## PERSONAL INFORMATION

# Danilo Menegatti

## SHORT BIO

Danilo Menegatti gratuated with honours from Sapienza University of Rome in 2020 with a M.Sc in Control Engineering and in 2024 with a Ph.D in Automatica. He works as an adjunct professor for the Fondamenti di Automatica I course in the bachelor's program in Information Engineering, and as a research fellow at the Department of Computer, Control and Management Engineering "Antonio Ruberti" and collaborates with the non-profit research consortium CRAT. His main research activities involve intelligent systems, distributed learning and reinforcement learning.

## CURRENT POSITIONS

**Sapienza University of Rome**

### Adjunct Professor

Control of Communication and Energy Networks, Master in Control Engineering

**CRAT**

### Senior Researcher and Project Manager

Work Package Leader in ESA ARIES, Task Leader in HE SHIELD

**AI-CO**

### Researcher

Multi-Agent Intelligent Systems

## TEACHING

### Adjunct Professor

**2025 – Present**

### Control of Communication and Energy Networks

Master in Control Engineering, Sapienza University of Rome. Course code: 1041429, ECTS: 6

**2023 – 2025**

### Fondamenti di Automatica I

Bachelor in Information Engineering, Sapienza University of Rome. Course code: 10596366, ECTS: 3

### Assistant Lecturer

**2023 – Present**

### Intelligent and Hybrid Control

Master in Control Engineering, Sapienza University of Rome. Course code: 10606939, ECTS: 6

– Intelligent Control System design and applications

**2022 – Present**

### Sistemi di Controllo

Bachelor in Computer and Automation Engineering, Sapienza University of Rome. Course code: 1044385, ECTS: 9

– Control theory application to biological systems

**2022 – 2025**

### Fondamenti di Automatica

Bachelor in Ingegneria Clinica, Sapienza University of Rome. Course code: 1015384, ECTS: 9

**2022 – Present** ## Control of Autonomous Multi-Agent Systems

Master in Control Engineering, Sapienza University of Rome. Course code: 1041427, ECTS: 6

– Decentralised Federated Learning
– Consensus-based Federated Learning
– Multi-Agent Reinforcement Learning

**2021 – 2025** ## Control of Communication and Energy Networks

Master in Control Engineering, Sapienza University of Rome. Course code: 1041429, ECTS: 6

– Artificial Intelligence
– Explainable Artificial Intelligence (XAI)
– Federated Learning

## Tutoring

**2023** ## Tutoring Activites

Winner of award allowances for tutoring activities "Bando 6/2022 per il conferimento di n. 121 assegni di vario importo per lo svolgimento di attività di tutorato, didattico-integrative, propedeutiche e di recupero ex-lege n. 170/2003" - Procedura n.6/2022, Prot. n. 1582 del 27/10/2022.

Tutoring activities for the course "Fondamenti di Automatica II", Bachelor in Information Engineering, Sapienza University of Rome. Course code: 10596366, ECTS: 6

**2021 – Present** ## Co-Advisor of Bachelor and Master theses in the fields of Control Systems, Biological Systems, Artificial Intelligence

– 8 Master Theses in Control Engineering, Sapienza University of Rome, Programme Code: 29933
– 2 Master Theses in Biomedical Engineering, Sapienza University of Rome, Programme Code: 33485
– 3 Bachelor Theses and 1 Student Honor Programme in Ingegneria Informatica e Automatica, Sapienza University of Rome, Programme code: 31810
– 28 Bachelor Theses in Ingegneria Clinica, Sapienza University of Rome, Programme code: 30838

**RESEARCH AND WORK EXPERIENCE**

## Research Projects

**2025 - Present** ## Task Leader in the HE SHIELD project

SHIELD - Strategic Health Initiatives for Effective Disease Prevention, Horizon Europe, Grant Agreement ID: 101156751 - Total funding of 6.552.184,10€

– The project aims to prevent cardiovascular diseases and diabetes using AI to provide personalized health interventions based on individual risk levels

– Coordination of the local research unit in the design and development of a federated learning paradigm for privacy-preserving risk prediction algorithms

– Personal research activities related to the design and implementation of a bespoke privacy-preserving federated learning paradigm for seamless training of machine learning models leveraging clinical data

**2024 - Present** — ## Work Package Leader in the ESA ARIES project

ARIES - Advanced multi-Rat Integrated multi-sensors solutions for Emergency prevention, detection and response operationS

