

Giovanni Felici

Curriculum Vitae

Istituto di Analisi dei Sistemi ed Informatica *A. Ruberti*
Consiglio Nazionale delle Ricerche, Via dei Taurini 19, 00185, Roma
Telephone [REDACTED]
Email [REDACTED]

Fields of Expertise: Operations Research, Data Science, Statistics, Artificial Intelligence, Bioinformatics, Logistics, Transportation.

Education and Training

- 1991 Nov – 1995 Feb: **Ph.D. in Operations Research**. University of Rome “La Sapienza” (Rome, IT). 1995 Sept - 1996 Aug: **Ph.D. courses in Computer Science**. Computer Science Department, University of Texas at Dallas (Dallas, TX, USA). Course work: Efficient Logic Computation; Expert Systems; Neural Networks and Artificial Intelligence; Data Structures and Algorithms; Laboratory of Artificial Intelligence; Telecommunication Networks Design.
- 1989 September – 1990 July: **Master of Science in Operations Research and Operations Management**. University of Lancaster (Lancaster, UK). Course work: Optimization Techniques I, II & III; Computing I & II; Statistics I, II & III; Health & Social Services; Marketing; Distribution.
- 1985-1990: **Graduate Degree (Doctor) in Statistics**, 110/110 *cum laude*. University of Rome “La Sapienza” (Rome, IT). Course work in Statistics with specialization in Operations Research and Data Analysis.

Honors and Awards

- Selected in the ERCEA reserve list in ERCEA/TA/164/2018 **Research Programme Agent** on Mathematics and/or Statistics AD6 (March 2019);
- Selected as **Seconded National Expert** for the European Research Council Executive Agency (ERCEA) in the reserve lists for Research Programme Experts and Policy Experts (October 2015);
- National **Habilitation as Full Professor** in the Italian public universities system for the MAT/09 Cluster – Operations Research (since October 2014);
- Winner of the Best Technical Presentation award at the AGIFORS (Airline Group of the International Federation of Operations Research Societies) conference on Operational Control and Ground Resources. Istanbul, Turkey, 18-21 April 1999;
- Winner of the Best Technical Presentation award at the AGIFORS 1999 Symposium. New Orleans, USA, 3-8 October 1999;
- Winner of a 3-year scholarship for the Doctoral Program in Operations Research, University of Rome “La Sapienza” (Rome, IT) 1991;l
- Winner of a 1-year Erasmus European scholarship to attend the Master of Science in Operations Research at the University of Lancaster (Lancaster, UK) 1989-1990.

Positions

- 2022, May – **Director** of Istituto di Analisi dei Sistemi ed Informatica “A. Ruberti” (IASI), Consiglio Nazionale delle Ricerche (Italian National Research Council, CNR). Rome, IT;

- 2016, Nov – 2022, April: **Scientific Project Adviser**, European Research Council Executive Agency (ERCEA), Bruxelles, BE (*current secondment to last until November 2022*)

I cover the position of Scientific Project Adviser for Panel PE1 (mathematics) and PE6 (Computer Science and Informatics); main activities within the position are:

- Managing the procedures for the selection and the funding of research proposals within the pillar “Excellence Science” of Horizon 2020 and Horizon Europe framework programmes;
 - Administration of Starting, Consolidator and Advanced ERC calls: eligibility checks, preparation of calls, management of the evaluation Panel, assignment of proposals to reviewers, organization of evaluation meetings, communication with external experts;
 - Follow-up and monitoring of funded projects;
 - Implementation of administrative solutions taking into account operational aspects, analysis of structured information, and presentation of the activities of the Agencies at international scientific events. Application of Operations Research models for the assignment of panel reviewers;
 - Activities in the SBP (*Science Behind the Project*) task force of ERC: classification of proposals and funded projects with a dynamic ontology of scientific terms, analysis of the scientific trends, of the main connections between disciplines and their temporal evolution. Design and production of report factsheets on ERC funding activities;
 - During my stay in ERCEA I have enrolled in several EU trainings (among which administrative tools used in the commission, oral communication and impact writing, team leadership, resilience, French language);
 - In 2019 I was the ERCEA representative in the *RTD AI Matrix Task Force*, constituted to provide R&I investment policy recommendation for Artificial Intelligence;
- 2020 October – current: consultant for **DG-RTD** - Directorate-General for Research and Innovation of the European Commission.
The collaboration was part of a job-shadowing activity between ERCEA and DG-RTD. Consultancy is provided to *Unity RTD-G2 Academic R&I and Research Organisations* and is related to the re-definition of skills of researchers within the new *Agenda for the new European Research Area* and *Pact for Skills* promoted by the European Commission. The activity of the work group, composed of members of DG-EMPL, DG-GROW, Joint Research Center (JRC), comprises the coordination of a group of external experts and is finalized to the production of the new Competence Framework for Researchers and of a new set of transversal skills associated with research profession with the classification of European Skills and Competences (ESCO) and the *Researchers in Motion* pan-European initiative (EURAXESS).
 - 2020 Jan – Present: **Tenured Senior Researcher (Dirigente di Ricerca)**. Istituto di Analisi dei Sistemi ed Informatica “A. Ruberti” (IASI), Consiglio Nazionale delle Ricerche (Italian National Research Council, CNR). Rome, IT;
 - 2007 Jan – 2019-December: **Tenured Senior Researcher (Primo Ricercatore)**. Istituto di Analisi dei Sistemi ed Informatica “A. Ruberti” (IASI), Consiglio Nazionale delle Ricerche (Italian National Research Council, CNR). Rome, IT;
 - 2000 Jan – 2006 Dec: **Tenured Researcher (Ricercatore)**. Istituto di Analisi dei Sistemi ed Informatica “A. Ruberti” (IASI), Consiglio Nazionale delle Ricerche (Italian National Research Council, CNR). Rome, IT;

