

Diego Deplano

Curriculum Vitae

Academic positions

- 2023–present **Assistant Professor (RTD-A) in Systems and Control Theory (ING-INF/04)**, *Department of Electrical and Electronic Engineering (DIEE)*, University of Cagliari, Italy.
- 2021–2023 **Postdoctoral research fellow (assegnista di ricerca)**, *Automatic Control Lab, DIEE*, University of Cagliari, Italy.

Education

- 2017–2021 **PhD in Electronic and Information Engineering**, *University of Cagliari, Italy*, *summa cum laude*, 9 March 2021.
Thesis: “*Coordination of multi-agent systems: stability via nonlinear Perron-Frobenius theory and consensus for desynchronization and dynamic estimation*”. Advisors: Prof. A. Giua and Prof. M. Franceschelli. Winner of the SIDRA Best PhD Thesis Award 2021.
- 2017 **MSc in Electronic Engineering**, *University of Cagliari, Italy*, 110/110 *cum laude*.
Thesis: “*Incremental scheduling for sub-optimal solution to the multi-robot motion-planning problem in discrete event systems*”, developed at Nanyang Technological University, Singapore.
- 2015 **BSc in Electrical and Electronic Engineering**, *University of Cagliari, Italy*, 110/110 *cum laude*.
Thesis: “*Convertitori DC/DC per applicazioni biomedicali*”.

International visiting periods

- 2019 **University of Toronto**, Department of Electrical & Computer Engineering, Toronto, Canada (2 months, with Prof. L. Scardovi).
- 2018 **Centre National de la Recherche Scientifique (CNRS)**, GIPSA-lab, Grenoble, France (6 months, with Prof. C. Canudas-de-Wit). Funded by the Erasmus+ Placdoc 2017/2018 programme.
- 2017 **Nanyang Technological University (NTU)**, School of Electrical & Electronic Engineering, Singapore (4 months, with Prof. R. Su). Funded by the Globus Studio/Tesi 2015/2016 programme.

Research projects

- 2026–2029 **ROSAS** – *RObotica general purpose as-a-Service per l'Agroindustria Sarda* (General-purpose Robotics as a Service for the Sardinian Agro-industry). Sardinia Regional Programme ERDF 2021–2027, Action 1.1.2; EUR 600,000; September 2026 – March 2029. **Role: Work Package Leader** (WP2: configuration, control and performance testing of robotic demonstrators).
- 2026–2028 **ICARUS** – *Intelligent CAmera-based Robust Unmanned Systems Navigation*. Sardinia Regional Programme ERDF 2021–2027, Action 1.1.1; EUR 440,969; October 2026 – October 2028. Role: participant in the University of Cagliari unit (research partner of Nurjana Technologies Srl).
- 2025–2028 **EOPAC** – *Tecnologie dell'Industria 4.0 e ICT per l'efficientamento e ottimizzazione delle produzioni agro-alimentari tipiche mediante la valorizzazione delle condizioni climatiche locali*. Italian Ministry of Enterprises and Made in Italy (MIMIT), Accordi per l'innovazione, PN RIC 2021–2027, Action 1.1.4; EUR 10,447,914; May 2025 – November 2028. Role: participant in the University of Cagliari unit.
- Concluded **e.INS** – *Ecosystem of Innovation for Next Generation Sardinia*, Spoke 7. Italian National Recovery and Resilience Plan (NRRP), NextGenerationEU. Role: scientific coordination of the activities on distributed optimal control of energy communities (since 2023).

2019–2022 **IAPC** – *Ingegnerizzazione e Automazione del Processo di produzione tradizionale del pane Carasau mediante l'utilizzo di tecnologie IoT*. Fondo per la Crescita Sostenibile “AGRI FOOD”, PON I&C 2014–2020; October 2019 – October 2022. Role: member of the research unit OR3.

Awards and fellowships

- 2026 **Best Young Author Journal Paper Award 2026** of the IEEE Control Systems Society Italy Chapter, for the paper “*Robust Online Learning over Networks*” (IEEE Transactions on Automatic Control).
- 2022 **Finalist of the Best Young Author Award** at IFAC NecSys 2022 (Zurich, Switzerland), for the paper “*Dynamic Max-Consensus with Local Self-Tuning*”.
- 2021 **Best PhD Thesis Award** in the area of Systems and Control Engineering at an Italian University, awarded by the Società Italiana Docenti e Ricercatori in Automatica (SIDRA).
- 2019 **Best Presentation Award** at the national congress Automatica.it 2019 (Ancona, Italy), awarded by SIDRA.
- 2017–2019 Graduate fellowship of the Italian Ministry of Education, University and Research (MIUR).