- The project aims at developing an AI-based wildfire prevention solution leveraging from satellite and in-situ data

- Coordination of the local research unit in the design and development of an AI-based wildfire risk prediction tool and a wildfire propagation simulator

- Personal research activities related to the design and implementation of a bespoke neural network architecture for short-term wildfire risk prediction and a consensus-based modeling of wildfire propagation leveraging historical and on-line data

**2024** — ## Technical Scientific Consultant

Winner of the work tender "Contributo al perfezionamento delle metodologie di Synthetic Data Generation, Explainable AI e altre metodologie correlate, sviluppate nell'ambito del progetto CADUCEO" - Procedura n.49/2024, Prot. n. 4782 Rep. n. 396 del 30/09/2024

**2023** — ## Technical Scientific Consultant

Winner of the work tender "Contributo al raffinamento del progetto, allo sviluppo e all'implementazione di metodologoie di Synthetic Data Generation, Explainble AI e altre metodologie correlate, nell'ambito del progetto CADUCEO" - Procedura n.39/2023, Prot. n. 2148 Rep. n. 224 del 08/05/2023

**2023 – Present** — ## Researcher in the HE NANCY project

NANCY - aN Artificial iNtelligent aided unified Network for seCure BeYond 5G long term evolution, Horizon Europe, Digital, Industry and Space, Grant Agreement ID: 101096456 - Total funding of 5.999.789,00€

- The project aims at the development of an architecture for Beyond 5G networks (B5G) that enables secure and intelligent resource management, flexible networking, and orchestration through AI and blockchain

- Personal research activities related to the design and implementation of a bespoke semantic communication algorithm for to maximize network resilience and energy efficiency

**2023** — ## Technical Scientific Consultant

Winner of the work tender "Simulazione di algoritmi di federated learning basati sulla teoria del consenso per applicazioni medicali" - Procedura n.53/2022, Prot. n. 4714 Rep. n. 404 del 06/12/2022

**2023** — ## Technical Scientific Consultant

Winner of the work tender "attività di Contributo al progetto di metodologie di Synthetic Data Generation, Explainable AI e altre metodologie correlate, nell'ambito del progetto CADUCEO" - Procedura n.57/2022, Prot. n. 4718 Rep. n. 408 del 06/12/2022

**2022** — ## Technical Scientific Consultant

Winner of the work tender "attività di Contributo alla ricerca di metodologie di Explainable AI e Synthethic Data Generation nell'ambito del progetto CADUCEO" - Procedura n.29/2022, Prot. n. 1789 Rep. n. 188 del 17/05/2022

## 2022 – 2024    Work Package Leader in the PON FESR CADUCEO project

CADUCEO - Cloud plAtform for intelligent prevention and Diagnosis sUpported by artifiCial intelligEnce solutiOns, PON FESR 2014-2020 "Imprese e competitività", settore applicativo "Scienze della Vita", Prog n. F/180025/02/X43, CUP: B89J23000700005 - Total funding of 1.700.000,00€

- – The project aims at the development of a decision support system for the prevention, diagnosis and prognosis of eosinophilic esophagitis, inflammatory bowel disease, portal hypertension

- – Coordination of the work package "OR3 - AI (Artificial Intelligence) Layer", responsible for designing the AI-based decision support system within the AI Layer

- – Personal research activities focused on the design, development, and implementation of Explainable AI, Synthetic Data Generation, Federated Learning, and Continual learning techniques, and bespoke neural networks architectures

## 2022 – 2024    Researcher in the ESA HydRON-hyDEMO project

HydRON Demonstrator System Phase A/B1

- – The project aims at the development of a high-throughput optical network for broadband in space, as part of ESA's ScyLight programme for secure and laser comunication technology

- – Personal research activities focused on the design and development of traffic steering and resource management algorithms for seamless integration of space and ground communications

## 2021    Technical Scientific Consultant

Winner of the work tender "Supporto al progetto e all'implementazione di algoritmi Model Predictive Control in cui il modello del sistema da controllare sia basati sui dati, con riferimento a vari campi applicativi (per esempio, Future Internet/reti 5G, sistemi satellitari, eHealth, trasporti, energia)" - Procedura n.5/Incarico di Lavoro/2021, Prot. n. 674 Rep. n. 63 del 10/03/2021

