visiting periods at the Nanyang Technological University (NTU), Singapore, at the Centre National de la Recherche Scientifique (CNRS), Grenoble, France, and at the University of Toronto (UofT), Toronto, Canada.
- Research interests** Analysis and control of multi-agent systems with nonlinear dynamics, with focus on consensus and dynamic estimation problems; Nonlinear Perron-Frobenius theory with application to monotone systems; Distributed optimization for online learning and dynamic tracking; Synchronization and desynchronization of oscillator networks; Average state observer design for linear systems; Multi-robot optimal path-planning with collision avoidance.
- CDC Keywords** Agents-based systems; Autonomous systems; Distributed Control; Network analysis and control; Networked control systems; Control of networks; Optimization; Optimization algorithms; Iterative learning control
- Other Keywords** Multi-Agent Systems; Consensus algorithms; Dynamic Tracking; Synchronization; Monotone Systems; Positive Systems; Distributed Estimation; Online Optimization; Online Learning; Multi-Robot Systems; Path-planning.

Piazza d'Armi, 09123 – Cagliari, Italy

Phone: (+39) 345 7797327 • Email: [diego.deplano@unica.it](mailto:diego.deplano@unica.it)

 [Google scholar webpage](#) •  [Personal webpage](#)

---

## Awards and fellowships

- Jul 2022 **Best Young Author (finalist) of IFAC NecSys 2022**, awarded by Angelia Nedic (chair), Luca Schenato, Alex Olshevsky.
- Sep 2021 **Best PhD Thesis in the area of Systems and Control Engineering** at an Italian University, awarded by Società Italiana Docenti e Ricercatori in Automatica (SIDRA).
- Sep 2019 **Best presentation of Automatica.it 2019**, awarded by SIDRA.
- 2017-2019 Italian Ministry of Education and Research (MIUR) Graduate Fellowship.

---

## Seminars and Invited Talks

- Sep 2023 "*Stability of Nonlinear Monotone Systems and Consensus in Multi-Agent Networks*", Royal Institute of Technology (KTH), Stockholm, Sweden. Hosted by Dr. N. Bastianello and Prof. K.H. Johansson.
- Oct 2019 "*Stability and Consensus Analysis for a Class of Nonlinear Discrete-Time Multi-Agent Systems*", University of Toronto, Toronto, Canada. Hosted by Prof. L. Scardovi.
- Nov 2018 "*Lyapunov-Free Analysis for Consensus of Nonlinear Discrete-Time Multi-Agent Systems*", GIPSA-lab, CNRS, Grenoble, France. Hosted by Prof. C. Canudas-de-Wit.

---

## International visiting periods

- 2019 Visiting student (2 months) at the **University of Toronto**, Department of Electrical & Computer Engineering, Toronto, Canada (with Prof. Luca Scardovi).
- 2018 Visiting student (6 months) at the **Centre national de la recherche scientifique (CNRS)**, GIPSA-lab, Grenoble, France (with Prof. Carlos Canudas-de-Wit).
- 2017 Visiting student (3 months) at the **Nanyang Technological University (NTU)**, School of Electrical & Electronic Engineering, Singapore (with Prof. Rong Su).

---

## Teaching

- 2022-2023 **Lecturer** of the course "*Automatic Control*", Bachelor's degree in Electronic Engineering, University of Cagliari, Italy. 32 hours of interactive teaching. Teaching language: Italian.
- 2020-2022 **Teaching assistant** of the course "*Analysis and Control of Cyber-Physical Systems*". Lecturer: Prof. A. Giua. Master's degree in Electronic Engineering, University of Cagliari, Italy. 12-30 hours of teaching support each year. Teaching language: Italian.
- 2018-2022 **Teaching assistant** of the course "*Elementi di Analisi dei Sistemi*". Lecturer: Prof. A. Giua. Bachelor's degree in Biomedical Engineering, University of Cagliari, Italy. 25-30 hours of teaching support each year. Teaching language: Italian.

---

## Research Projects

- 2019-2022 **Member of the research unit** of OR3 in the IOT (IAPC) "Ingegnerizzazione e Automazione del Processo di produzione tradizionale del pane Carasau mediante l'utilizzo di tecnologie IOT". Programma di ricerca e sviluppo: Fondo per la Crescita Sostenibile "AGRIFOOD" PON I&C 2014-2020, 36 months, 02/10/2019-02/10/2022.

