Curriculum vitae

Andrea Manno Date of birth: 06/12/1985 Dipartimento di Elettronica, Informazione e Bioingegneria Politecnico di Milano Piazza Leonardo da Vinci, 32, 20133 Milano, Italy e-mail: andrea.manno@polimi.it

EDUCATION

2011 - 2014	Ph.D. in Operations Research
	Department of Computer, Control and Management Engineering Antonio Ruberti at
	Sapienza Università di Roma, Italy
	Thesis: "Decomposition algorithms for learning systems"
	Supervisor: Prof. S. Lucidi
	Grade: Excellent
2007 - 2010	M.Sc. in Management Engineering
	Department of Computer, Control and Management Engineering Antonio Ruberti at
	Sapienza Università di Roma, Italy
	Thesis: "Sviluppo di tecniche di ottimizzazione globale per problemi di traiettoria di veicoli spaziali"
	Supervisor: Prof. S. Lucidi
	Grade: 110/110 cum laude
2004 - 2007	B.Sc. in Management Engineering
	Department of Computer, Control and Management Engineering Antonio Ruberti at
	Sapienza Università di Roma, Italy
	Thesis: "Pianificazione della rete postale J+3 con adattamento dell'algoritmo di Clarke and Wright"
	Supervisor: Prof. C. Mannino
	Grade: 106/110
1999 - 2004	Senior high school
	Liceo Scientifico Statale Augusto Righi, Rome, Italy
	Grade: 100/100

LIST OF SELECTED COURSES

- M.Sc. Algoritmi di Ottimizzazione, Algoritmi di Classificazione e Reti Neurali, Ottimizzazione dei Sistemi Complessi, Ottimizzazione Globale, Giochi ed Equilibri, Ottimizzazione per la Gestione dei Progetti, Sistemi di Servizio e Simulazione, Ingegneria del Software, Sistemi Informativi Aziendali, Gestione di Basi di Dati
- B.Sc. Ricerca Operativa, Ottimizzazione, Progetto e Ottimizzazione di Reti, Modelli e Algoritmi per la Logistica, Fondamenti di Informatica, Basi di Dati Tecniche di Programmazione, Progettazione del Software, Calcolatori Elettronici

EMPLOYMENT

Assistant professor Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica, Centro di Eccellenza DEWS, Università degli studi dell'Aquila, Italy
Project ASSIOMI (PON AIM): development of a monitoring systems based on machine learning techniques to detect in advance anomalies and maintenance needs of industrial machinery.
Project NEURAL HEATING NETWORK (as scintific supervisor): development of a Neural Network based Decision Support System to predict the hourly heating energy demand 24 hours ahead for the Brescia city. The project is a collaboration with Politecnico di Milano and one of the main italian energy providers.
Research fellow Title: "Metodi di programmazione mista intera applicati a problemi energetici" Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy
Project PREFLEXMS (H2020): development of an optimization algorithm for the start-up phase of an innovative Concentrated Solar Power plant. In this project the new rqlif derivative-free local algorithm for expensive black-box functions has been devised. The effectiveness of rqlif has been assessed on a set of comparative experiments with some state-of-the-art local solver. Then it has been applied, in combination with a global search method, to the start-up phase optimization of the Concentrated Solar Power Plant, with very promising results. The work performed for this project lead to an article which is under major revision on an international scientific journal (see [10]).
Project EFFICITY: combining robust optimization and machine learning for efficent energy systems for smart urban districts. In this project, exploiting a set of historical energy consumption and wheather data of some building and city district, an Artificial Neural Network, coupled with a smart preprocessing technique, has been used to accurately predict the hourly energy consumption of an hospital and of a university campus. The adopted methodology and the obtained results are reported on a working paper which will be submitted soon to a scientific international journal (see [11]).

	Project NPLs OPTIMIZATION: mixed-integer optimization for portfolio optimization of non performing loans (NPLs) for a major italian bank. In this project specific mixed-integer modelization and algorithmic techinques has been used for the portfolio optimization of NPLs for an italian bank. These techniques has been embedded in an optimization software, currently used by the bank. We are negotiating with the bank the possibility to disseminate the methodology on by submitting a related paper to a scientific international journal.
12/2014 - 11/2015	Research fellow
	Title: "Logistica dei farmaci per un reparto di terapia intensiva"
	Dipartimento di Ingegneria Informatica, University of Florence, Italy
09/2011 - 10/2011	Consultant
	Job description: Algorithm engineer at ACTSolutions s.r.l., Rome, Italy

SCIENTIFIC PUBLICATIONS

- A. Manno, E. Amaldi, F. Casella, E. Martelli (2020). "A local search method for costly black-box problems and its application to CSP plant start-up optimization refinement", *Optimization and Engineering*, 1-36.
- [2] Lampariello, L., Manno, A., Sagratella, S. (2019). "Improving social assistance service for minors and disabled people by using multiobjective programming", A View of Operations Research Applications in Italy, 2018. Springer, Cham. 141-150.
- [3] Manno, A., Palagi, L., Sagratella, S. (2019). "CaseProduction and distribution optimization of beach equipment for the Marinero company", *INFORMS Transactions on Education*.
- [4] Diana, L., Manno, A., Lestuzzi, P. (2019). "Seismic displacement demand prediction in non-linear domain: Optimization of the N2 method", *Earthquake Engineering and Engineering Vibration*, 18(1), 141-158.
- [5] A. Manno, L. Palagi, S. Sagratella (2018). "Parallel decomposition methods for linearly constrained problems subject to simple bound with application to the SVMs training", *Computational Optimization* and Applications, 71(1), 115-145.
- [6] L. Diana, A. Manno, P. Lestuzzi, S. Podestà, C. Luchini (2018). "Impact of displacement demand reliability for seismic vulnerability assessment at an urban scale", *Soil Dynamics and Earthquake Engineering*, 112, 35–52.
- [7] A. Avenali, G. Catalano, T. D'Alfonso, G. Matteucci, A. Manno (2017). "Key cost drivers selection in local public bus transport services through machine learning", WIT Transactions on The Built Environment, 176, 155–166.
- [8] L. Diana, A. Manno, P. Lestuzzi (2017). "Seismic displacement demand prediction in non-linear domain: optimization of the N2 method", to appear in *Earthquake Engineering and Engineering Vibration*.
- [9] A. Manno, S. Sagratella, L. Livi (2016). "A convergent and fully distributable SVMs training algorithm", *Neural Networks (IJCNN)*, 2016 International Joint Conference on, IEEE, p. 3076–3080.
- [10] L. Grippo, A. Manno, M. Sciandrone (2015). "Decomposition techniques for multilayer perceptron training", *IEEE transactions on neural networks and learning systems*, 27(11), 2146–2159.