Editorial activities and service

- Editorial Member of the **Conference Editorial Board** of the IEEE Control Systems Society. **Associate Editor** for the IEEE Conference on Decision and Control (2025, 2026), the American Control Conference (2026, 2027) and the IEEE International Conference on Automation Science and Engineering (2024, 2025, 2026).
- Committees Member of the IEEE CSS Technical Committee on Networks and Communication Systems (since 2022).
- Memberships IEEE (since 2017), IEEE Control Systems Society (since 2020), IEEE Robotics and Automation Society (since 2024).
- Reviewer More than 50 journal manuscripts, including Automatica (5), IEEE Transactions on Automatic Control (6), IEEE Control Systems Letters (9), IEEE Transactions on Control of Network Systems (9), IEEE Transactions on Cybernetics (4), IEEE Transactions on Neural Networks and Learning Systems, Nonlinear Dynamics, Journal of the Franklin Institute, International Journal of Electrical and Computer Engineering. More than 40 conference manuscripts for CDC, ECC, ACC, CASE, IFAC World Congress, IFAC ADHS and IROS.

Organization of scientific events

- 2026 Co-organizer of the Open Invited Track “*Open Multi-Agent Systems: Control, Optimization, and Learning*”, 23rd IFAC World Congress, Busan, Korea.
- 2026 Session chair of “*Optimization IV*”, 65th IEEE Conference on Decision and Control, Honolulu, USA.
- 2022 Member of the organizing committee of Automatica.it 2022, the national congress of the Italian control community (Cagliari, Italy).
- 2020 Member of the organizing committee of Automatica.it 2020 (online).
- 2019 Co-organizer of the invited session “*Modeling, Estimation, and Control of Large-Scale Network Systems*”, 58th IEEE Conference on Decision and Control, Nice, France.
- Invited sessions Contributions to invited sessions at the IEEE CDC: “*Analysis and Control of Large-Scale Autonomous Networks*” II (2020) and III (2021); “*Resilience and Robustness in Large-Scale Networked Dynamical Systems*” (2022); “*Open Multi-Agent Systems: Theory and Applications*” and “*Contraction Theory in Systems and Control I*” (2024).

Teaching

- 2026 **Lecturer** of the course “*Introduction to Open Multi-Agent Systems*” (with Prof. M. Franceschelli), 29th SIDRA International PhD Summer School, Bertinoro, Italy.

- 2022–2023 **Lecturer** of the e-learning course “*Automatic Control*”, BSc in Electrical, Electronic and Information Engineering, University of Cagliari (36 hours).
- 2019–2022 **Teaching assistant** for “*Analysis and Control of Cyber-Physical Systems*” (lecturer: Prof. A. Giua), MSc in Electronic Engineering, University of Cagliari (49 hours in total).
- 2017–2022 **Teaching assistant** for “*Elementi di Analisi dei Sistemi*” (lecturer: Prof. A. Giua), BSc in Biomedical Engineering, University of Cagliari (138 hours in total).

Doctoral co-supervision

- 2024–present **Marco Ledda** (PhD, University of Cagliari; defence expected in 2028). Topic: neural-network modelling of the evolution of dynamical systems.
- 2023–present **Wenjie Zhao** (PhD, University of Cagliari; defence expected in 2027). Topic: resiliency in open networks via distributed formation of k -regular graphs.
- 2021–2022 **Zohreh Alzahra Sanai Dashti** (PhD, University of Cagliari). Thesis: “*Coordination of Open Multi-Agent Systems*”.

Seminars and invited talks

- 2025 “*Stability of Nonlinear Monotone Systems with Applications to Multi-Agent Networks and Recurrent Neural Networks*”, Peking University, Beijing, China. Hosted by Prof. Z. Li.
- Sep 2023 “*Stability of Nonlinear Monotone Systems and Consensus in Multi-Agent Networks*”, KTH Royal Institute of Technology, 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, 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.

Collaborations

- Since 2026 Dr. M. Lippi and Prof. A. Gasparri (Roma Tre University, Italy): distributed control and open networks.
- Since 2025 Prof. S. Grammatico (Delft University of Technology, The Netherlands): monotone dynamical systems, monotone operator theory and contraction theory.
- Since 2023 Dr. N. Bastianello (University College London, UK) and Prof. K.H. Johansson (KTH Royal Institute of Technology, Sweden): distributed online learning and optimization, dynamic consensus and open networks.
- Past Prof. L. Scardovi (University of Toronto, Canada); Prof. C. Canudas-de-Wit (CNRS, France); Prof. R. Su (Nanyang Technological University, Singapore).

