



# Lavinia Amorosi

## Curriculum Vitae

Position Post-doc in Operational Research  
Affiliation Department of Statistical Sciences, University of Rome, Sapienza, P.le Aldo Moro, 5 00185 - Rome, Italy

### Education

- 2018 **PhD (Doctor Europaeus) in Operational Research**, *University of Rome, Sapienza*.  
Grade: Ottimo cum laude.  
Thesis title: "Bi-criteria Network Optimization: Problems and Algorithms".  
Supervisor: Prof. Paolo Dell'Olmo.
- 2014 **MSc in Statistical and Decisional Sciences**, *University of Rome, Sapienza*, Grade: 110/110 cum laude.
- 2012 **BSc in Mathematics**, *University of Rome, Sapienza*, Grade: 110/110.
- 2009 **Clarinet Diploma**, *Istituto Superiore di Studi Musicali, "G.Braga", Teramo*, Grade: 9/10.
- 2007 **Scientific Diploma**, *Liceo Scientifico, "A.Meucci", Ronciglione*, Grade: 100/100.

### Research Interests

Combinatorial Optimization  
Multi-objective Programming  
Network Optimization

### Professional experience

November 2017-March 2018  
Researcher for the H2020 project "Superfluidity" at CNIT (Consorzio nazionale interuniversitario delle telecomunicazioni), University of Rome Tor Vergata

### Participation in exhibitions

February 2017  
1st AIRO Young Workshop, on the theme "Emerging Optimization Problems on Complex Networks", Rome 16-17 February 2017.

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- March 2018 2nd AIRO Young workshop, on the theme "Logistics Optimisation and Applied Operational Research", Cosenza 1-2 March 2018.
- March 2018 IEEE International Conference on Environmental Engineering, Milan 12-14 March 2018.

## Experience in academic teaching

- October 2017- February 2018 Lecturer, course "Operational Research", Faculty of Industrial Engineering, University of Rome, Sapienza.
- March 2017-April 2017 Teaching assistant, "Optimization Lab", Department of Statistical Sciences, University of Rome, Sapienza.
- October 2016-January 2017 Teaching assistant, "Logistic Lab", Department of Statistical Sciences, University of Rome, Sapienza.
- October 2016-January 2017 Teaching assistant, course "Decision Support Models", Department of Statistical Sciences, University of Rome, Sapienza.
- October 2015-January 2016 Teaching assistant, course "Decision Support Models", Department of Statistical Sciences, University of Rome, Sapienza.
- September 2016-March 2017 Co-supervisor, Master Thesis (M. in Statistical and Decisional Sciences) with title "A mathematical programming model for text information generation", Sara Gioffré.
- September 2016-January 2017 Co-supervisor, Master Thesis (M. in Statistical and Decisional Sciences) with title "A mathematical programming model for the management of a 5G network", Stefania Cartolano.
- September 2016-January 2017 Co-supervisor, Master Thesis (M. in Statistical and Decisional Sciences) with title "A model of scheduling for the preventive maintenance of the high speed trains", Francesca Calafiore.
- September 2015-January 2016 Co-supervisor, Master Thesis (M. in Statistical and Decisional Sciences) with title "Experimental analysis for network flow models in telecommunications", Federico Clori.
- September 2015-January 2016 Co-supervisor, Master Thesis (M. in Statistical and Decisional Sciences) with title "Implementation and experimentation of network design models in telecommunications", Tiziano Di Meglio.
- September 2015-January 2016 Co-supervisor, Master Thesis (M. in Statistical and Decisional Sciences) with title "Multi-cut problem: performance analysis in telecommunication networks", Danila Ciufoli.

## Other academic responsibilities

- September 2016 Founder of AIRO Young, the youth chapter of the Italian Operational Research Association (AIRO).

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February 2017 Workshop Organiser, together with Alberto Maria Santini (University of Bologna), of the 1st AIRO Young Workshop, on the theme "Emerging Optimization Problems on Complex Networks", Rome 16-17 February 2017.

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## Research Projects

2016-2019 Member of the PRIN project "Transportation and Logistics Optimization in the Era of Big and Open Data" that studies new optimization frameworks and models for transportation and logistics problems that arise from the technological advances and the data availability. Flexible on-demand transportation systems and car sharing systems are promising directions to reduce the number of cars. Coordinated routing of vehicles can reduce congestion. Carrier collaboration can reduce the number of trucks on road. Many classical logistics problems need to be revisited and new models developed to exploit the new dynamic and detailed dimensions of the information available.

2016-2017 Member of the DIAMETER Awards Project that studies new concepts, architectures and technologies in telecommunication networks by adopting lifetime-aware NDs. Differently from previous works, this project focuses on the joint design (e.g. which NDs to install) and the operation phases (e.g. how to manage power primitives for NDs) of lifetime-aware networks.

