

Alessandra Elisa Sindi MORANDO

Education

- 🎓 **Nov 2023 – Present (Expected Graduation: Dec 2026)** Ph.D. Candidate in Systems Engineering at the University of Genoa (UniGe), within a joint Ph.D. program in Automation and Robotics with the Université de Technologie de Compiègne (UTC – Sorbonne Universités). The research focuses on *Distributed and Robust Control Techniques for Systems of Systems: Applications to Vehicle Platoons, Machine-to-Machine Interactions, and Machine-to-Infrastructure Interactions*.
- 🎓 **Sept 2021 – Oct 2023** Master's degree in Computer Engineering from the University of Genoa, *cum laude*, with a Master's thesis entitled *Vision-Based UAV Tracking and Landing*.
- 🎓 **Sept 2022 – Sept 2023** Master's degree in Complex Systems Engineering from the Université de Technologie de Compiègne, as part of the joint curriculum of the *European Master in Engineering for Complex and Interacting Systems*.
- 🎓 **Sept 2017 – Mar 2021** Bachelor's degree in Computer Engineering from the University of Genoa.

Academic & Professional Experience

- 📦 **Feb 2023 – Jul 2023** Research Internship at the Heudiasyc Laboratory, UTC, on *Cooperative Navigation of Aerial and Ground Robotic Vehicles*, within the SyRI team.
- 📦 **May 2022 – Nov 2022** Internship at Piaggio Aero Industries S.p.A. (Villanova d'Albenga), focused on the development of a C library for Health Monitoring algorithms in Small Air Transport Systems.
- 📦 **Mar 2022 – Mar 2023** Starting Research Grant at the University of Genoa, at the DELAB Laboratory in collaboration with ENI, focused on the *Design and Prototype Development of Software Tools Supporting Logistics Processes*.

Teaching Activity

- 👤 **2024** 64 hours of teaching support, *INF2 - Programmation et Développements Niveau 2* (UTC): Supervision and evaluation of two groups of students in advanced Python Programming, including weekly homeworks and final exams.
- 👤 **2024** 20 hours of teaching support, *Advanced Control Systems* (Unige): In-class exercises and lab supervision on robust distributed control, MATLAB/Simulink, and Quadruple Tank Process experiments.

Technical Skills

- 🔗 **Programming:** C, C++, Python
- 🔗 **Robotics & Control:** ROS, MATLAB/Simulink
- 🔗 **Tools & Platforms:** Git, Linux

Soft Skills

- 💡 **Teamwork:** effective collaboration in multidisciplinary and international teams.
- 💡 **Problem-Solving:** analytical approach to complex technical and research problems.
- 💡 **Adaptability:** ability to work effectively in new environments and across different disciplines.
- 💡 **Communication:** clear technical communication and experience in teaching and presentations.
- 💡 **Autonomy:** ability to independently organize and conduct research activities.

Language Skills

🇮🇹 **Languages:** Italian (Native), English (C1), French (C1)

Scientific Contributions

Journal Papers

- 📄 Alessandra Elisa Sindi Morando, Jossué Cariño, Pedro Castillo, Roberto Sacile, and Enrico Zero. “LMI -based formation control with collision avoidance for air-ground fleet”. In: *Control Engineering Practice* 173 (2026), p. 107007. ISSN: 0967-0661
- 📄 Matteo Aicardi, Rexhina Hoxha, Alessandra Elisa Sindi Morando, Roberto Sacile, and Enrico Zero. “Robust Control for a Transportation Network With Stochastic Quadratic Constraints”. In: *IEEE Transactions on Control of Network Systems* 13.1 (2026), pp. 532–544
- 📄 Alessandra Elisa Sindi Morando, Alessandro Bozzi, Simone Graffione, Roberto Sacile, and Enrico Zero. “Optimizing Unmanned Air–Ground Vehicle Maneuvers Using Nonlinear Model Predictive Control and Moving Horizon Estimation”. In: *Automation* 5.3 (2024), pp. 324–342. ISSN: 2673-4052

International Conference Papers

- 📄 Alessandra Elisa Sindi Morando, Roberto Sacile, and Pedro Castillo. “Quadcopter Trajectory Tracking: A Comparative Study of Linear and Nonlinear MPC under Uncertainties”. In: *2026 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*. 2026
- 📄 Alessandra Elisa Sindi Morando, Roberto Sacile, and Pedro Castillo. “NMPC for Vehicle Trajectory Tracking: A Study on Data Loss and Energy Efficiency”. In: *2025 International Congress on Smart Agriculture and Sustainable Systems (SmartAgri&SuSY)*. 2025, pp. 1–6
- 📄 Alessandra Elisa Sindi Morando, Alessandro Bozzi, Enrico Zero, Roberto Sacile, and Pedro Castillo. “Robust Control Architecture for Fleet Formation Based on LMI and Artificial Potential Fields”. In: *2025 20th Annual System of Systems Engineering Conference (SoSE)*. 2025, pp. 1–6
- 📄 Alessandra Elisa Sindi Morando, Alessandro Bozzi, Simone Graffione, Roberto Sacile, and Enrico Zero. “Distributed Nonlinear Predictive Control for Unmanned Air-Ground Vehicles”. In: *IFAC-PapersOnLine*. Vol. 58. 4th IFAC Conference on Modelling, Identification and Control of Nonlinear Systems (MICNON 2024) 21. 2024, pp. 37–42
- 📄 Enrico Zero, Alberto Daniele, Alessandro Bozzi, Simone Graffione, and Alessandra Elisa Sindi Morando. “A Meta-Heuristic Approach for Capacitated Vehicle Routing Problem in Fuel Distribution”. In: *2024 IEEE 20th International Conference on Automation Science and Engineering (CASE)*. 2024, pp. 33–38
- 📄 Alessandra Elisa Sindi Morando, Marconi Ferreira Santos, Pedro Castillo, and Alessandro Correa-Victorino. “Vision-Based Algorithm for Autonomous Aerial Landing”. In: *2024 International Conference on Unmanned Aircraft Systems (ICUAS)*. 2024, pp. 652–657