CURRICULUM VITAE

FORMATO EUROPEO/
EUROPEAN FORMAT

INFORMAZIONI PERSONALI
PERSONAL INFORMATION

Nome, Cognome/Name, Surname	**Antonio Sforza**
Indirizzo/Address	████████████
Via, numero civico, c.a.p., città, nazione/ House number, street name, postcode, city, country	████████████
Telefono/Telephone	████████████
Fax	
E-mail	████████████
Sito web/Website	https://www.docenti.unina.it/#!/professor/414e544f4e494f53464f525a415346524e53304432304638333947/avviso/488892
Nazionalità/Nationality	**Italian**
Luogo e data di nascita/ Place and Date of birth	████████████

ESPERIENZA PROFESSIONALE
/WORK EXPERIENCE

In ordine di data /Dates (from – to)

Iniziare con le più recenti ed elencare separatamente ciascun incarico ricoperto/ Add separate entries for each relevant post occupied, starting with the most recent.]

Full Professor of Operations Research from 2003 to 2023
Associate Professor of Operations Research from 1986
Assistant Professor from 1981
Scholarship fellow from 1976
IBM Engineer from 1975

Nome e indirizzo del datore di lavoro / Name and address of employer

University Federico II of Naples

Tipo o settore di attività / Type of business or sector

Education

Funzione o posto occupato / Occupation or position held

Full professor of Operations Research
Department of Electrical Engineering and Information Technology
He holds Optimization and Operations Research courses at the Polytechnic School of University Federico II of Naples.
Teaching, Research and Management

Principali mansion e responsabilità / Main activities and responsibilities

ISTRUZIONE E FORMAZIONE / EDUCATION AND TRAINING

In ordine di data /Dates (from – to)

[Iniziare con le più recenti ed elencare separatamente ciascun corso frequentato con successo/ Add separate entries for each relevant course you have completed, starting with the most recent.]

Engineering School (from 1968 to 1974)

High School (from 1963 to 1968)

Secondary school (1960 to 1963)

Nome e tipo d'istituto di istruzione o formazione / Name and type of organisation providing education and training

Engineering School of University Federico II of Naples

Principali materie e competenze professionali apprese / Principal subjects occupational skills covered

Certificato o diploma ottenuto /Title of qualification awarded

Bachelor Degree in Mechanical Engineering
High School Diploma

ATTIVITA' DI RICERCA / RESEARCH ACTIVITIES

Attuali campi di ricerca / Research sectors

His research activity focuses on combinatorial and network optimization problems (paths, flow equilibrium, design, location, routing), tackled by advanced quantitative methods (continuous and discrete optimization models and heuristic/metaheuristic approaches) and solved solved by developing and/or using prototypal and/or commercial software.

The main application fields of his research activity in the years have concerned management and control of urban and regional systems (traffic signal setting and urban traffic, mobility management and city logistics, planning and management of transportation services), goods and service production and transportation (freight distribution, industrial process optimization in cutting and packing problems, critical infrastructure protection.

His methodological and applicative skills on these themes have been reached through the coordination of national and international research project and research agreements with Companies and Local Government Authority, among others ELASIS – FIAT Research Center in the South (Industrial Wiring Project), Ansaldo ASTS (METRIP Project, Methodological Tools for Railway Infrastructure Protection), City of Napoli (ATENA Project - Environment, traffic, telematics, Naples, Urban Traffic General Plan), ANM (Neapolitan Agency for Mobility, Urban Lines Project), Metropolitan Area of Naples (Vesuvius Area Evacuation Project).

Many of his research themes were applied in the Atena Project for Environment, Traffic, TElematics in Naples, proposed by Elasis/CRF, supported by Italian Ministry for University and Scientific Research and performed by City of Naples, devoted to test a fleet of vehicles with reduced environmental impact and to develop a centre for urban traffic management and control. He played a relevant role in coordinating and managing the project, involving 4 departments of Engineering School and Institute for Research on Engines of CNR.