During my career in IASI I performed and conducted research on methods and applications of Operations Research, Mathematical Integer Programming, Logic Programming, Artificial Intelligence, Machine Learning and Bioinformatics. Main activities:

- In 2001, I led a IASI-CNR scientific team funded by the Italian Ministry of Industry for the design and implementation of a thematic web search engines;

- From 2005 to 2015, I have been the head of the research line “Data Mining, Estimation and System Identification” for the ICT Department of CNR – which comprises basic and applied research on data mining, optimization, complex production processes and knowledge transfer to private businesses;
- In 2006, I led a IASI-CNR scientific team funded by the Italian Ministry of Industry to work on the development of a control system for marine surface transmission;
- In 2008, I participated to a privately funded research project to enhance the optimization software used by European car rental companies;
- Since 2007, I have collaborated with several biomedical and bioengineering groups (e.g., the European Brain Research Institute, the University of Milano Bicocca, the Barcode of Life Consortium) applying logic data mining algorithms to large genomic datasets;
- Since 2011, I have been part of the Nanomax, Interomics and Epigenomics flagship projects of CNR, and of the Computational Biology European Infrastructure Sysbio;
- From 2010 to 2012, I participated to a bilateral research project between the Italian CNR and the Polish Academy of Science for the development of new bioinformatics algorithms;
- In 2012-2013, I was part of a cooperation research project between CNR and the Brazilian CNPq for the development of probabilistic algorithms for integer programming problems;
- Starting in 2013, I have also been the IASI scientific manager for several publicly funded projects, including: a PRIN-MIUR 2012 project with the University of Tor Vergata (Rome) on mathematical models for HIV diffusion; the CNR Premiale project ICT on sustainable mobility; the MIUR Premiale project MATHTECH on mathematics for society and technological innovation; the National Technological Cluster Torino Wireless project on intelligent and sustainable mobility; the NADINE project within the NANOMAX flagship award for the identification of genetic biomarkers of neurological diseases; the PRIN-MIUR 2015 SPORT on smart port logistics;
- In 2014, I was awarded a CNR mobility grant to conduct joint research with CSIRO (Commonwealth Scientific and Industrial Research Organisation) in Melbourne, Australia;
- In 2015, I took the lead of the IASI workgroup within the ENPADASI (European Nutrition Phenotype Assessment and Data Sharing Initiative) Joint EC program;
- 1997 May – 1999 Dec: **Researcher**, Progetto Finalizzato Trasporti II. Istituto di Analisi dei Sistemi ed Informatica “A. Ruberti” (IASI), Consiglio Nazionale delle Ricerche, Rome, IT; Research on urban traffic control, logic programming and airline ground staff rostering. From 1997 to 1999, I was a member of the IV Framework Programme EC project HCHLOUSO on the optimization of hydrocarbon products distribution (with Agip Petroli, Cambridge Univ. and Iberdrola and Dash Associates). From 1998 to 1999, I collaborated with the Alitalia Operations Research group for solving crew management problems and training Alitalia staff members with mathematical programming;
- 1994 Jul – 1997 Apr: **Researcher**, Centro Studi sui Sistemi di Trasporto (CSST), FIAT. Rome, IT. Research on decentralized traffic control systems implemented through logic programming. The work concerned control algorithms, graphic simulation of traffic and logic programming conjunction with the Progetto Finalizzato Trasporti II of CNR (see above) and the Computer Science Department of the University of Texas at Dallas (see Education and Training).