2014-2015 Member of the LIFETEL Awards Project that studies the impact of energy-savings mechanisms on the lifetime of telecommunication network devices. The goal of the project is to propose a new approach that targets the maximization of the entire network lifetime, while applying power-saving policies and with guaranteed Quality of Service for users.

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## Scholarships and Exchange Research

2017 3-month Fellowship for Ph.D. research project abroad granted by the University of Rome, Sapienza.

April-June 2017 Visiting/Exchange research at the Institute of Mathematics of the University of Seville (IMUS), Seville (Spain), under the supervision of Prof. Justo Puerto.

2017 Fellowship for Ph.D research project with title "A new approach to determine a complete set of Pareto optimal solutions for the bi-objective Minimum Spanning Tree Problem in Telecommunication Networks", granted by the University of Rome, Sapienza.

February-July 2016 Visiting/Exchange research Management Science Program at the Lancaster University Management School (LUMS), Lancaster (UK), under the supervision of Prof. Matthias Ehrgott.

2015-17 3-year Ph.D. Fellowship won by national competitive written and oral examination and granted by the Italian Ministry for University and Research (MIUR).

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## Courses and PhD schools

January 11-15 2016 NetOpt2016 PhD School on Network Optimization, Estoril.

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- September 28-October 10 2015 CO@Work PhD School on Combinatorial Optimization, Zuse Institute Berlin (ZIB), Berlin.
- June 24-July 3 2015 EURO PhD School on Routing and Logistics, Department of Economics and Management, University of Brescia.
- February 23-25th 2015 CINECA Course "Introduction to Parallel Computing with MPI and OpenMP", CINECA Rome.

## Computer skills

- Programming languages C++, JAVA
- Softwares IBM CPLEX, GUROBI, SCIP, BENSOLVE, MATLAB, SAS
- Operating Systems Windows, Mac OS X, Linux

## Certifications

- November 2014 Certificate "SAS Certified Predictive Modeler using SAS Enterprise Miner", SAS Rome.

## Publications

- Chiaraviglio L., Amorosi L. et al., "Optimal Design of 5G Networks in Rural Zones with UAVs, Optical Rings, Solar Panels and Batteries", IEEE International Conference on Transparent Optical Networks (IEEE ICTON), 2018.
- Amorosi L., Chiaraviglio L et al. "Energy-Efficient Mission Planning of UAVs for 5G Coverage in Rural Zones", IEEE International Conference on Environmental Engineering (IEEE EE), 2018.
- Chiaraviglio L., Amorosi L. et al., "Optimal Management of Reusable Functional Blocks in 5G Superfluid Networks", 2018 (Sottomesso a Wiley International Journal of Network Management).
- Chiaraviglio L., Amorosi L., Cartolano L., Blefari-Melazzi N., Dell'Olmo P., Shojafar M., Salsano S., "Optimal Superfluid Management of 5G Networks", 3rd IEEE Conference on Network Softwarization (IEEE NetSoft), 2017.
- Chiaraviglio L., Amorosi L., Dell'Olmo P., Liu W., Gutierrez J.A., Cianfrani A., Polverini M., Le Rouzic E., Listanti M., "Lifetime-Aware ISP Networks: Optimal Formulation and Solutions", Transactions on Networking, 2017.
- Amorosi L., Dell'Olmo P, Giacco G.L., "A Mathematical Programming Approach for Calendar Generation", Technical Report, DSS Sapienza University of Rome, 2016.
- Amorosi L., Chiaraviglio L., Dell'Olmo P., Listanti M., "Optimal Sustainable Management of Backbone Networks", ICTON 2016 International Conference , July 2016, Trento.

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Chiaraviglio L., Amorosi L., Baiocchi A., Cianfrani A., Cuomo F., Dell'Olmo P., Listanti M., "LIFETEL: Managing the Energy-Lifetime Tradeoff in Telecommunication Networks", Communications Magazine Series on Green Communications and Computing Networks, 2016.

Amorosi L., Chiaraviglio L., Dell'Olmo P., Listanti M., "Sleep to stay alive: Optimizing Reliability in Energy-Efficient Backbone Networks, RONEXT 2015 International Workshop, July 2015, Budapest.

Amorosi L., Dell'Olmo P., Giacco G.L., "A new approach for train calendar description generation", MT-ITS 2015 International Conference, June 2015, Budapest.

Amorosi L., Dell'Olmo P., Giacco G.L., "A New Mixed Integer Linear Programming Formulation For A Maintenance Problem In Italian Railways", CASPT 2015 International Conference, July 2015, Rotterdam.

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## Languages

Italian **Mothertongue**  
English **B2**

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