2

Recenti attività scientifiche/ Recent Scientific Activities.	More recently he is working in the field of Homeland Security and Protection of Critical Infrastructures, that is the infrastructures with high economic or symbolic relevance, whose destruction or interdiction for human or natural causes have significant consequences for the country life. Three problems and related mathematical models appear very interesting to be tackled by efficient decision support systems: critical infrastructure identification, design of a reliable system able to react to interdiction, fortification of a critical system. In this context he has been scientific responsible of an European Project on Railway Infrastructure Protection developed by Ansaldo ASTS. Over the last 15 years he has carried out study and research activities in the field of mathematics teaching and teaching strategies based on problem modeling and solving, with a huge training activity in the field of Logical-Mathematical Learning.
Pubblicazioni/ Books and Articles	He is author of more than 100 publications on books, journals and national and international conference proceedings. He is referee of many international journals. He organized national and international conferences and workshops. He has been member of the Scientific Board of CIRO (Italian Interuniversity Center for Operations Research) and member of the Directory and Scientific Board of AIRO (Italian Operations Research Society). Now he is member of the Editorial Board of the AIRO-Springer Series and coordinator of the AIRO thematic section OPSTeaM (**O**ptimization and **P**roblem **S**olving for **Tea**ching of **M**athematics)

Edited Special Issues

Cerulli R., Sforza A., Vigo D. Special Issue on "Network based system optimization", Networks (Wiley Int. Journal), September 2019.

Sforza A., Sidorov D., Vasiliev I., Special Issue on "Optimization Methods and Their Applications" International Journal of Artificial Intelligence (IJAI). 2019

Edited Books

- Sforza, A., et al. (Eds). Proceedings of ODS2020, Optimization and Decision Science, Virtual Conference, November 2020. AIRO Springer Series.2021

- Sforza, A., Sterle, C. (Eds). Proceedings of ODS2017, Int. Conf. on Optimization and Decision Science: Methodologies and Applications. Sorrento, Italy, September 2017. Springer Proceedings in Mathematics and Statistics (to appear).2018

- Setola, R., Sforza, A., Vittorini, V., Pragliola, C. (Eds). Railway Infrastructure Security. Springer, ISBN 978-3-319-04425-5, 2015.

Recent Articles

-Sforza A., Sterle C., Masone A., Boccia M., Mancuso A., Orabona A. (2023). Teaching Mathematics through Problem Modelling and Solving. Proceeding of ODS2023, International Conference on Optimization and Decision Science. AIRO-Springer Series.

-Boccia, M., Mancuso, A., Masone, A., Messina, F., Sforza, A., & Sterle, C. (2022, August). Optimization for Surgery Department Management: An Application to a Hospital in Naples. In International Conference on Optimization and Decision Science (pp. 291-301). Cham: Springer Nature Switzerland.

-Boccia, M., Masone, A., Orabona, A., Sforza, A., & Sterle, C. (2022). OPS4Math project - Optimization and Problem Solving for Teaching Mathematics: teaching strategy, organization and objectives. Proceedings of HEAD2022, International Conference on Higher Education, Polytechnic University of Valencia, June 2022.

-Esposito Amideo, A., Scaparra, M. P., Sforza, A., & Sterle, C. (2021). An integrated user-system approach for shelter location and evacuation routing. Networks, 78(1), 46-68.

-Boccia. M., Masone, A., Sforza, A., & Sterle, C. (2021). A column-and-row generation approach for the flying sidekick travelling salesman problem. Transportation Research Part C: Emerging Technologies, 124, 102913.

-Boccia, M., Mancuso, A., Masone, A., Sforza, A., & Sterle, C. (2021). A two-echelon truck-and-drone distribution system: Formulation and heuristic approach. In Optimization and Decision Science: ODS, Virtual Conference, November 19, 2020 (pp. 153-163). Springer International Publishing.

-Boccia, M., Masone, A., Sforza, A., & Sterle, C. (2021). An exact approach for a variant of the FS-TSP. Transportation Research Procedia, 52, 51-58.