## 2021 – 2023    Researcher in the POR FESR FedMedAI project

FedMedAI - Elaborazione di dati clinici con metodologie di intelligenza artificiale per strutture sanitarie federate nel rispetto del GDPR, POR FESR Lazio 2014-2020 (Azione 1.2.1), Prot. n. A0375-2020-36491, CUP: B85F21001370008, 23/10/2020 - Total funding of 149.965,20€

- – The project aims to build a distributed learning platform for the development of Artificial Intelligence (AI) systems for biomedical research. The distributed learning aspect will enable a group (or "federation") of healthcare facilities to collaborate in the implementation of AI without clinical data exchange

- – Personal research activities focused on the design and development of distributed learning consensus-based algorithms to enable a GDPR compliant federation collaboration

**2021 – 2023**  Researcher in the Allena-Mente project

A joint action with the pediatric hospital "Bambino Gesù" and the Istituto Superiore di Sanità (ISS) - Total funding of 300.000,00€

– The project aims at the development of a set of serious games tailored for the rehabilitation of pediatric patients with cognitive disorders

– Personal research activities focused on the coordination of the research group for the design and development of the suite of serious games and of the data analytics solutions of the project to enable patient profiling and decision support

## Research Fellowship

**2025**  PostDoctoral Fellowship (Assegno di Ricerca)

winner of the grant "Control and Automation Solutions for Sustainable Ecosystems", Sapienza University of Rome, n. 42/2024, Cat. B, Prot. n. 5523, 31/10/2024

**2024**  PostDoctoral Fellowship (Assegno di Ricerca)

winner of the grant "Design and Development of Decentralised and Data-Driven Control Architectures for Intelligent Systems", Sapienza University of Rome, n. 24/2023, Cat. A, Prot. n. 4764, 19/10/2023

**2022**  Bando per la Ricerca di Ateneo, Progetti Piccoli

winner of the grant "Intelligent Control Systems: Analysis, Design, and Applications", Sapienza University of Rome, D.R.n.1418/2022, Prot. n. 39677, 26/04/2022

**2022**  Bando per la Ricerca di Ateneo, Progetti per Avvio alla Ricerca

winner of the grant "Federated Consensus-Based Networked Systems: Analysis, Design and Applications", Sapienza University of Rome, D.R.n.1418/2022, Prot. n. 39677, 26/04/2022

**2021**  Bando per la Ricerca di Ateneo, Progetti per Avvio alla Ricerca

winner of the grant "DeepMPC: Combining Model Predictive Control with Neural Networks", Sapienza University of Rome, D.R.n.1258/2021, Prot. n. 36805, 07/05/2021

## Other experience

**2023**  Researcher in the third-party (conto terzi) Sapienza Research Project

MERCURIO - SisteMa di monitoraggio intElligente e multipiattafoRma per la siCURezza dell'Infrastruttura ferrOviaria, Fondo per la Crescita Sostenibile, Prog n. F/310291/03/X56, CUP: B79J23001190005 - Total funding of 3.270.919,70€

– The project aims at creating a model of Geospatial Artificial Intelligence (GeoAI) capable of assessing the risk of critical railway infrastructures

– Personal research activities focused on designing and developing a bespoke federated learning algorithm tailored to the technical scenario of the project

**2023 – Present**  Researcher for AI-CO

AI-CO - Automation Intelligence and Control is an innovative start-up from Sapienza University of Rome devoted to empowering progress through intelligence control. Personal research activities aimed at combining AI-based methodologies with classical control techniques

**2023**  **Researcher in the third-party (conto terzi) Sapienza Research Project**

"Design and provision of the CINETELESCOPE Servomechanisms Control Logic", Sapienza University of Rome

– Personal research activities related to the design of the cinetelescope model, including its robotic telescope and moving observatory dome, and its control system tailored for tracking the trajectories of the various launchers used at the Europe's Spaceport located in Kourou

**2023**  **International Students Tutor**

Winner of the work tender "N. 4 incarichi di lavoro autonomo per supporto agli studenti internazionali per favorire l'integrazione nell'ambito del corso di laurea magistrale in Control Engineering" - Procedura n.35/2023, Prot. n. 2152 del 08/05/2023

**2022 – Present**  **Research Joint Venture with Technip Energies N. V.**

Technip Energies N.V. is a leading engineering and technology company for the energy industry and chemical sector. Personal activities related to the research and development of an AI-based solution for the optimization, improvement of safety and of quality of industrial processes

