

Corrado Coppola

Curriculum Vitae

✉ corrado.coppola@uniroma1.it

Education

Since Nov 2021 **PhD in Operations Research**, *Sapienza University of Rome, Italy*.

Oct 2019 – Oct 2021 **Master's Degree in Management Engineering**, *Sapienza University of Rome, Italy*.

Average grade: 30/30

Final grade: 110/110 cum laude

- Curriculum: Decisional Models for Management Engineering
- Thesis: "*Solving the Travelling Salesperson Problem with three different Reinforcement Learning algorithms*". This thesis includes the development of a Q-Learning and two Actor-Critic algorithms to solve complex combinatorial problems, in particular the TSP, adopting the approach of Deep Reinforcement Learning, a class of methods characterized by the use of Deep Neural Networks as approximators.

Advisors: Prof. Laura Palagi, Dr. Giorgio Grani (Research Institute Sintef, Oslo, Norway), Dr. Marta Monaci (Sapienza University of Rome, Italy)

Oct 2016 – Jul 2019 **Bachelor's Degree in Management Engineering**, *Sapienza University of Rome, Italy*.

Final grade: 110/110 cum laude

- Thesis: Operations Research Project.

The aim of this experimental thesis was to solve a black-box problem for production scheduling using optimization software AMPL and Cplex solver.

Advisor: Dr. Giorgio Grani (Research Institute Sintef, Oslo, Norway)

2010 – 2015 **Classical High School**, *Liceo Ginnasio Statale Torquato Tasso, Rome, Italy*.

Final grade: 100/100

Implementation Projects

- **Master Thesis.** Deep Q-Learning and two Actor-Critic algorithms for TSP using Deep Feedforward Neural Networks (FFNs), Convolutional Neural Networks (CNNs) and Spectral Graph CNNs (Python).
- **Optimization Methods for Machine Learning.** Multilayer Perceptron and Radial Basis Function Neural Networks to solve a regression problem (Python). Support Vector Machines to solve a classification problem (Python).
- **Continuous Optimization.** Implementation of a globally convergent Newton method and of a filled function algorithm for global optimization (Python).
- **Optimization of Complex Systems.** Implementation of a Recursive Quadrative Programming method for constrained optimization (Python).
- **Simulation Project.** Implementation of simulation models in Arena and Simio.
- **Bachelor Thesis.** Implementation of a mixed LP model and of a sampling method (AMPL) to solve a black-box problem with a Python interface.

Other Experiences and Awards

- 2021 **Participation in the Management Engineering Excellence Program** (1st position in the ranking of highest achieving students).
- Course of Algorithmic Trading: implementation of a cointegration algorithm for financial trading
 - Course ‘Algorithms in Science and Technologies’, Superior School of Advanced Studies (SSAS)
 - Advanced Operations Research seminars on railway and air transport optimization
- 2016-2021 **Private Mathematics Tutor** for high school and university students.
- 2016-2019 **Russian Language Courses, MSU, Moscow, Russia.**
- Participation, between July and September, in the educational and cultural program organized by the Russian Language Summer School at the Moscow State University.
- Mar 2019 **Certificate of Proficiency in Russian Language TRKI (C1-C2 European Level)** , *Peoples’ Friendship University of Russia (RUDN), Moscow, Russia.*
- Mar 2019 **Participation in *The Business Game – University Management Competition***

Scientific publications

- Coppola Corrado, Grani Giorgio, Monaci Marta, Palagi Laura, *Heuristics for the Traveling Salesperson Problem based on Reinforcement Learning*, Technical Report n. 04, 2021, Department of Computer, Control and Management Engineering Library, <http://users.diag.uniroma1.it/~biblioteca/it/node/6105>

Computer Skills

Python, AMPL, Cplex, Matlab, Arena, Simio, MySQL, LaTeX, Microsoft Office

Languages

- **Italian:** native speaker.
- **English:** advanced, both written and spoken.
- **Russian:** advanced (certified C1 spoken, C2 written).
- **French:** advanced spoken, intermediate written (two years stay in France).
- **German:** basic spoken and written knowledge (A2 courses attended).