Biography

Biosketch Diego Deplano is Assistant Professor (RTD-A) at the Department of Electrical and Electronic Engineering, University of Cagliari, Italy. He received the B.S., M.S., and Ph.D. degrees in Electronic Engineering, all *summa cum laude*, from the University of Cagliari in 2015, 2017, and 2021. He received the SIDRA Award for the Best Ph.D. Thesis in Systems and Control Engineering at an Italian University (2021) and the Best Young Author Journal Paper Award of the IEEE CSS Italy Chapter (2026). He spent visiting periods at Nanyang Technological University (Singapore), CNRS (Grenoble, France) and the University of Toronto (Canada), and gave invited seminars at KTH (Stockholm, Sweden) and Peking University (Beijing, China). He is a member of the IEEE CSS Conference Editorial Board, serving as Associate Editor for the IEEE Conference on Decision and Control and the American Control Conference, and as Associate Editor for the IEEE International Conference on Automation Science and Engineering since 2024. His research interests include open multi-agent systems, monotone and contraction theory, distributed optimization and learning, and dynamic consensus.

Keywords Open multi-agent systems; Monotone systems; Positive systems; Contraction theory; Operator theory; Distributed optimization; Online and distributed learning; Consensus algorithms; Dynamic tracking; Distributed estimation; Synchronization; Networked control systems; Multi-robot systems.

Bibliometric indicators

Documents 16 journal articles (5 in IEEE Transactions on Automatic Control), 21 conference papers, 2 preprints under review.

Scopus 33 documents, 227 citations, h-index 10 (Author ID 57195837573; 21/10/2026).

Google Scholar 339 citations, h-index 11, i10-index 14 (21/10/2026).

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Selected publications

- [J11] **D. Deplano**, N. Bastianello, M. Franceschelli, K.H. Johansson, “*Optimization and Learning in Open Multiagent Systems*”, IEEE Transactions on Automatic Control, vol. 71, no. 6, pp. 3864–3879, 2026.
- [J10] **D. Deplano**, M. Franceschelli, A. Giua, “*Distributed Tracking of Network Size, Diameter, Radius, and Node Eccentricities in Open Multi-Agent Systems*”, IEEE Transactions on Automatic Control, vol. 71, no. 4, pp. 2274–2288, 2026.
- [J7] **D. Deplano**, M. Franceschelli, A. Giua, “*Novel Stability Conditions for Nonlinear Monotone Systems and Consensus in Multi-Agent Networks*”, IEEE Transactions on Automatic Control, vol. 68, no. 12, pp. 7028–7040, 2023.
- [J6] **D. Deplano**, M. Franceschelli, A. Giua, “*Dynamic Min and Max Consensus and Size Estimation of Anonymous Multi-Agent Networks*”, IEEE Transactions on Automatic Control, vol. 68, no. 1, pp. 202–213, 2023.
- [J3] **D. Deplano**, M. Franceschelli, A. Giua, “*A Nonlinear Perron-Frobenius Approach for Stability and Consensus of Discrete-Time Multi-Agent Systems*”, Automatica, vol. 118, art. 109025, 2020.

Journal articles

- [J16] **D. Deplano**, N. Arridu, C. Seatzu, M. Franceschelli, “*Thermal Modeling of Thin-Layer Bread via Neural Networks: Experimental Validation in a Sardinian Bakery*”, Control Engineering Practice, vol. 174, art. 107014, 2026.
- [J15] **D. Deplano**, C. Seatzu, M. Franceschelli, “*A Real-Time Heuristic for Large-Scale Workforce Task Assignment, Multi-Vehicle Routing, and Scheduling with Time-Dependent Profits*”, IEEE Transactions on Automation Science and Engineering, vol. 23, pp. 16022–16037, 2026.
- [J14] A. Miele, M. Lippi, **D. Deplano**, M. Franceschelli, A. Gasparri, “*Distributed Potential-Based Coordination within Open Multi-Agent Systems*”, IEEE Control Systems Letters, vol. 10, pp. 1801–1806, 2026. To be presented at the 65th IEEE CDC.
- [J13] Z. Shahrouei, **D. Deplano**, E. Usai, A. Pisano, “*Distributed Energy and Thermal Management of Buildings with High-Order RC Thermal Dynamics*”, IEEE Control Systems Letters, vol. 10, pp. 1717–1722, 2026. To be presented at the 65th IEEE CDC.
- [J12] **D. Deplano**, N. Bastianello, M. Franceschelli, K.H. Johansson, “*Composite Optimization in Open Multi-Agent Systems under Additive Errors*”, IEEE Control Systems Letters, vol. 10, pp. 709–714, 2026.
- [J11] **D. Deplano**, N. Bastianello, M. Franceschelli, K.H. Johansson, “*Optimization and Learning in Open Multiagent Systems*”, IEEE Transactions on Automatic Control, vol. 71, no. 6, pp. 3864–3879, 2026.
- [J10] **D. Deplano**, M. Franceschelli, A. Giua, “*Distributed Tracking of Network Size, Diameter, Radius, and Node Eccentricities in Open Multi-Agent Systems*”, IEEE Transactions on Automatic Control, vol. 71, no. 4, pp. 2274–2288, 2026.