**2022**  **International Students Tutor**

Winner of the work tender "Supporto ai servizi di accoglienza ed integrazione degli studenti internazionali, e eventuale sviluppo di software e applicativi di supporto, per quanto riguarda il CdS di Control Engineering" - Procedura n.45/2022, Prot. n. 3932 Rep. n. 335 del 19/10/2022

**2021 – Present**  **Researcher for CRAT**

Consorzio per la Ricerca nell'Automatica e nelle Telecomunicazioni (CRAT), a no-profit research consortium participated by Sapienza University of Rome, Politecnico di Bari, University of Sannio and the companies Thales Alenia Space Italia and TopNetwork (www.crat.eu)

Personal activities related to:

– Procurement and drafting of several project proposals for Horizon Europe Programme, European Innovation Council, Fondo IPCEI - Importanti Progetti di Comune Interesse Europeo, Piano Nazionale Ripresa e Resilienza (PNRR), Progetti di Rilevante Interesse Nazionale (PRIN), Programma Operativo Nazionale (PON), Programma Operativo Regionale (POR)

– Researcher in several funded projects mainly in the fields of ICT, Personalized Medicine, Space and Industry 4.0

– Team leader, Work-Package leader and task leader and manager in several funded research projects

– Author and Editor of technical projects deliverables detailed at the end of the publication list

**REVIEWER EXPERIENCE**

**2026**  **Automatica**

Publisher: Elsevier, ISSN: 00051098, H-Index: 331

**2026**  **Transportation Research Part E: Logistics and Transportation Review**

Publisher: Elsevier, ISSN: 13665545, H-Index: 156

**2025**  **Expert Systems with Applications**

Publisher: Elsevier, ISSN: 09574174, H-Index: 290

**2025** Journal of the Franklin Institute
Publisher: Elsevier, ISSN: 00160032, H-Index: 106

**2024** Knowledge and Information Systems
Publisher: Springer, ISSN: 02193116, H-Index: 92

**2024** IEEE Robotics and Automation Letters (RA-L)
Publisher: Institute of Electrical and Electronics Engineers, ISSN: 23773766, H-Index: 104

**2024** IEEE Control Systems Letters (L-CSS)
Publisher: Institute of Electrical and Electronics Engineers, ISSN: 24751456, H-Index: 38

**2024** IEEE International Conference on Automation Science and Engineering, CASE 2024

**2024** Journal of Supercomputing
Publisher: Springer, ISSN: 15730484, H-Index: 81

**2023** IEEE Transactions on Network Science and Engineering (TNSE)
Publisher: Institute of Electrical and Electronics Engineers, ISSN: 23274697, H-Index: 53

**2023** European Control Conference, ECC2024

**2023 – Present** IEEE Conference on Decision and Control (CDC)
2023: Proceedings published in IEEE Xplore, DOI: 10.1109/CDC49753.2023

**2022 – Present** American Control Conference (ACC)
2023: Proceedings published in IEEE Xplore, DOI: 10.23919/ACC55779.2023

**2022 – Present** IEEE Transactions on Automation Science and Engineering (T-ASE)
Publisher: Institute of Electrical and Electronics Engineers, ISSN: 15455955, H-Index: 93

**2022 – Present** Electronics Letters
Publisher: John Wiley & Sons Inc., ISSN: 00135194, 1350911X, H-Index: 150

**2022 – Present** Mediterranean Conference on Control and Automation (MED)
2024: Proceedings published in IEEE Xplore, DOI: 10.1109/MED61351.2024
2023: Proceedings published in IEEE Xplore, DOI: 10.1109/MED59994.2023
2022: Proceedings published in IEEE Xplore, DOI: 10.1109/MED54222.2022

**2022** European Conference on Networks and Communications & 6G Summit, 2022 EuCNC & 6G Summit
Proocedings published in IEEE Xplore, DOI: 10.1109/EuCNC/6GSummit54941.2022

**2021 – Present** International Journal of Control, Automation and Systems (IJCAS)
Publisher: Institute of Control, Robotics and Systems, ISSN: 15986446, 20054092, H-Index: 59

2021 – Present | **Control Engineering Practice**
Publisher: Elsevier Ltd., ISSN: 09670661, H-Index: 125

