europass Curriculum vitae

PERSONAL INFORMATION Danilo Menegatti

SHORT BIO

Danilo Menegatti is a Ph.D. student in Automatic Control, Bioengineering and Operations Research at the Department of Computer, Control, and Management Engineering "Antonio Ruberti" (DIAG) of the University of Rome "La Sapienza" where he received his master degree in Control Engineering in 2020. His main research activities involve intelligent systems, distributed learning and reinforcement learning.

EDUCATION

2020 – Present PhD Student in Automatic Control, Bioengineering and Operations Research

La Sapienza, University of Rome

Automatic Control curriculum, Supervisor: Antonio Pietrabissa

PhD Schools:

- SIDRA 2022 PhD Summer School, Prof. Francesco Bullo, Bertinoro 2022;
- European Summer School on Learning in Games, Markets, and Online Decision Making, La 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

La 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

La 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), La Sapienza, Superviros: 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"

RESEARCH AND WORK EXPERIENCE

Research Fellowship

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

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

Research Projects

2022 – Present **Researcher in the HydRON project**

HydRON Demonsrator 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 marzo 2021

2021 – Present **Researcher in the FedMedAI project**

FedMedAI, 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. 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 algorithms to enable a GDPR compliant federation collaboration.

2021 – Present **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 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.

Other experience

2021 – Present

Researcher for CRAT

Consorzio per la Ricerca nell'Automatica e nelle Telecomunicazioni (CRAT), a no-profit research consortium participated by La Sapienza, University of Rome (www.crat.eu)

Personal activities related to procurement and drafting of several project proposals for Horizon Europe Programme, European Innovation Council, IPCEI, PNRR

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

2022

The 30th Mediterranean Conference on Control and Automation, MED2022

2022

European Conference on Networks and Communications & 6G Summit, 2022 EuCNC & 6G Summit

2021 – Present

International Journal of Control, Automation and Systems (IJCAS)

2021 – Present

Control Engineering Practice

TEACHING

Assistant Lecturer

2022

Controlli Automatici

Bachelor in Computer and Automation Engineering, La Sapienza, University of Rome. Course code: 1021946, ECTS: 9

- Control theory application to biological systems

2022

Fondamenti di Automatica

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

2022 – Present

Control of Autonomous Multi-Agent Systems

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

- Decentralised Federated Learning
- Consensus-based Federated Learning

2021 – Present

Control of Communication and Energy Networks

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

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

Tutoring

2021 – Present

Co-Advisor of 13 Bachelor and Master theses in the fields of Control Systems, Biological Systems, Artificial Intelligence

SCHOLARSHIPS AND CERTIFICATES

2015 – 2018 Bonus Studenti Meritevoli, La 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

[1] Sciancalepore, F., Tariciotti, L., Remoli, G., Menegatti, D. & et al. (2022). Computer-based cognitive training in children with primary brain tumours: a systematic review. Under review at Cancers

[2] Giuseppi, A., Manfredi, S., Menegatti, D., & Pietrabissa, A. (2022). Decentralised Federated Learning for Hospital Networks: A COVID-19 case study. Under review at IEEE Access

[3] Menegatti, D., Giuseppi, A., & Pietrabissa, A. (2022). Model Predictive Control for Collision-free Spacecraft Formation with Artificial Potential Functions. Accepted at the 30th Mediterranean Conference on Control and Automation 2022

[4] Giuseppi, A., Manfredi, S., Menegatti, D., Pietrabissa, A., & Poli, C. (2022). Decentralized Federated Learning for Nonintrusive Load Monitoring in Smart Energy Comunities. Accepted at the 30th Mediterranean Conference on Control and Automation 2022

[5] Giuseppi, A., Torre, L. D., Menegatti, D., & Pietrabissa, A. (2021). AdaFed: Performance-based Adaptive Federated Learning. 2021 The 5th International Conference on Advances in Artificial Intelligence (ICAAI). doi:10.1145/3505711.3505717

[6] Angela Mastronuzzi, Domitilla Elena Secco, Beatrice Laus, Andrea Carai, Alberto Tozzi, Roberto Premuselli, Francesco Dellipriscoli, Antonio Pietrabissa, Alessandro Giuseppi, Danilo Menegatti, et al. “Cognitive deficits in childrens with brain tumours: A project to create a software for cognitive training”. In: Journal of the Neurological Sciences 429 (2021), p. 118451

DIGITAL SKILLS

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

PERSONAL DATA

I hereby authorize the use of my personal data in accordance to the GDPR 679/16 - "European regulation on the protection of personal data" and the Italian Legislative Decree no. 196 dated 30/06/2003

Roma, 18/07/2022