

Nicola De Carli

📍 KTH Royal Institute of Technology, Stockholm, Sweden ✉️ ndc@kth.se 📞 346 035 8860

Research Experience

- Feb 2025 – present **Postdoctoral Researcher with Dimos Dimarogonas**, KTH Royal Institute of Technology, Sweden
- May 2024 – Jan 2025 **Postdoctoral Researcher with Paolo Robuffo Giordano, Marco Tognon**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- June 2022 – Dec 2022 **Visiting Ph.D. Student**, Centro Piaggio, University of Pisa, Italy
- Jan 2021 – Apr 2024 **Ph.D. Student**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Title of the thesis: Active Perception and Localization for Multi-Robot Systems
 - Keywords: Multi-Robot Systems, Active Perception, Localization, Constrained Control
 - Time for the preparation of the thesis: 3 years and 4 months (01 January 2021 - 17 April 2024)
 - Supervisors: Paolo Robuffo Giordano, Paolo Salaris
 - Jury: Dimos Dimarogonas, Eduardo Montijano, Isabelle Fantoni, Fabio Morbidi

Education

- Jan 2021 – Apr 2024 **IRISA-CNRS, Université de Rennes**, Ph.D. in Automation, Production and Robotics Engineering
- Title of the thesis: Active Perception and Localization for Multi-Robot Systems
- Sept 2019 – Aug 2020 **Ecole centrale de Nantes**, MS-Erasmus in Robotics Engineering
- Sept 2018 – Oct 2020 **Università degli Studi di Genova**, MS in Robotics Engineering
- Title of the thesis: Formation Maintenance of Quadrotor Swarms Using Second Order Visual Control
- Sept 2015 – Oct 2018 **Università degli Studi di Genova**, BS in Electronics and Communication Engineering
- Title of the thesis: Implementation of Computer Vision Algorithms on Embedded Systems

Student Supervision

- Jan 2026 – June 2026 **Supervisor**, KTH Royal Institute of Technology, Sweden
- Héctor Adriel Sanvicente Solís, Master Thesis student on "Underwater Game-Theoretic Attacker-Defender"
 - Co-supervised with Emilio Benenati
- Jan 2026 – June 2026 **Supervisor**, KTH Royal Institute of Technology, Sweden
- João Miguel Gonçalves Zenário, Master Thesis student on "Underwater Formation Control With Safety and Visibility Constraints via Adaptive Barrier Lyapunov Functions"
 - Co-supervised with Victor Nan Fernandez-Ayala
- Feb 2025 – present **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Valeria Braglia, Ph.D. Thesis student on "Perception-Aware Cooperative Cable Suspended Transportation"
 - Co-supervised with Marco Tognon and Paolo Robuffo Giordano
- Sept 2024 – present **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Paul Mefflet, Ph.D. Thesis student on "Shared Telemanipulation"

- Co-supervised with Marco Ferro, Claudio Pacchierotti, Marco Aggaravi and Paolo Robuffo Giordano
- Sept 2023 – Feb 2024 **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Riccardo Belletti, Master Thesis student on "Distributed NMPC-based Full-Pose Control of a Cable Suspended Load Using Multiple UAVs"
 - Co-supervised with Marco Tognon
- Feb 2024 – July 2024 **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Emanuele Buzzurro, Master Thesis student on "Distributed NMPC-based Full-Pose Control of a Cable Suspended Load Using Multiple UAVs"
 - Co-supervised with Marco Tognon and Esteban Restrepo
- Mar 2024 – Aug 2024 **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Valeria Braglia, Master Thesis student on "Perception-Aware Cooperative Cable Suspended Transportation"
 - Co-supervised with Marco Tognon and Esteban Restrepo
- Sept 2023 – Feb 2024 **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Francesca Pagano, visiting Ph.D. student on "Active Sensing for Source Seeking with Multi-Robot Systems"
 - Co-supervised with Esteban Restrepo and Paolo Robuffo Giordano
- Sept 2022 – Feb 2023 **Co-supervisor**, IRISA - CNRS, INRIA Rennes - Bretagne Atlantique, France
- Lorenzo Balandi, Master Thesis student on "Persistent Monitoring of Multiple Moving Targets Using High Order Control Barrier Functions"
 - Co-supervised with Paolo Robuffo Giordano