## CONFERENCES

2023 | **Special Session Organizer and Chair**
Special session "Intelligent Systems and Learning methods in Control and Decision Support Systems", **31st Mediterranean Conference on Control and Automation**, MED 2023

## EDUCATION

2020 – 2024 | **PhD in Automatic Control, Bioengineering and Operations Research**
Sapienza University of Rome

Automatic Control curriculum, Supervisor: Antonio Pietrabissa

Thesis titled: "Decentralised Learning for Intelligent Systems", defended on 30/01/2024 achieving the maximum grade **cum laude**

PhD Schools:

– SIDRA 2022 PhD Summer School, Prof. Francesco Bullo, Bertinoro 2022
– European Summer School on Learning in Games, Markets, and Online Decision Making, Sapienza University of Rome, 2021
– SIDRA 2021 PhD Summer School, Prof. Giacomo Como, Fabio Fagnani, Antonio Bicchi, Alessandro De Luca, Bruno Siciliano, Cosimo Della Santina, Stanislao Grazioso, Bertinoro, 2021
– Numerical Methods for Optimal Control, Prof. Mario Zanon, IMT School of Advanced Studies, On-line, 2021
– Model Predictive Control, Prof. Alberto Bemporad, IMT School of Advanced Studies, On-line, 2021
– Learning-Based Predictive Control, Prof. Melanie Zeilinger, Lorenzo Fagiano, Lukas Hewing, ETH Zurich, On-line 2021

2019 – 2020 | **Master of Science in Control Engineering**
Sapienza University of Rome

**110 cum laude/110**

Master completed in 1 year and 175 days (30 Jan 2019 - 22 Jul 2020)

*6 laudes* in single exams

Thesis: "Model Predictive Control for Satellite Formation Flying with Collision Avoidance", Supervisor: Prof. Antonio Pietrabissa

2015 – 2018 | **Bachelor of Science in Ingegneria Clinica**
Sapienza University of Rome

**110 cum laude/110**

Bachelor completed in 3 years (Nov 2015 - Nov 2018)

*10 laudes* in single exams

Thesis: "Electroresponsive Hydrogels for Biomedical Applications"

Original research thesis at Centro di ricerca per le Nanotecnologie applicate all'Ingegneria della Sapienza (CNIS), Supervisor: Prof. Giovanni De Bellis

## SCHOLARSHIPS AND CERTIFICATES

2015 – 2018 | **Bonus Studenti Meritevoli, Sapienza University of Rome**

2014 – 2017 | **Scholarship "Fondazione Centenario", BPER**

2015 | **Albo Nazionale delle Eccellenze, Indire/Miur**

2015　First Certificate, Cambridge English

2013　Grade 8, Graded Examination in Spoken English, Trinity

2013　Grade 4, Graded Examination in Music Performance, Trinity

2011　Corso Interazionale di Musica per Ragazzi, Pollica (SA)

PUBLICATIONS

## Journal and Conference Papers

[1] **Danilo Menegatti**, Giulia Fiscon, Alessandro Giuseppi, Paola Paci, Antonio Pietrabissa. "Neural latent filtering for gene discovery in breast cancer subtypes," **Biotechnology Reports**, Early Access, 2025, doi: 10.1016/j.btre.2025.e00942.

[2] Antonio Di Paola, Arturo Maiani, **Danilo Menegatti**. "A Physics-Informed Neural Networks based method for Interconnection and Damping Assignment Passivity-Based Control," **2025 64nd IEEE Conference on Decision and Control (CDC)**, Brasil, 2025, pp. 2104-2109, doi: 10.1109/CDC57313.2025.11312938.

[3] Alessandro Giuseppi, **Danilo Menegatti**, Antonio Pietrabissa. "Learning symbolic models of dynamical systems through Kolmogorov-Arnold Networks (KANs) in centralized and distributed settings," **Journal of Automation and Intelligence**, Early Access, 2025, doi: 10.1016/j.jai.2025.11.005.

[4] Federico Baldisseri, Mohab MH Atanasious, Valentina Becchetti, Antonio Di Paola, Giada Lops, **Danilo Menegatti**, Andrea Wrona, Saverio Mascolo, Francesco Delli Priscoli. "A Quantitative Comparison of Deep Reinforcement Learning Algorithms for Type 1 Diabetes Control," **2025 11th International Conference on Control, Decision and Information Technologies (CoDIT)**, Croatia, 2025, pp. 1073-1078, doi: 10.1109/CoDIT66093.2025.11321730.

