Lorenzo Sforni

Personal Details

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Date of Birth:	September 7, 1996

Current Position

1 Nov 2020 – current	Ph.D. Candidate in Systems and Control Engineering Department of Electrical, Electronic and Information Engineering "G. Marconi", Alma Mater Studiorum Università di Bologna, Italy

Education

9 Oct 2020	Master degree in Automation Engineering (LM-25), Alma Mater Studiorum Università di Bologna, Italy 110/110 cum laude, Gpa: 30.0/30.0 *Advisor:* G. Notarstefano *Thesis:* A closed-loop methodology for discrete-time nonlinear optimal control.
26 Jul 2018	Bachelor degree in Automation Engineering (L-8), Alma Mater Studiorum Università di Bologna, Italy 110/110 cum laude *Advisor:* A. Zucchelli *Thesis:* Development of a nanofiber piezoelectric sensor for composite structures.

Positions Held

1 Mar 2023 – 4 Sep 2023	Visiting Researcher at California Institute of Technology (Pasadena, CA, USA) *Advisor:* A.D. Ames *Project:* Development of optimal-control-based safe controllers for robotic systems.

Research Projects Participation

Nov 2023 – current	AlmaValue: scouting of Alma Mater's search results and support for market enhancement. University of Bologna internal funding for candidate spinoff projects. Supported by Next Generation EU. *Project*: DiscreetAI *Principal Investigator*: G. Notarstefano *Position*: Member of the development team (4 people)
Nov 2023 – current	PRIN 2022 – Next Generation EU *Project*: ECODREAM *Project Coordinator*: L. Glielmo, Universitá del Sannio *Position*: Ph.D. Student, member of the University of Bologna group

Nov 2022 – current	Italy–Brasil cooperation project funded by the Italian Ministry of Foreign Affairs and International Cooperation *Project*: Distributed Optimization for Cooperative Machine Learning in Complex Networks *Principal Investigator*: G. Notarstefano *Position*: Ph.D. Student
Nov 2020 – Sep 2021	ERC Starting Grant OPT4SMART *Project*: Distributed Optimization Methods for Smart Cyber-Physical Networks *Principal Investigator*: G. Notarstefano *Position*: Ph.D. Student

Awards

May 2020	Scholarship for outstanding academic achievements from Alma Mater Studiorum Università di Bologna. Scholarship for outstanding academic achievements – GPA 30.0/30.0
Sep 2018	Total merit-based exemption from Alma Mater Studiorum Università di Bologna. Total exemption from enrolment fees if students obtained the first cycle degree during 2017/18 a.y. at the University of Bologna, by 31 July 2018, within their course's established time period and with a degree mark of no less than 110/110

Teaching

A.Y. 2023/2024	Teaching assistant for "Optimal Control - M", 30h, Master Degree in Automation Engineering, Alma Mater Studiorum Università di Bologna, held by prof. G. Notarstefano.
A.Y. 2022/2023	Teaching assistant for "Optimal Control - M", 30h, Master Degree in Automation Engineering, Alma Mater Studiorum Università di Bologna, held by prof. G. Notarstefano.
A.Y. 2021/2022	Teaching assistant for "Optimal Control - M", 30h, Master Degree in Automation Engineering, Alma Mater Studiorum Università di Bologna, held by prof. G. Notarstefano.
	Teaching assistant for "Robust H_∞ Control, Topic Highlight - M", 30h, Master Degree in Automation Engineering, Alma Mater Studiorum Università di Bologna, held by prof. L. Mirkin, *Technion - Israel Institute of Technology*.
A.Y. 2020/2021	Teaching assistant for "Model Predictive Control, Topic Highlight - M", 30h, Master Degree in Automation Engineering, Alma Mater Studiorum Università di Bologna, held by prof. M. Mueller, *Leibniz University Hannover*.

Mentoring Experience and Student Service

2023 – current	Co-supervision of the master thesis in Automation Engineering at ETH Zürich : Giulia Cutini (2023)
2020 – current	Co-supervision of the master theses in Automation Engineering at University of Bologna: F. Sartori (collab. with SACMI, 2023), A. Tramaloni (collab. with SACMI, 2022), S. Baroncini (2022), E. Pianazzi (2022), F. Pretini (2022), G. Gaddoni (collab. with Istituto Ortopedico Rizzoli, 2021), L. Fiocchi (2021), L. Sarti (2021), E. Guerra (collab. with Thales Alenia Space, 2021)

Talks

Dec 2022	I attended the Intern. Conference on Decision and Control (CDC22) in Cancún (Mexico) and presented the paper "Structured-policy Q-learning: an LMI-based Design Strategy for Distributed Reinforcement Learning".
Dec 2021	I attended virtually the Intern. Conference on Decision and Control (CDC21) in Austin (TX, USA) and presented the paper "Learning-driven Nonlinear Optimal Control via Gaussian Process Regression".

Journal Publications Preprints

[J1] L. Sforni, G. Carnevale, G. Notarstefano "A Distributed Feedback-based Framework for Nonlinear Aggregative Optimal Control", *IEEE Transactions on Automatic Control* (under review – second round), 2023.

[J2] L. Sforni, S. Spedicato, I. Notarnicola, G. Notarstefano "GoPRONTO: a Feedback-based Framework for Nonlinear Optimal Control", *IEEE Transactions on Automatic Control* (under review – third round), 2021.

Conference Proceedings

[C1] L. Sforni, G. Carnevale, I. Notarnicola, G. Notarstefano "On-Policy Data-Driven Linear Quadratic Regulator Via Combined Policy Iteration and Recursive Least Squares", in *IEEE 62nd Conf. on Decision and Control*, (Marina Bay, Singapore), 2023.

[C2] L. Pichierri, G. Carnevale, L. Sforni, A. Testa, G. Notarstefano "A Distributed Online Optimization Strategy for Cooperative Robotic Surveillance", in *IEEE International Conference on Robotics and Automation*, (London, UK), pp. 5537–5543, 2023.

[C3] L. Sforni, A. Camisa, G. Notarstefano "Structured-policy Q-learning: an LMI-based Design Strategy for Distributed Reinforcement Learning", in *IEEE 61st Conf. on Decision and Control*, (Cancún, Mexico), pp. 4059–4064, 2022.

[C4] L. Sforni, I. Notarnicola, G. Notarstefano "Learning-driven Nonlinear Optimal Control via Gaussian Process Regression", in *IEEE 60th Conf. on Decision and Control*, (Austin, TX, USA), pp. 4406–4411, 2021.

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Bologna,
November 27, 2023

Lorenzo Sforni