MARTA MONACI

🏢 Department of Computer, Control, and Management Engineering Antonio Ruberti (DIAG), Rome, Italy

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EXPERIENCE

Visiting PhD Scholar   Sep 2022 – Mar 2023
Copenhagen Business School, Denmark
Hosted by Professor Dolores Romero Morales

EDUCATION

PhD Program in Automatic Control, Bioengineering and Operations Research   Nov 2020 – ongoing
Sapienza Univerisity of Rome, Italy
Curriculum: Operations Research, Advisor: Prof. Laura Palagi

Research interests: Mixed Integer Programming, Interpretable Machine Learning,
Optimal Decision Trees, Reinforcement Learning applied to optimization problems

MSc in Management Engineering   Oct 2018 – Oct 2020
Sapienza Univerisity of Rome, Italy
Curriculum: Business Intelligence and Analytics

Main subjects: Operations Research, Statistics, Optimization methods for Machine Learning
Derivative-Free and Combinatorial Optimization, Games and Equilibria

Thesis: *Solving Job Shop Scheduling via Deep Reinforcement Learning*
Advisors: Prof. Laura Palagi, Dr. Giorgio Grani (Research Institute Sintef, Oslo, Norway)

Grade: 110/110 cum laude

Erasmus+ Program   Jan 2020 – Jun 2020
University of Strasbourg, France
Faculté des sciences économiques et de gestion (FSEG)

BSc in Management Engineering   Oct 2015 – Oct 2018
Sapienza Univerisity of Rome, Italy
Grade: 110/110

CONFERENCES, WORKSHOPS and PHD SCHOOLS

**NeEDS Workshop On the Latest Advances in Machine Learning
to Deal with Complex Data**   1 Dec 2022
Copenhagen Business School (Copenhagen, Denmark). *Delivered a talk*

Machine Learning NeEDS Mathematical Optimization   5 Oct 2022
Online. *Delivered a talk.*

EUROPT Summer School 2022   1 – 2 Aug 2022
NOVA School of Science and Technology (Caparica, Portugal)
Courses: First Order Optimization Methods, Equilibrium Selection.

19th Workshop on Advances in Continuous Optimization - EUROPT 2022   29 – 30 Jul 2022
NOVA School of Science and Technology (Caparica, Portugal). *Delivered a talk.*

6th AIROYoung Workshop - Operation Research and Data Science in Public Services 23 – 25 Feb 2022
Roma Tre University, Italy. *Delivered a talk.*

ODS 2021 - International Conference on Optimization and Decision Science 14 – 17 Sept 2021
Sapienza Univerisity of Rome, Italy. *Delivered a talk.*
Chair of the session "Machine Learning-based optimization"

EURO 2021 Athens - 31st European conference for Operational Research 11 – 14 Jul 2021
University of West Attica, Athens, Greece. *Delivered a talk.*

AIRO PhD School 2021 and 5th AIROYoung Workshop 8 – 12 Feb 2021
Attended online

ODS 2020 – International Conference on Optimization and Decision Science 19 Nov 2021
Attended online

PUBLICATIONS

Preprints:

1. G. Di Teodoro, M. Monaci, L. Palagi. *Unboxing Tree Ensembles for interpretability: a hierarchical visualization tool and a multivariate optimal re-built tree.* Submitted on Feb 2023.

2. F. D'Onofrio, G. Grani, M. Monaci, L. Palagi. *Margin Optimal Classification Trees.* Submitted on Jan 2023.

3. M. Monaci, V. Agasucci, G. Grani. *An actor-critic algorithm with deep double recurrent agents to solve the job shop scheduling problem.* Submitted on Oct 2021.

Articles on a journal:

1. D'Onofrio, M. Monaci, L. Palagi. *Optimization-based approaches for learning Optimal Classification Trees*, IFORS NEWS, ISSN 2223-4373 - 18:(2023), pp. 5-7.

Technical Reports:

1. C. Coppola, G. Grani, M. Monaci, L. Palagi. *Heuristics for the Traveling Salesperson Problem based on Reinforcement Learning.*

TEACHING ACTIVITIES

Teaching assistant Sep 2022 – Feb 2023
Sapienza University of Rome, Italy
Winner of a working scholarship position at the I3S Department of Engineering
as tutor assistant for the course **Analisi Matematica I**

Teaching assistant Sep 2021 – Feb 2022
Sapienza University of Rome, Italy
Winner of a working scholarship position at the I3S Department of Engineering
as tutor assistant for the course **Complementi di Matematica**

Co-Advisor of a MSc Thesis Mar 2021 – Oct 2021
Sapienza University of Rome, Italy
I had the opportunity to assist in the academic supervision of a MSc thesis titled:
Heuristics for the Traveling Salesperson Problem based on Reinforcement Learning.

SKILLS

Core Competencies	Operations Research, Machine Learning, Data Analysis
Computer skills	Python, R, AMPL, CPLEX, Gurobi, LaTeX, Bizagi, Microsoft Office
Python Libraries	Numpy, Pandas, Pytorch, Scikit-Learn
Languages	English: advanced, Italian: mother tongue

I give the authorization for the treatment of my personal data according to Italian Law D.Lgs. 196/2003 and GDPR Regulation (EU) 2016/679.

Rome, 09/06/2023