Selected Consulting and Scientific Activities for Public Entities and Private Companies

Throughout my career, I carried out a number of consulting activities with public entities and private companies. These activities leveraged my expertise in tasks that required the application of advanced multivariate statistics, data mining and operations research techniques.

- Development of a database system and statistical models for analyzing data on counterfeiting activities for the Italian Ministry of Economic Development (MISE) - Italian Office for Patents and Trademarks (2009-2013);
- Development of mathematical optimization models for energy production and distribution, with Quantek S.r.l. (2012-2015);
- Design and deployment of data mining algorithms and monitoring systems for the CRISS (Campania region road authority), with Net Engineering (2009);
- Design and deployment of data mining algorithms for customer relation management for Bulgari S.p.A., with Crisma S.r.l. (2008);
- Design and deployment of gravitational models for forecasting traffic demand in Italian airports for the Italian Ministry of Transportation, with PE Group (2008);
- Design of discrete choice models for customer satisfaction for the Leonardo Da Vinci Airport, with the Department of Statistics and Probability of the University of Rome “La Sapienza” (2007);
- Scientific Advisor for Crisma S.r.L., private consultancy firm: design and development of mathematical programming models for workforce scheduling in Poste Italiane (2007);
- Consultant for Department of Statistics, University of Rome “La Sapienza”: management of work group for the Customer Satisfaction Survey on Aeroporti di Roma users (2006); design and implementation of a model for the generation of delay events for the railroad traffic simulator of Trenitalia SpA (2005-2006);
- Consultant for AgipPetroli, ENI: design, implementation and test of an optimization model based on mixed-integer programming for the distribution of oil via tanker ships (2001-2002);
- Consultant for Department of Technical Physics, University of Rome “La Sapienza”: design, implementation and test of an expert system for the evaluation of national building heritage (2002);
- Consultant for TecnoSystem, private consultancy firm: design, implementation and test of logic control system for a signalized intersection in Afragola – within the Urban Mobility project of Napoli - Athena (1999);
- Consultant for IZI, Metodi Analisi e Valutazioni Economiche, private consultancy firm: design and implementation of a statistical model for the forecasting of vehicular and rail traffic flows over the Messina Strait within the Cost-Benefit Analysis for the realization of the bridge over the Strait.

Selected Teaching and Training Activities for Universities, Public Entities and Private Companies

I accrued a substantial teaching and training record in areas with strong application potential, such as mathematical programming, multivariate statistics, machine learning and data mining. This record was developed in different environments, including Italian and US universities, public institutions and private firms – and provided me with broad experience and skills in interacting with both individuals in academia and professionals.

Mentor or Co-Mentor for Masters, Doctoral and Post-doctoral students

- Paolo Impelluso, 2001-2002, Graduate Dissertation. *Integrazione di ottimizzazione e simulazione per la gestione di un centro trasfusione*. Laurea in Scienze Statistiche, Università di Roma "La Sapienza" (Mentor)
- Roberta Marigliani, 2002-2003, Graduate Dissertation. *Strategie di ricerca sul web*. Laurea in Scienze Statistiche, Università di Roma "La Sapienza" (Mentor)
- Carmen Furno, 2007, Masters project. *Applicazione e tecniche di data mining nel settore sanitario*. Master Degree in Data Intelligence and Decision Strategies, Università di Roma "La Sapienza" (Mentor)
- Maria Antonietta Laria, 2007, Masters project. *Consumi domestici alimentari. Tendenze in atto*. Master Degree in Data Intelligence and Decision Strategies, Università di Roma "La Sapienza" (Mentor)
- Andrea Chiarello, 2007, Masters project. *Analisi degli effetti sulla mobilità dell'introduzione del Ecopass nel centro di Milano attraverso l'utilizzo di dati Handover CGS*. Master Degree in Data Intelligence and Decision Strategies, Università di Roma "La Sapienza".
- Mariagrazia Mecoli, 2006-2009, Ph.D. Dissertation. *Assignment problems, data analysis and classification in big data sets*. Università di Roma "La Sapienza" (Mentor)
- Chiara Giannoni, 2009-2010, Graduate Dissertation. *Un'applicazione sperimentale di un sistema di car pooling per la mobilità degli studenti della Sapienza*. Laurea in Ingegneria dell'Informazione, Informatica e Statistica, Università di Roma "La Sapienza" (Mentor)
- Michela di Lullo, 2009-2010, Graduate Dissertation. *Un'applicazione sperimentale di un sistema di car pooling per la mobilità degli studenti della Sapienza*. Laurea in Ingegneria dell'Informazione, Informatica e Statistica, Università di Roma "La Sapienza" (Mentor)
- Cecilia Natalini, 2010-2011, Graduate Dissertation. *Segmentazione della clientela in un istituto di credito: il caso BNL*. Laurea in Ingegneria dell'Informazione, Informatica e Statistica, Università di Roma "La Sapienza" (Mentor)
- Eleonora Polidoro, 2013, Graduate Dissertation. *Impiego di strumenti di data mining per la classificazione di specie animali tramite DNA Barcoding*. Laurea in Ingegneria dell'Informazione, Informatica e Statistica, Università di Roma "La Sapienza" (co-Mentor)
- Ralevic Natasa, 2013, Masters project. *Modello di propensione del prodotto prestito*. Master Degree in Data Intelligence and Decision Strategies, Università di Roma La Sapienza.
- Emanuel Weitschek, 2010-2013, Ph.D. Dissertation. *Data analysis and classification in big data sets*, Università di Roma III (co-Mentor)
- Arianna Naimo, 2010-2013, Ph.D. Dissertation. *Models and algorithms for the efficient operation and planning of energy production systems*, Università di Roma III (Mentor)
- Giulia Fiscon, 2012-2015, Ph.D. Dissertation. *Bioinformatics algorithms for knowledge extraction in biomedical data*. Università di Roma "La Sapienza" (co-Mentor)
- Cristina de Cola, 2010-2013, Ph.D. Dissertation. *Data analysis and classification in big data sets*, Università di Roma III (co-Mentor)
- Valentina Fustaino, 2013-2016, Ph.D. Dissertation, Bioinformatics topics (co-Mentor)
- Michela di Lullo, 2014-2017, Ph.D. Dissertation, Operations Research topics (Mentor)
- Fabio Cumbo, 2015-2018, Ph.D. Dissertation, Computer Science topics (co-Mentor)