---

## Academic indicators (17/04/2024)

- Documents: 8 journal papers, 9 conference proceedings.
- Citations: 96 (Google Scholar), 55 (Scopus).
- H-index: 6 (Google Scholar), 5 (Scopus).
- Google Scholar <https://scholar.google.it/citations?user=V6aGZqUAAAAJ&hl=it>
- Scopus <https://www.scopus.com/authid/detail.uri?authorId=57195837573>

---

## List of Papers - International journals

- J8 N. Bastianello, **D. Deplano**, M. Franceschelli, A. Giua, "Online distributed learning over random networks", IEEE Transaction on Automatic Control, under review.
- J7 **D. Deplano**, M. Franceschelli, A. Giua, "Novel Stability Conditions for Nonlinear Monotone Systems and Consensus in Multi-Agent Networks", IEEE Transaction on Automatic Control, 2023.
- J6 **D. Deplano**, M. Franceschelli, A. Giua, "Dynamic Min and Max Consensus and Size Estimation of Anonymous Multi-Agent Networks", IEEE Transaction on Automatic Control, 2022.
- J5 A. Pilloni, **D. Deplano**, A. Giua, E. Usai, "A Sliding Mode Observer design for the Average State Estimation in Large-Scale Systems", IEEE Control Systems Letters (L-CSS), 2021.
- J4 **D. Deplano**, M. Franceschelli, A. Giua, L. Scardovi, "Distributed Fiedler Vector Estimation With Application to Desynchronization of Harmonic Oscillator Networks", IEEE Control Systems Letters, 2022.
- J3 **D. Deplano**, M. Franceschelli, S. Ware, R. Su, A. Giua, "A Discrete Event Formulation for Multi-Robot Collision Avoidance on Pre-planned Trajectories", IEEE Access, 2020.
- J2 **D. Deplano**, M. Franceschelli, A. Giua, "A Nonlinear Perron-Frobenius Approach for Stability and Consensus of Discrete-Time Multi-Agent Systems", Automatica, 2020.
- J1 M. U. B. Niazi, **D. Deplano**, C. Canudas-de-Wit, and A. Y. Kibangou, "Scale-Free Estimation of the Average State in Large-Scale Systems", IEEE Control Systems Letters (L-CSS), 2019.

---

## List of Papers - International conference proceedings

- C9 **D. Deplano**, N. Bastianello, M. Franceschelli, K.H. Johansson, "A unified approach to solve the dynamic consensus on the average, maximum, and median values with linear convergence", 61st IEEE Conference on Decision and Control, 2023.
- C8 **D. Deplano**, C. Congiu, A. Giua, M. Franceschelli, "Distributed Estimation of the Laplacian Spectrum via Wave Equation and Distributed Optimization", 22nd World Congress of the International Federation of Automatic Control, 2023.
- C7 **D. Deplano**, M. Franceschelli, C. Seatzu, "Experimental Comparison of Models of the Drying-Cooling Process of Flatbreads for Optimized Automated Production: the Case Study of Carasau Bread", 9th International Conference on Control, Decision and Information Technologies, 2023.
- C6 **D. Deplano**, M. Franceschelli, A. Giua, "Dynamic max-consensus with local self-tuning", 9th IFAC Conference on Networked Systems, 2022. **IFAC Young Author Award finalist.**
- C5 Z.A.Z. Sanai Dashti, **D. Deplano**, M. Franceschelli, A. Giua, "Resilient self-organizing networks in multi-agent systems via approximate random k-regular graphs", 61st IEEE Conference on Decision and Control, 2022.
- C4 **D. Deplano**, M. Franceschelli, A. Giua, "Distributed Tracking of Graph Parameters in Anonymous Networks with Time-varying Topology", 60th IEEE Conference on Decision and Control, 2021.
- C3 **D. Deplano**, M. Franceschelli, A. Giua, L. Scardovi, "Discrete-Time Dynamic Consensus on the Max Value", 15th European Workshop on Advanced Control and Diagnosis, 2019.
- C2 **D. Deplano**, M. Franceschelli, A. Giua, "Lyapunov-free Analysis for Consensus of Nonlinear Discrete-time Multi-Agent Systems", 57th IEEE Conference on Decision and Control, 2018.
- C1 **D. Deplano**, S. Ware, R. Su and A. Giua, "A Heuristic Algorithm to Optimize Execution Time of Multi-Robot Path", 13th IEEE International Conference on Control & Automation, 2017.

Piazza d'Armi, 09123 – Cagliari, Italy

Phone: (+39) 345 7797327 • Email: [diego.deplano@unica.it](mailto:diego.deplano@unica.it)

 [Google scholar webpage](#) •  [Personal webpage](#)