TEACHING ACTIVITIES

2019/2020 **Lecturer**

Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica, Università degli studi dell'Aquila, Italy Introduzione alla Data Science (in Italian), 4 CFU Level: first level master in Mobile and Web Technologies

2019/2020 Lecturer

Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica, Università degli studi dell'Aquila, Italy Precorso di Matematica (in Italian), 28 hours Level: freshmen B.Sc. in Mathematics and Physics

2017/2018 Adjunct professor

Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy Metodi di Ottimizzazione della Ricerca Operativa (in Italian), 5 CFU Level: B.Sc. in Management Engineering

2015/2016 Adjunct professor

2014/2015 Department of Computer, Control and Management Engineering Antonio Ruberti, Sapienza Università di Roma, Algoritmi di Ottimizzazione (in Italian), 3 CFU Level: M.Sc. in Management Engineering and Ph.D.

2014/2015 Adjunct professor

Department of Computer, Control and Management Engineering Antonio Ruberti, Sapienza Università di Roma, Laboratorio di Ricerca Operativa (in Italian), 3 CFU Level: B.Sc. in Management Engineering

2018/2019 Teaching assistant

- 2017/2018 Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria,
- 2016/2017 Italy
- 2015/2016 Optimization (in English) Level: M.Sc. in Mathematical Engineering and Ph.D.

2018/2019 Teaching Assistant

2016/2017 Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria

Italy Foundations of Operations Research (in English) Level: M.Sc. in Computer Engineering and Ph.D.

2018/2019 Teaching Assistant

2016/2017 Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy Metodi di Ottimizzazione della Ricerca Operativa (in Italian), 5 CFU Level: B.Sc. in Management Engineering

2013/2014 Teaching assistant

Department of Computer, Control and Management Engineering Antonio Ruberti Sapienza Università di Roma, Ottimizzazione dei Sistemi Complessi (in Italian) Level: M.Sc. in Management Engineering

AWARDS

- 2016 Premio Airo: Ricerca Operativa per il sociale
 46th Annual Conference of the Italian Operational Research Society
 "La programmazione multi-obiettivo al servizio del benessere sociale"
- 2015 Ranked 3^{th} at the 8^{th} edition of the Global Trajectories Optimization Competition "Very-Long-Baseline Interferometry"

CONFERENCES AND WORKSHOPS

4–7 Sept. 2017	Optimization and Decision Science International Conference (ODS2017) Sorrento, Italy "A derivative-free local search algorithm for costly optimization problems with black-box functions"
13–16 Sept. 2016	Società Italiana di Matematica Applicata e Industriale (SIMAI) 2016 Milan, Italy "Numerical optimization of the start-up phase of a Concentrated Solar Power plant"
6–9 Sept. 2016	46 th Annual Conference of the Italian Operational Research Society Trieste, Italy "A convergent and fully distributable SVMs training algorithm"
7–10 Sept. 2015	45 th Annual Conference of the Italian Operational Research Society Pisa, Italy "Pharmaceuticals optimization for ICUs"

08–10 July 2015	13 th EUROPT Workshop on Advances in Continuous Optimization Edinburgh, Scotland "Decomposition techniques for multilayer perceptron training"
23–28 June 2014	CIME-EMS Summer School in applied mathematics on Centralized and Distributed Multi-agent Optimization: Models and Algorithms Cetraro, Italy
01–04 July 2013	26^{th} European Conference on Operational Research (EURO) Rome, Italy
26–28 June 2013	11^{th} EUROPT Workshop on Advances in Continuous Optimization Florence, Italy
10–17 June 2013	59 th Workshop on Nonlinear Optimization: a Bridge from Theory to Applications Erice, Italy "A new algorithm for the solution of large-scale singly linearly constrained problems subject to simple bounds"
03–08 Dec. 2012	Scientific Computing using C++ Language at CASPUR Rome, Italy
04–07 Sept. 2012	 43th Annual Conference of the Italian Operational Research Society Vietri sul Mare, Italy "A truncated Newton method for singly linearly-constrained problem subject to simple bounds"

REVIEWING ACTIVITY

Journal	Expert Systems and Applications.
conference proceedings	International conference on Health Care System Engineering

COMPUTER SKILLS

Programming Languages:	C++, Java, Fortran, Matlab, Python
Word processors:	Latex, MS Office, Openoffice
Numerical computing environments:	Matlab, R, Python
Optimization Tools:	AMPL, CPLEX, Gurobi, Baron, SNOPT, Cbc
Simulation Tools:	Arena, Simio
Medical software:	PROSAFE

LANGUAGE SKILLS

Italian Mother tongue English Fluent French Fluent