INFORMAZIONI PERSONALI Mariagrazia Cairo

POSIZIONE RICOPERTA
PhD student in methodological statistics
University of Rome, Sapienza

ESPERIENZA PROFESSIONALE

From November 2023

PhD student in methodological statistics
University of Rome, Sapienza
(From November 2023)

ISTRUZIONE E FORMAZIONE

October 2020 - January 2023

Master Degree in Statistical Sciences
curriculum Data Analyst

University of Rome, Sapienza
Grade: 110/110 cum laude
Supervisor: Prof. Umberto Ferraro Petrillo
Title of the thesis: "A distributed approach to normalization of large-scale single-cell RNA-seq data."
The project of the thesis involved the conception, development and testing in Java using Apache Spark of a distributed normalisation algorithm based on the Psinorm normalisation method implemented by M. Borella, G. Martello et al., in PsiNorm: a scalable normalisation for single-cell RNA-seq data.

September 2017 - July 2020

Bachelor Degree in Mathematics
University of Salento
Grade: 110/110 cum laude
Supervisor: Prof. Anna Maria Cherubini
Title of the thesis: "The mathematics of contagion: mathematical models applied to an infection."
The project of the thesis involved a comparison of the best-known models in the literature for studying and predicting the development of infectious diseases. The study of models was accompanied by a graphical study with the aid of Matlab.

September 2012 - June 2017

Scientific Diploma
Liceo scientifico Cosimo De Giorgi (LE)
Grade: 100/100 e lode

COMPETENZE PERSONALI

Lingua madre Italiano

Altre lingue	COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	B2	B2	B2	B2	B2
	First (B2)				

Livelli: A1/A2: Utente base - B1/B2: Utente intermedio - C1/C2: Utente avanzato
Quadro Comune Europeo di Riferimento delle Lingue

Competenze digitali	AUTOVALUTAZIONE				
	Elaborazione delle informazioni	Comunicazione	Creazione di Contenuti	Sicurezza	Risoluzione di problemi
	Avanzato	Avanzato	Avanzato	Avanzato	Avanzato

Livelli: Utente base - Utente intermedio - Utente avanzato
Competenze digitali - Scheda per l'autovalutazione

C O M P U T E R S K I L L S

' Microsoft Office Package.
' C.
' Java.
' Julia
' R.
' IBM ILOG CPLEX Optimization Studio.
' AMPL.
' Wolfram Mathematica.
' Matlab
' SQL.
' Apache Spark.
' .NET e C#.
' Latex.

Patente di guida	B

P A R T I C I P A T I O N   I N   E X H I B I T I O N S

Participation in exhibitions	' Recent Advances in Multi-Objective Optimization (RAMOO), Rome, September 14, 2023.
	' StaTalk 2023, Rome, September 15, 2023.
	' 8th AIRO Young workshop, "Emerging technologies for decision support systems and innovative optimization paradigm", Rende, 14-16 February 2024.
	' 33rd European Conference on Operational Research (EURO 33rd) Copenhagen, Denmark, June 30 – July 3, 2024.
	' ODS2024, INTERNATIONAL CONFERENCE on OPTIMIZATION and DECISION SCIENCE, Badesi - Sardinia (Italy) September 8th - September 12th - 2024
	' EURO PhD School on Multiple Criteria Decision Making: Methodologies and Applications to the Sustainable Development Goals 4 November - 15 November 2024. (Presentation of a poster)
	' 3rd Workshop of UMI Group Mathematics for Artificial Intelligence and Machine Learning, Bari, 29-31 January 2025
	' 9th AIRO Young workshop, "Emerging technologies for decision support systems and innovative" optimization paradigm, Pavia, 26-28 February 2025.

Visiting research	' Visiting student at Koç University, Istanbul (Turkey) from 7th April to 10th May 2025 under the supervision of professor Serpil Sayin.

Teaching activities	' Tutor for course exercises in Operational Research, University of Rome, Sapienza, February-June 2024.
	' Tutor for course exercises in Operational Research, University of Rome, Sapienza, February-June 2025.

Some academic responsibilities

- Collaborator in the organisation of the RAMOO Workshop 2023, Rome, September 14, 2023 organized by Lavinia Amorosi (University of Rome) and Marianna De Santis (University of Florence).
- Organiser of the XI PhD-Day, at University of Rome, Sapienza, Rome, 6 June 2024.
- Tutor of the master Data Intelligence and Decision Strategies, University of Rome, Sapienza February 2024-February 2025.
- Tutor of the master Data Intelligence and Decision Strategies, University of Rome, Sapienza from February 2025.
- Organiser of the XII PhD-Day, at University of Rome, Sapienza, Rome, 10 June 2025.

Publications

Two-Phase Distributed Algorithm for Solving the Bi-Objective Minimum Spanning Tree Problem: A Preliminary Study, *Amorosi, Lavinia; Cairo, Mariagrazia; Dell'Olmo, Paolo; Di Rocco, Lorenzo; Ferraro Petrillo, Umberto. - (2025). (Conference paper).*

Parallelization Strategies for Bi-Objective Combinatorial Optimization Problems on Graphs, *Amorosi, Lavinia; Cairo, Mariagrazia; Dell'Olmo, Paolo; Ferraro Petrillo, Umberto (Submitted)*

A Branch & Bound Algorithm for Bi-objective Integer Linear Problems based on Lagrangian Relaxation, *Amorosi, Lavinia; Cairo, Mariagrazia; Dell'Olmo, Paolo; Serpil Sayin (In preparation)*

A mathematical optimization approach to clustering dissimilarity data *Amorosi, Lavinia; Cairo, Mariagrazia; Dell'Olmo, Paolo; Maurizio Vichi (In preparation)*

Dati personali

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".