europass Curriculum vitae

## 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

Fondamenti di Automatica I, Bachelor in Information 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

2023 – Present

#### 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 – Present

#### 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 – Present

### 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

- 6 Master Theses in Control Engineering, Sapienza University of Rome, Programme Code: 29933
- 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

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

2011 – 2014 **Writer for APRILIA EVENTI**

Advertised more than 1k events in and around Rome, 500k+ yearly website views at www.apriliaeventi.blogspot.com

2011 – 2013 **Social Media Manager at @ATMOTORI**

Designed strategies for interacting with followers, like real-time race commentary and quizzes about car parts, then copied by car manufacturers. Reached 3k+ followers in 2013

2008 – Present **Mosaicist**

After learning the job by doing, many collaborations followed. The most distinctive work is "La Leggenda di Danae", at Domus Danae, www.domusdanae.it

## REVIEWER EXPERIENCE

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 The 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

2010 – 2015 **Diploma Scientifico**

Liceo Scientifico Statale Antonio Meucci

**100 cum laude/100**

The only *cum laude* student of the institute

Thesis: "Speed"

## 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**, 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.

[2] **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.

[3] 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.

[4] 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.

[5] 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.

[6] 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.

[7] 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.

[8] **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.

[9] **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.

[10] 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.

[11] **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.

[12] **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.

[13] **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.

[14] **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.

[15] **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.

[16] Federico Baldisseri, Edoardo Montecchiani, Arturo Maiani, **Danilo Menegatti**, Alessandro Giuseppi, Antonio Pietrabissa, Vincenzo Fogliati, and Francesco Delli Priscoli, "Behavioural cloning for serious games in support of pediatric neurorehabilitation," **2023 31st Mediterranean Conference on Control and Automation (MED)**, Cyprus, 2023, pp. 487-492, doi: 10.1109/MED59994.2023.10185734.

[17] **Danilo Menegatti**, Alessandro Giuseppi, Emanuele De Santis, Sabato Manfredi, and Antonio Pietrabissa, "Intelligent Systems and learning methods in control and decision support systems," **2023 31st Mediterranean Conference on Control and Automation (MED)**, Cyprus, 2023.

[18] Alessandro Giuseppi, Leonardo Pio Lo Porto, and **Danilo Menegatti**, "Landslide Susceptability Prediction from Satellite Data through an Intelligent System based on Deep Learning," **2023 31st Mediterranean Conference on Control and Automation (MED)**, Cyprus, 2023, pp. 513-520, doi: 10.1109/MED59994.2023.10185824.

[19] Francesco Sciancalepore, Francesco Fabozzi, Giulia Albino, Giada del Baldo, Valentina di Ruscio, Beatrice Laus, **Danilo Menegatti**, Roberto Premuselli, Domittila Elena Secco, Alberto E. Tozzi, Eleonora Lacorte, Nicola Vanacore, Andrea Carai, Angela Mastronuzzi, and AllenaMente Study Group, "Frequency and characterization of cognitive impairments in patients diagnosed with paediatric Central Nervous System tumours: a systematic review," **Frontiers in Oncology**, Vol. 13, 2023, doi: 10.3389/fonc.2023.1198521.

[20] Alessandro Giuseppi, Sabato Manfredi, **Danilo Menegatti**, Cecilia Poli, and Antonio Pietrabissa, "Decentralised federated learning for hospital networks with application to COVID-19 detection," **IEEE Access**, Vol. 10, pp. 92681-92691, 2022, doi: 10.1109/ACCESS.2022.3202922.

[21] **Danilo Menegatti**, Alessandro Giuseppi, and Antonio Pietrabissa, "Model predictive control for collision-free spacecraft formation with artificial potential functions," **2022 30th Mediterranean Conference on Control and Automation (MED)**, Greece, 2022, pp. 564-570, doi: 10.1109/MED54222.2022.9837252.

[22] Alessandro Giuseppi, Sabato Manfredi, **Danilo Menegatti**, Antonio Pietrabissa, and Cecilia Poli, "Decentralized federated learning for nonintrusive load monitoring in smart energy communities," **2022 30th Mediterranean Conference on Control and Automation (MED)**, Greece, 2022, pp. 312-317, doi: 10.1109/MED54222.2022.9837291.

[23] Alessandro Giuseppi, Lucrezia Della Torre, **Danilo Menegatti**, Francesco Delli Priscoli, Antonio Pietrabissa, and Cecilia Poli, "An adaptive model averaging procedure for federated learning (AdaFed)," **Journal of Advances in Information Technology**, Vol. 13, 2022, doi: 10.12720/jait.13.6.539-548.