-Boccia, M., Sforza, A., & Sterle, C. (2020). Simple pattern minimality problems: integer linear programming formulations and covering-based heuristic solving approaches. INFORMS Journal on Computing, 32(4), 1049-1060.

-Archetti, C., Speranza, M. G., Boccia, M., Sforza, A., Sterle, C. (2020). *A branch-and-cut algorithm for the inventory routing problem with pickups and deliveries.* European Journal of Operational Research, 282(3), 886-895.

-Boccia, M., Sforza, A., Sterle, C. (2020). *Simple Pattern Minimality Problems: Integer Linear Programming Formulations and Covering-Based Heuristic Solving Approaches.* Informs Journal on Computing.

-Russo, M., Boccia, M., Sforza, A., Sterle, C. (2020). *Constrained two-dimensional guillotine cutting problem: upper-bound review and categorization.* International Transactions in Operational Research, 27(2), 794-834.

-Andreotti, A., Mottola, F., Pierno, A., Proto, D., Sforza, A., Sterle, C. (2020). *Parametric and statistical investigations of lightning-induced voltages on overhead lines by exact analytical solutions.* Electric Power Systems Research, 178, 106044.

-Nenni, M. E., Sforza, A., Sterle, C.. (2019). *Sustainability-based review of urban freight models.* Soft Computing, 23(9), 2899-2909.

-Masone, A., Nenni, M. E., Sforza, A., Sterle, C.. (2019). *The minimum routing cost tree problem.* Soft Computing, 23(9), 2947-2957.

-Masone, A., Sterle, C., Vasilyev, I., Ushakov, A.. (2019). *A three-stage p-median based exact method for the optimal diversity management problem.* Networks, 74(2), 174-189.

-Masone, A., Sforza, A., Sterle, C., Vasilyev, I.. (2018). *A graph clustering based decomposition approach for large scale p-median problems.* International Journal of Artificial Intelligence, 16(1), 116-129.

-Boccia, M., Crainic, T.G., Sforza, A., Sterle, C.. (2018). *Multi-commodity location-routing: Flow intercepting formulation and branch-and-cut algorithm.* Computers and Operations Research, 89, 94-112.

-Gargiulo, C., Sforza, A., Sterle, C., Zucaro, F.. (2018). *An Optimization Model Fitting the Neighborhood Sustainability Assessment Tools.* Sustainability, 10(10), 3365, 1-16.

-Sterle, C., Sforza, A., Amideo, A. E., Piccolo, C.. (2016). *A unified solving approach for two and three dimensional coverage problems in sensor networks.* Optimization Letters, 10(5), 1101-1123.

-Sterle, C., Sforza, A., Amideo, A. E.. (2016). *Multi-period location of flow intercepting facilities of an intelligent transportation system.* Socio-economic Planning Science, 53, 4-13.

-Francesca De Cillis F., De Muro A., Fiumara F., Setola R. Sforza A. Sterle C. Railway station surveillance system design: a real application of an optimal coverage approach, Lecture Notes in Computer Science.

-Sterle, C., Sforza, A., Esposito Amideo, A.. Multi-period location of flow intercepting portable facilities of an intelligent transportation system. Socio-Economic Planning Sciences, Volume 53, 4-13, 2016.

-Sforza, A. Starita, S., Sterle, C.. Optimal location of security devices. In Railway Infrastructure Security. Setola, R., Sforza, A., Vittorini, V., Pragliola, C. (Eds). Springer, ISBN 978-3-319-04425-5, 2015.

-Marrone, S., Mazzocca, N., Pragliola, C., Sforza, A., Sterle C., Vittorini, V.. The METRIP Tool. In Railway Infrastructure Security. Setola, R., Sforza, A., Vittorini, V., Pragliola, C. (Eds). Springer, ISBN 978-3-319-04425-5, 2015.