- [J9] N. Bastianello*, **D. Deplano***, M. Franceschelli, K.H. Johansson, “*Robust Online Learning over Networks*”, IEEE Transactions on Automatic Control, vol. 70, no. 2, pp. 933–946, 2025. (*Co-first authors.) **Best Young Author Journal Paper Award 2026**, IEEE CSS Italy Chapter.
- [J8] **D. Deplano**, M. Franceschelli, A. Giua, “*Stability of Nonexpansive Monotone Systems and Application to Recurrent Neural Networks*”, IEEE Control Systems Letters, vol. 8, pp. 1793–1798, 2024. Presented at the 63rd IEEE CDC.
- [J7] **D. Deplano**, M. Franceschelli, A. Giua, “*Novel Stability Conditions for Nonlinear Monotone Systems and Consensus in Multi-Agent Networks*”, IEEE Transactions on Automatic Control, vol. 68, no. 12, pp. 7028–7040, 2023.
- [J6] **D. Deplano**, M. Franceschelli, A. Giua, “*Dynamic Min and Max Consensus and Size Estimation of Anonymous Multi-Agent Networks*”, IEEE Transactions on Automatic Control, vol. 68, no. 1, pp. 202–213, 2023.
- [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, vol. 6, pp. 632–637, 2022. Presented at the 60th IEEE CDC.
- [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, vol. 5, no. 2, pp. 659–664, 2021. Presented at the 59th IEEE CDC.
- [J3] **D. Deplano**, M. Franceschelli, A. Giua, “*A Nonlinear Perron-Frobenius Approach for Stability and Consensus of Discrete-Time Multi-Agent Systems*”, Automatica, vol. 118, art. 109025, 2020.
- [J2] **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, vol. 8, pp. 92637–92646, 2020.
- [J1] M.U.B. Niazi, **D. Deplano**, C. Canudas-de-Wit, A.Y. Kibangou, “*Scale-Free Estimation of the Average State in Large-Scale Systems*”, IEEE Control Systems Letters, vol. 4, no. 1, pp. 211–216, 2020. Presented at the 58th IEEE CDC.

Conference papers

- [C21] M. Ledda, **D. Deplano**, A. Giua, M. Franceschelli, “*Certification of Learning-Based Feedback Linearization under Measurement Perturbations*”, 65th IEEE Conference on Decision and Control (CDC), 2026. Accepted.
- [C20] **D. Deplano**, N. Bastianello, M. Franceschelli, K.H. Johansson, “*Federated Learning in Open Multi-Agent Systems via Peaceman-Rachford Splitting*”, 23rd IFAC World Congress, 2026.
- [C19] M. Ledda, **D. Deplano**, A. Giua, M. Franceschelli, “*On the Computation of ReLU-Based RNNs Equivalent to CPWA Models of Dynamical Systems and Vice Versa*”, 23rd IFAC World Congress, 2026.
- [C18] M. Ledda, **D. Deplano**, A. Giua, M. Franceschelli, “*Certification of Autoencoder-Based Models for Dynamical Systems*”, 64th IEEE Conference on Decision and Control (CDC), pp. 401–406, 2025.
- [C17] H. Chakraa, **D. Deplano**, C. Seatzu, D. Lefebvre, M. Franceschelli, “*A Gossip-Based Approach for Measurement Task Allocation and Routing in Multi-Robot Systems with Heterogeneous Sensing*”, 21st IEEE International Conference on Automation Science and Engineering (CASE), pp. 2895–2900, 2025.
- [C16] **D. Deplano**, S. Grammatico, M. Franceschelli, “*On the Convergence of the Krasnoselskij Iteration for Strictly Pseudocontractive Operators*”, 23rd European Control Conference (ECC), pp. 1186–1191, 2025.
- [C15] **D. Deplano**, N. Bastianello, M. Franceschelli, K.H. Johansson, “*Distributed Variance Consensus with Application to Personalized Learning*”, 10th IFAC Conference on Networked Systems (NecSys), IFAC-PapersOnLine, vol. 59, no. 4, pp. 37–42, 2025.
- [C14] **D. Deplano**, M. Franceschelli, A. Giua, “*Stability of Paracontractive Open Multi-Agent Systems*”, 63rd IEEE Conference on Decision and Control (CDC), pp. 3031–3036, 2024.