[24] Alessandro Giuseppi, Lucrezia Della Torre, **Danilo Menegatti**, and Antonio Pietrabissa, "AdaFed: Performance-based adaptive federated learning," **2021 5th International Conference on Advances in Artificial Intelligence (ICAAI)**, United Kingdom, 2021, pp. 38-43, doi: 10.1145/3505711.3505717.

[25] Federico Baldisseri, Arturo Maiani, Edoardo Montecchiani, Francesco Delli Priscoli, Alessandro Giuseppi, **Danilo Menegatti**, and Vincenzo Fogliati, "An integrated music and artificial intelligence system in support of pediatric neurorehabilitation," **Healthcare** 2022, Vol. 10, 2014, doi: 10.3390/healthcare10102014.

[26] Francesco Sciancalepore, Leonardo Tariciotti, Giulia Remoli, **Danilo Menegatti**, Andrea Carai, Giuseppe Petruzzellis, Kiersten P. Miller, Francesco Delli Priscoli, Alessandro Giuseppi, Roberto Premuselli, Alberto E. Tozzi, Angela Mastronuzzi, Nicola Vanacore, Eleonora Lacorte, and Allena-Mente Study Group, "Computer-based cognitive training in children with primary brain tumours: A systematic review,", **Cancers** 2022, Vol. 14, 3879, doi: 10.3390/cancers14163879.

[27] Angela Mastronuzzi, Domitilla Elena Secco, Beatrice Laus, Andrea Carai, Alberto Tozzi, Roberto Premuselli, Francesco Dellipriscoli, Antonio Pietrabissa, Alessandro Giuseppi, **Danilo Menegatti**, Eloisa Rizzotto, Giacomo Garone, Francesco Sciancalepore, Eleonora Lacorte, Leonardo Tariciotti, Giulia Remoli, Nicola Vanacore, and Umberto Raucci, "Cognitive deficits in childrens with brain tumours: A project to create a software for cognitive training," **Journal of the Neurological Sciences** 2021, Vol. 429, 118451, doi: 10.1016/j.jns.2021.118451.

## Submitted Journal and Conference Papers

[28] Andrea Wrona, and **Danilo Menegatti**. Energy-Efficient Power and Resolution Control for Mobile Augmented Reality Applications: A Reinforcement Learning based approach. To be submitted to **Engineering Applications of Artificial Intelligence**.

[29] Andrea Wrona, Francesco Liberati, **Danilo Menegatti**, Federico Baldisseri, Alessandro Giuseppi, Francesco Delli Priscoli, Roberto Beraldi, Silvia Bonomi, and Marilena Vendittelli. An Intelligent Deep Reinforcement Learning Framework for Medical Image Classification. In **IEEE Journal of Biomedical and Health Informatics**, under review.

[30] Alessandro Giuseppi, **Danilo Menegatti**, Antonio Pietrabissa. Consensus-Based Federated Reinforcement Learning for Homogeneous and Heterogeneous Agents. In **Machine Intelligence Research**, accepted for publication.

[31] Emanuele De Santis, Mohab Mahdy Helmy Atanasious, Valentina Becchetti, Federico Baldisseri, Giuseppi D'Avenio, Arsenio Maria Di Donna, Simone Giannattasio, Alessandro Giuseppi, Mauro Grigioni, **Danilo Menegatti**, Andrea Tortorelli, Silvia Vainieri, Niccolò Zappa, Cecilia Poli, Antonio Pietrabissa. Survey on Federated Learning Algorithms for Biomedical Applications. In **ACM Transactions on Computing for Healthcare**, under review.

[32] **Danilo Menegatti**, Alessandro Giuseppi, Stefano Felli, Emanuele De Santis, Antonio Pietrabissa. AdaLightLog: Enhancing Application Logs Anomaly Detection via Adaptive Federating Learning. In 2024 **19th International Conference on Critical Information Infrastructures Security**, accepted for publication.

[33] **Danilo Menegatti**, Alessandro Giuseppi, Cecilia Poli, Antonio Pietrabissa. Dynamic Topology Optimization for Efficient and Decentralised Federated Learning. Submitted to **IEEE Big Data 2024**, accepted for publication.

[34] Alessandro Giuseppi, **Danilo Menegatti**, Antonio Pietrabissa. Learning Symbolic Models of Dynamical Systems through Kolmogorov-Arnold Networks (KANs) in Centralized and Distributed Settings. Submitted to **IEEE Transactions on Cybernetics**, under review.

[35] **Danilo Menegatti**, Alessandro Giuseppi, Antonio Pietrabissa. Semantic-based Dimensionality Reduction in Federated Learning Approaches. Submitted to **2025 International Joint Conference on Neural Networks**, 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