-Borrelli, A., Murolo, F., Sforza, A., Sterle, C.. Cumana and Circumflegrea railway lines: a circle network in the western area of Naples. In Railway Infrastructure Security. Setola, R., Sforza, A., Vittorini, V., Pragliola, C. (Eds). Springer, ISBN 978-3-319-04425-5, 2015.

-Russo, M., Sforza, A., Sterle, C.. An exact dynamic programming algorithm for large-scale unconstrained two-dimensional guillotine cutting problems. Computers and Operations Research, 50, 97-114, 2014.

-Russo M., Sforza A., Sterle C. (2013). An improvement of the knapsack function based algorithm of Gilmore and Gomory for the unconstrained two-dimensional guillotine cutting problem. International Journal of Production Economics, 145, 2, 451 – 462. 2013

-De Cillis F., Sforza A., Sterle C. (2013). Optimal location of flow intercepting facilities to improve security in urban areas. International Journal of System of Systems Engineering, 4, 3-4, 222 – 242, 2013.

-Sforza A., Sterle C., D'Amore P., Tedesco A., De Cillis F., Setola R. (2013). Optimization Models in a Smart Tool for the Railway Infrastructure Protection. Lecture Notes in Computer Science. LNCS 8328, 2013.

-Boccia M., Crainic T.G., Sforza A., Sterle C. (2010). A Metaheuristic for a Two Echelon Location-Routing Problem. Proceedings of SEA2010, Lecture Notes in Computer Science, Springer, pp 288-301, 2011.

-Boccia M., di Muro S., Mosca F., Sforza A., Sterle C. (2011). A fast heuristic for a three-dimensional non-convex domain loading problem. 4OR A Quarterly Journal of Operations Research, Springer, 9, 1, 83-101, 2011.

-Avella, P., Boccia, M., Sforza, A., Vasilyev, I. (2009). An effective heuristic for large-scale capacitated facility location problems. Journal of Heuristics, Volume 15, Issue 6, December 2009, Pages 597-615, 2009.

4

-Boccia M., Sforza A., Sterle C. (2009). Flow intercepting facility location: problems, models and heuristics. Journal of Mathematical Modelling and Algorithms Vol.8, pp. 35- 79, 2009.
- Boccia M., Sforza A., Sterle C., Vasil'ev I. (2008). A Cut and Branch Approach for the Capacitated p-Median Problem based on Fenchel Cutting Planes". Journal of Mathematical Modelling And Algorithms Vol.7, pp.43- 58, 2008.

Pubblicazioni/ Books and Articles	**Conference papers**

Conference papers
- Llorca, J., Sterle, C., Tulino, A.M., Choi, N., Sforza, A., Amideo, A.E.. Joint content-resource allocation in software defined virtual CDNs. 2015 IEEE International Conference on Communication Workshop, ICCW 2015, 1839-1844, 2015.

ULTERIORI INFORMAZIONI / ADDITIONAL INFORMATION

Research activity abroad

- June 1984 - **Visiting Researcher** at C.R.T. (Centre de Recherche sur les Transports), Université de Montréal.
- June 1984 - **Visiting Researcher** at Department of Civil Engineering, University of Lowell, Boston Massachusetts.
- November 1990 - **Visiting Professor** at Institute for Systems Studies, USSR Academy of Sciences, Moscow.
- July 2010 – **Visiting professor** presso CIRRELT – Universitè de Montreal.
- May 2011 – **Visiting professor** -Business School – Kent University at Canterbury.
- September 2012–**Visiting professor** -Business School–Kent University at Canterbury.
- May 2013–**Visiting professor** -Business School – University of Kent at Canterbury.

Invited seminars (most recent ones)
- From 2011 to 2024. "Optimization Methods for Critical Infrastructure Protection". Master in Homeland Security, UniCampus of Rome, Italy.
- 2015. "Optimal device placement in wireless sensor network". CIPRNet, Critical Infrastructure Preparadness and Resilience Research Network, University Campus Biomedico of Rome, Italy.
- 2013 "Mobility, City Logistics and Security In Smart Cities". University of Cagliari, Italy.
- 2012 "Optimization Models and Methods for CIP". PON01_01687, SINTESYS, Security and INTElligence SYStem, CeRICTscrl, Naples, Italy.
- 2010 "Network models for CIP. IASI-CNR, Rome, Italy.
- 2010 "An introduction to critical Infrastructure protection: problems and models. CIRRELT, University of Montreal".