Talks

- June 2025 **2025-IEEE Conference on Decision and Control**
- Title: A Distributed Kalman-like Observer with Dynamic Inversion-Based Correction for Multi-Agent Estimation
- June 2025 **2025-Reglermöte (Swedish Control Conference)**
- Title: A Distributed Kalman-like Observer with Dynamic Inversion-Based Correction for Multi-Agent Estimation
- Dec 2024 **2024-IEEE Conference on Decision and Control**
- Title: Adaptive Observer From Body-Frame Relative Position Measurements for Cooperative Localization
- Oct 2024 **Talk at NYU Tandon School of Engineering**
- Title: Advances in Cooperative Cable-Suspended Transportation: Perception-Aware and Decentralized Control
- Oct 2024 **Talk at KTH Royal Institute of Technology, Division of Decision and Control Systems**
- Title: Advances in Cooperative Cable-Suspended Transportation: Perception-Aware and Decentralized Control
- May 2024 **2024-IEEE International Conference on Robotics and Automation**
- Title: Distributed Control Barrier Functions for Global Connectivity Maintenance
- Dec 2023 **2023-IEEE International Symposium on Multi-Robot and Multi-Agent Systems**
- Title: Multi-Robot Active Sensing for Bearing Formations
- Dec 2022 **Journée GT2 UAV GDR in LS2N, Nantes, France**
- Title: Active Cooperative Localization of Multi-Drone Systems using Distributed Optimization

- Aug 2022 **MRS Summer School, Prague, Czech Republic**
- Title: Active Cooperative Localization of Multi-Drone Systems using Distributed Optimization
- Dec 2021 **Journée GT2 UAV GDR (Online)**
- Title: Online Decentralized Perception-Aware Path Planning for Multi-Robot Systems
- Nov 2021 **2021-IEEE International Symposium on Multi-Robot and Multi-Agent Systems**
- Title: Online Decentralized Perception-Aware Path Planning for Multi-Robot Systems

Other Activities

Associate Editor for IEEE International Conference on Intelligent Robots and Systems (IROS) 2025

Associate Editor for IEEE International Conference on Intelligent Robots and Systems (IROS) 2026

Languages

Languages: English (fluent), French (good), Italian (mother tongue)

Journal Publications

- De Carli, N., Belletti, R., Buzzurro, E., Testa, A., Notarstefano, G., & Tognon, M. (2025). Distributed NMPC for Cooperative Aerial Manipulation of Cable-Suspended Loads. IEEE Robotics and Automation Letters. [Link](#)
- Pagano, F., De Carli, N., Restrepo, E., Marino, A., & Robuffo Giordano, P. (2025). Distributed Multi-robot Active-Sensing of a Diffusive Source. IEEE Robotics and Automation Letters. [Link](#)
- De Carli, N., Dimarogonas, D. V. (2025). A Distributed Kalman-like Observer with Dynamic Inversion-Based Correction for Multi-Agent Estimation. IEEE Control Systems Letters. [Link](#)
- De Carli, N., Restrepo, E., & Robuffo Giordano, P. (2024). Adaptive Observer From Body-Frame Relative Position Measurements for Cooperative Localization. IEEE Control Systems Letters. [Link](#)
- Balandi, L., De Carli, N., & Robuffo Giordano, P. (2023). Persistent Monitoring of Multiple Moving Targets Using High Order Control Barrier Functions. IEEE Robotics and Automation Letters. [Link](#) Video [Link](#)

Conference Publications

- De Carli, N., Salaris, P., & Robuffo Giordano, P. (2024, May). Distributed Control Barrier Functions for Global Connectivity Maintenance. In ICRA 2024-IEEE International Conf on Robotics and Automation (pp. 1-7). [Link](#) Video [Link](#)
- De Carli, N., Salaris, P., & Robuffo Giordano, P. (2023, December). Multi-Robot Active Sensing for Bearing Formations. In 2023 International Symposium on Multi-Robot and Multi-Agent Systems (MRS) (pp. 184-190). IEEE. [Link](#)
- De Carli, N., Salaris, P., & Robuffo Giordano, P. (2021, November). Online Decentralized Perception-Aware Path Planning for Multi-Robot Systems. In MRS 2021-3rd IEEE International Symposium on Multi-Robot and Multi-Agent Systems (pp. 1-9). IEEE. [Link](#)

Under Review

- De Carli, N., Bastianello, N., Dimarogonas, D. V. (2026). ADMM-Based Distributed Kalman-like Observer with Applications to Cooperative Localization. Under review. [Link](#)

Thesis

- De Carli, N. (2024). Active Perception and Localization for Multi-Robot Systems. Ph.D. Thesis, IRISA-CNRS, Université de Rennes, France. [Link](#)