[5] **Danilo Menegatti**, Camilla Bianchi, Filippo Federiconi, and Alessandro Giuseppi. "Dynamic Mode Decomposition (DMD) for Enhanced Epileptic Seizure Prediction from EEG Signals," **2025 11th International Conference on Control, Decision and Information Technologies (CoDIT)**, Croatia, 2025, pp. 1-6, doi: 10.1109/CoDIT66093.2025.11321828.

[6] **Danilo Menegatti**, Francesco Pappalardo, Francesco Luzi. "Control of Steering and Brake Actuators Dynamics in Driverless Vehicles: A Real-World Formula SAE Skid-Test Scenario," **2025 11th International Conference on Control, Decision and Information Technologies (CoDIT)**, Croatia, 2025, pp. 1514-1518, doi: 10.1109/CoDIT66093.2025.11321367.

[7] **Danilo Menegatti**, Francesco Luzi, Francesco Pappalardo, Antonio Pietrabissa, and Alessandro Giuseppi. "Reinforcement Learning for Enhanced Path Tracking in Autonomous Vehicles: A Formula SAE Skid-Test Validation," **2025 11th International Conference on Control, Decision and Information Technologies (CoDIT)**, Croatia, 2025, pp. 1424-1429, doi: 10.1109/CoDIT66093.2025.11321749.

[8] **Danilo Menegatti**, Alessandro Giuseppi, Antonio Pietrabissa. "Semantic-based Dimensionality Reduction in Federated Learning Approaches," **International Conference on Information and Communication Technology for Intelligent Systems**, USA, 2025, pp. 395-405, doi: 10.1007/978-981-95-1361-1_31.

[9] Alessandro Giuseppi, **Danilo Menegatti**, Antonio Pietrabissa. "Consensus-Based Federated Reinforcement Learning for Homogeneous and Heterogeneous Agents," **Machine Intelligence Research**, Vol. 22, Number 5, 2025, doi: 10.1007/s11633-025-1550-8.

[10] Andrea Wrona, Federico Baldisseri, Francesco Liberati, **Danilo Menegatti**, Francesco Delli Priscoli, and Marilena Vendittelli. "A Deep Reinforcement Learning Control Framework for Medical Image Augmentation," **IEEE International Conference on Automation Science and Engineering (CASE) 2025**, USA, 2025, pp. 2915-2920, doi: 10.1109/CASE58245.2025.11163774.

[11] Andrea Wrona, and **Danilo Menegatti**. "Data–Driven Image Resolution and Uplink Power Control for Mobile Augmented Reality Applications," **2025 11th International Conference on Control, Decision and Information Technologies (CoDIT)**, Croatia, 2025, pp. 2469-2474, doi: 10.1109/CoDIT66093.2025.11321564.

[12] **Danilo Menegatti**, Alessandro Giuseppi, and Antonio Pietrabissa. "Tractable Data-Driven Model Predictive Control Using One-Step Neural Networks Predictors," **IEEE Transactions on Automation Science and Engineering**, Early Access, 2024, doi: 10.1109/TASE.2024.3453668.

[13] **Danilo Menegatti**, Alessandro Giuseppi, Cecilia Poli, Antonio Pietrabissa. "Dynamic Topology Optimization for Efficient and Decentralised Federated Learning," **IEEE Big Data 2024**, USA, 2024, pp. 7939-7945, doi: 10.1109/BigData62323.2024.10826142.

[14] **Danilo Menegatti**, Alessandro Giuseppi, Stefano Felli, Emanuele De Santis, Antonio Pietrabissa. "AdaLightLog: Enhancing Application Logs Anomaly Detection via Adaptive Federating Learning," **19th International Conference on Critical Information Infrastructures Security**, Italy, 2024, pp. 289-305, doi: 10.1007/978-3-031-84260-3_17.

[15] **Danilo Menegatti**, Andrea Wrona, and Alessandro Giuseppi. "Deep Reinforcement Learning Platooning Control of Non-Cooperative Autonomous Vehicles in a Mixed Traffic Environment," **2024 IEEE 20th International Conference on Automation Science and Engineering (CASE)**, Italy, 2024, pp. 108-113, doi: 10.1109/CASE59546.2024.10711748.