Organization of International Conferences and Workshops
- Program Committee Chair of ODS2017, International Conference on Optimization and Decision Science, Hilton Conference Center - September 4th – 7th 2017.
- Chairman of Interim and Final Workshops of METRIP Project (Methodological Tools for Railway Infrastructure Protection), University Federico II of Naples (2013).
- Chairman of AIRO2008, AIRO99 and AIRO90, Annual Conferences of Italian Operations Research Society.
- Chairman of PRIN2003 Workshop on "Infomobility and Telematics", Naples October 2004.

Roles in the Operations Research and Scientific Community
- Member of Scientific AIRO Board (Italian Operations Research Society) from 2016
- Member of CIRO Board (Italian Interuniversity Center of Operational Research) from 2011 - 2015
- Member of Board of the PhD Course in Information Technology and Electrical Engineering at University of Naples "Federico II".
- Scientific Responsible of OPSLab (Optimization and Problem Solving Laboratory) at Department of Information Technology and Electrical Engineering, University Federico II of Naples
- Member of the University Work Team "Federico II in the School".

ULTERIORI INFORMAZIONI / ADDITIONAL INFORMATION	**Scientific contacts or cooperations:** • Politecnico di Milano, Gruppo di Ricerca Operativa, presso Dip. INDACO. • Università di Camerino, Dipartimento di Matematica. • IASI – CNR , Laboratorio di Analisi dei Sistemi e Informatica, Roma. • Institute of System Dynamics and Control Theory, Siberian Branch of Russian Academy of Sciences, Irkutsk, Russia. • ITS Lab, Intelligent Transportation System Laboratory, Montreal. • CIRRELT, Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation. • Department of Computer Science and Operational Research, Montreal. • Università del Sannio, Dipartimento di Ingegneria. • ELASIS - CRF, Centro Studi FIAT, Pomigliano d'Arco. • UNIPLAN Software. • LOGICA Agenzia per la Logistica in Campania. • ANSALDO STS. • City of Naples • NITEL, Consorzio Nazionale Interuniversitario per i Trasporti e la Logistica • KBS, Kent Business School, Management Science Group, University of Kent-Canterbury, England. • DIMEG, Department of mechanical, energy and management engineering, University of Calabria • Dept. of Mathematics and Information Technology, University of Cagliari

Didactical Activity

He teached Operations Research and Optimization at University Federico II of Naples

As Substitute Teacher
As Full Professor from 2003 to 2020
As Associate Professor from 1991 to 2002
He teached Operations Research and Optimization at University of Salerno
As Associate professor from 1987 to 1990
He teached Operations Research and Optimization at University of Sannio in Benevento
As Substitute Teacher from 1991 to 1995

TRATTAMENTO DEI DATI PERSONALI, INFORMATIVA E CONSENSO	Il D.Lgs 30/06/2003, n. 196 "*Codice in materia di protezione dei dati personali*" regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento. La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati. (*barrare la casella*) ☒ Si, acconsento Autorizzo il trattamento dei miei dati personali presenti nel cv ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali" e del GDPR (Regolamento UE 2016/679). Data, 28/3/2025 Il sottoscritto Antonio Sforza nato a Napoli il 20/4/1950 e residente in Napoli alla p.zza Gesù e Maria 3, ai sensi degli artt. 46 e 47 del D.P.R. 445/2000 s.m.i., consapevole delle sanzioni penali nelle quali potrebbe incorrere ai sensi dell'Art. 76 del medesimo decreto in caso di dichiarazioni mendaci, dichiara che quanto riportato nel presente curriculum corrisponde al vero. Data, 28/3/2025