- [C13] **D. Deplano**, C. Seatzu, M. Franceschelli, "A Distributed Online Heuristic for a Large-Scale Workforce Task Assignment and Multi-Vehicle Routing Problem", 20th IEEE International Conference on Automation Science and Engineering (CASE), pp. 3174–3180, 2024.
- [C12] W. Zhao, **D. Deplano**, Z. Li, A. Giua, M. Franceschelli, "Resilient Networks for Multi-Agent Systems Based on Graph Self-Organization into Random Approximate Regular Graphs", 20th IEEE International Conference on Automation Science and Engineering (CASE), pp. 2975–2981, 2024.
- [C11] J.J. Moré, **D. Deplano**, A. Pilloni, A. Pisano, M. Franceschelli, "Online Coordination of BESS and Thermostatically Control Loads for Shared Energy Optimization in Energy Communities", 20th IEEE International Conference on Automation Science and Engineering (CASE), pp. 2738–2744, 2024.
- [C10] M.A.M. Messilem, **D. Deplano**, M. Franceschelli, E. Usai, R. Carli, "Distributed Optimization for Networks of Battery Energy Storage Systems in Energy Communities with Shared Energy Incentives", 20th IEEE International Conference on Automation Science and Engineering (CASE), pp. 2745–2751, 2024.
- [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", 62nd IEEE Conference on Decision and Control (CDC), pp. 6442–6448, 2023.
- [C8] **D. Deplano**, C. Congiu, A. Giua, M. Franceschelli, "Distributed Estimation of the Laplacian Spectrum via Wave Equation and Distributed Optimization", 22nd IFAC World Congress, IFAC-PapersOnLine, vol. 56, no. 2, pp. 6952–6957, 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 (CoDIT), pp. 2014–2019, 2023.
- [C6] Z.A.Z. Sanai Dashti, **D. Deplano**, C. Seatzu, M. Franceschelli, "Resilient Self-Organizing Networks in Multi-Agent Systems via Approximate Random k -Regular Graphs", 61st IEEE Conference on Decision and Control (CDC), pp. 6448–6453, 2022.
- [C5] **D. Deplano**, M. Franceschelli, A. Giua, "Dynamic Max-Consensus with Local Self-Tuning", 9th IFAC Conference on Networked Systems (NecSys), IFAC-PapersOnLine, vol. 55, no. 13, pp. 127–132, 2022. **Best Young Author Award finalist.**
- [C4] **D. Deplano**, M. Franceschelli, A. Giua, "Discrete-Time Dynamic Consensus on the Max Value", 15th European Workshop on Advanced Control and Diagnosis (ACD 2019), Lecture Notes in Control and Information Sciences – Proceedings, Springer, pp. 367–383, 2022.
- [C3] **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 (CDC), pp. 6258–6263, 2021.
- [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 (CDC), pp. 2525–2530, 2018.
- [C1] **D. Deplano**, S. Ware, R. Su, A. Giua, "A Heuristic Algorithm to Optimize Execution Time of Multi-Robot Path", 13th IEEE International Conference on Control & Automation (ICCA), pp. 909–914, 2017.

Preprints under review

- [P2] **D. Deplano**, S. Grammatico, M. Franceschelli, "Non-Euclidean Enriched Contraction Theory for Monotone Operators and Monotone Dynamical Systems", arXiv:2506.17990, 2025. Under review at IEEE Transactions on Automatic Control (2nd round).
- [P1] W. Zhao, **D. Deplano**, Z. Li, A. Giua, M. Franceschelli, "Algebraic Connectivity Control and Maintenance with Application to Open Multi-Agent Networks", arXiv:2406.18467, 2024. Under review at Automatica (4th round).