[16] Federico Baldisseri, **Danilo Menegatti**, and Andrea Wrona. "Deep Deterministic Policy Gradient Control of Type 1 Diabetes," **2024 European Control Conference (ECC)**, Sweden, 2024, pp. 868-873, doi: 10.23919/ECC64448.2024.10591007.

[17] Alessandro Giuseppi, **Danilo Menegatti**, Antonio Pietrabissa. "Identifying Chaotic Dynamics in Noisy Time Series through Multimodal Deep Neural Networks," **Machine Learning: Science and Technology**, Vol. 5, Number 3, 2024, doi: 10.1088/2632-2153/ad7190.

[18] Mohab Mahdy Helmy Atanasious, Valentina Becchetti, Federico Baldisseri, **Danilo Menegatti**, Andrea Wrona. "Deep Reinforcement Learning Control of Type-1 Diabetes with Cross-Patient Generalization," **2024 33rd Mediterranean Conference on Control and Automation (MED)**, Chania - Crete, Greece, 2024, pp. 221-226, doi: 10.1109/MED61351.2024.10566186.

[19] Valentina Becchetti, Mohab Mahdy Helmy Atanasious, **Danilo Menegatti**, Federico Baldisseri, Alessandro Giuseppi. "Dynamic Mode Decomposition for Individualized Model Predictive Control with Application to Type 1 Diabetes," **2024 33rd Mediterranean Conference on Control and Automation (MED)**, Chania - Crete, Greece, 2024, pp. 239-244, doi: 10.1109/MED61351.2024.10566271.

[20] Alessandro Giuseppi, **Danilo Menegatti**, and Antonio Pietrabissa, "Stability of noncooperative load balancing with time-varying latency," **2023 62nd IEEE Conference on Decision and Control (CDC)**, Singapore, 2023, pp. 7445-7450, doi: 10.1109/CDC49753.2023.10383685.

[21] **Danilo Menegatti**, Alessandro Giuseppi, and Antonio Pietrabissa, "Distributed MARL with limited sensing for robot navigation problem," **IFAC-PapersOnLine**, Vol. 56, Issue 2, 2023, pp. 2405-8963, doi: 10.1016/j.ifacol.2023.10.1100.

[22] **Danilo Menegatti**, Sabato Manfredi, Antonio Pietrabissa, Cecilia Poli, and Alessandro Giuseppi, "Hierarchical federated learning for edge intelligence through average consensus," **IFAC-PapersOnLine**, Vol. 56, Issue 2, 2023, pp. 862-868, doi: 10.1016/j.ifacol.2023.10.1673.

[23] Federico Baldisseri, Andrea Wrona, **Danilo Menegatti**, Antonio Pietrabissa, Stefano Battilotti, Claudio Califano, Andrea Cristofaro, Paolo Di Giamberardino, Francisco Facchinei, Laura Palagi, Alessandro Giuseppi, and Francesco Delli Priscoli, "Deep neural network regression to assist non-invasive diagnosis of portal hypertension," **Healthcare** 2023, Vol. 11, 2603, doi: 10.3390/healthcare11182603.

[24] **Danilo Menegatti**, Alessandro Giuseppi, Sabato Manfredi, and Antonio Pietrabissa, "A discrete-time multi-hop consensus protocol for decentralized federated learning" **IEEE Access**, Vol. 11, pp. 80613-80623, 2023, doi: 10.1109/ACCESS.2023.3299443.

[25] **Danilo Menegatti**, Alessandro Giuseppi, Francesco Delli Priscoli, Antonio Pietrabissa, Alessandro Di Giorgio, Federico Baldisseri, Mattia Mattioni, Salvatore Monaco, Leonardo Lanari, Martina Panfili, and Vincenzo Suraci, "CADUCEO: A platform to support federated healthcare facilities through artificial intelligence," **Healthcare** 2023, Vol. 11, 2199, doi: 10.3390/healthcare11152199.

[26] **Danilo Menegatti**, Antonio Pietrabissa, Sabato Manfredi, and Alessandro Giuseppi, "Load demand prediction for electric vehicles smart charging through consensus-based federated learning," **2023 31st Mediterranean Conference on Control and Automation (MED)**, Cyprus, 2023, pp. 500-506, doi: 10.1109/MED59994.2023.10185743.

[27]  **Danilo Menegatti**, Emanuele Ciccarelli, and Michele Viscione.  Vertically-advised federated learning for multi-strategic stock predictions through stochastic attention-based LSTM," **2023 31st Mediterranean Conference on Control and Automation (MED)**, Cyprus, 2023, pp. 521-528, doi: 10.1109/MED59994.2023.10185757.

[28]  **Danilo Menegatti**, Filippo Betello, and Alessandro Giuseppi, "Deep image inpaiting to support endoscopic procedures," **2023 31st Mediterranean Conference on Control and Automation (MED)**, Cyprus, 2023, pp. 507-512, doi: 10.1109/MED59994.2023.10185683.

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## Submitted Journal and Conference Papers

[41] Federico Baldisseri, Andrea Wrona, **Danilo Menegatti**, Francesco Delli Priscoli, Nebojsa Koledin, Riccardo Caponetto, Luca Patane. "Fractional-Order Neural Networks for Data-Driven Model Predictive Control of an Artificial Pancreas," Submitted to **2026 American Control Conference (ACC)**, accepted for publication.

[42] Federico Baldisseri, **Danilo Menegatti**, Arturo Maiani, Alessandro Giuseppi, Antonio Pietrabissa. "Neural MPC for Safety-Critical Biological Systems: an Application to Tumor-Immune Cancer Dynamics," Submitted to **International Journal of Control**, under review.

[43] Federico Baldisseri, Giada Lops, Mohab MH Atanasious, **Danilo Menegatti**, Valentina Becchetti, Francesco Delli Priscoli, Saverio Mascolo, Andrea Wrona. "Safe Deep Reinforcement Learning Control of Type 1 Diabetes," Submitted to **2026 European Control Conference (ECC)**, under review.

[44] Federico Baldisseri, Andrea Wrona, **Danilo Menegatti**. "Probabilistic Safety Bounds for Discrete-Time High Relative Degree Systems with Unknown Dynamics," Submitted to **Automatica**, under review.

## List of the Most Relevant Projects Deliverables

FCS MERCURIO    ### D2 Federated Learning for Critical Railway Protection

Editor and author of the deliverable focused on developing a demonstrator through the creation of bespoke federated learning algorithm tailored for the project scenario of critical infrastructure monitoring

FCS MERCURIO    ### D1 Federated Learning for Critical Railway Protection

Editor and author of the deliverable aimed at evaluating the applicability and design of a federated learning methodology within the AI framework for the monitoring of critical infrastructures

THIRD PARTY    ### Cinetelescope Model and Control

Author of the deliverable aimed at detailing the modeling, control, and technical specifications of the cinetelescope

PON FESR CADUCEO    ### D4.2 Experimental AI Functionalities: demonstrator

Editor and author of the deliverable dedicated to finalizing the project's demonstrator, ensuring the development of all AI Layer functionalities and their seamless integration with the rest of the CADUCEO Framework

PON FESR CADUCEO    ### D4.1 Experimental AI Functionalities: first release

Editor and author of the deliverable aimed at presenting a preliminary version of the project's demonstrator, focusing on the development of the AI Layer functionalities of the CADUCEO Framework

PON FESR CADUCEO    ### D3.3 AI Layer final design

Editor and author of the deliverable that finalizes the design of the AI Layer of the CADUCEO Framework, completing the design of the AI-based methodologies and the interconnections of the functional architectures

| PON FESR CADUCEO | **D3.2 AI Layer intermediate design** |
| --- | --- |
| | Editor and author of the deliverable on the design of AI-based functionalities within the CADUCEO Framework, with a particular emphasis on the underlying methodologies and their interoperability |

| PON FESR CADUCEO | **D3.1 AI Layer functional architecture and methods** |
| --- | --- |
| | Editor and author of the deliverable responsible for designing the functional architecture of the AI Layer within the CADUCEO Framework, with a particular emphasis on the overall Proof-of-Concept |

## PERSONAL SKILLS

**Mother tongue**   Italian

**Other languages**

| | UNDERSTANDING | | SPEAKING | | WRITING |
| --- | --- | --- | --- | --- | --- |
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | C1 | C1 | C1 | C1 | C1 |
| Spanish | B2 | B2 | A2 | A2 | A2 |

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

## DIGITAL SKILLS

– Matlab, Simulink
– Keras, Tensorflow, PyTorch, Python, C
– Excellent knowledge of Windows and Microsoft Office Suite