Designer and Principal Instructor for courses

- *Artificial Intelligence*, on-line course for Telematics University Uninettuno, Computer Engineering - Study path: Big Data (2015-current);
- *Data Analytics and Data Driven Decisions*, Department of Engineering, Computer Science and Mathematics, University of l'Aquila, IT (2016-2020);
- *Methods for Data Mining and Statistics in Business Intelligence*, Master in Data Intelligence and Decision Strategies, University of Rome "La Sapienza", Department of Statistics and Probability (2007-2013);
- *Decision Techniques and Operations Research*, University of Rome "La Sapienza", Department of Statistics and Probability (graduate course from 2009-2012);
- *Financial Intelligence and Data Mining*, Italian School for tributary police, National Finance Police (2007-2008);
- *Self-organizing Systems and Logic Learning*, Ph.D. program in Computer Science, University of L'Aquila, Department of Electrical Engineering (2008);
- *Advanced Data Mining*, Ericsson (2005-2007);
- *Advanced Data Mining Methods*, ISTAT (Italian Institute for National Statistics, 2005-2006);
- *Data Mining Methods*, Telecom Italia Learning Services (2004-2010);
- *Column Generation and Polyhedral Methods*, Alitalia (1999-2000);
- *Decomposition Techniques for Large Dimension Structured Optimization Problems*, Alitalia (1999-2000);
- *Operating Systems*, University of Rome "La Sapienza", Department of Computer Science (1997-1998);
- Teaching Assistant for courses on *Discrete Mathematics for Computing* and *Discrete Structures*, University of Texas at Dallas, Computer Science Department (1995-1996).

Selected Service activities

Academic Committees

- 2014—present, Member of the Steering Committee of the *Geoinformatics and Earth Observation Laboratory*, Dept. of Geography and Institute for CyberScience, The Pennsylvania State University;
- 2007—2013, Member of the Scientific Board of the *Master Program in Data Intelligence and Strategic Decision Making*, Department of Statistics and Probability, University of Rome "La Sapienza";
- 2004—2010, Member of the Scientific Board of the *Doctoral Program in Operations Research*, Department of Statistics and Probability, University of Rome "La Sapienza";
- 2010-2016, Member of the Scholarship Award Committee of the *Doctoral Program in Operations Research*, Department of Statistics and Probability, University of Rome "La Sapienza".

Service to the Profession

- Nov. 2016-current: Elected member of the directorial board of CLENAD, (*Comité de Liaison des Experts Nationaux Détachés*), a body intended to guard the interests of Seconded National Experts, promoting their deployment in the European institutions and in their home countries;
- 2013—2016 Member of the advisory board of the *Italian Mathematical Desk for Industry*, a CNR-funded project supported by SIMAI and AIRO, whose goal is to connect mathematical researchers with the Italian industry sector;

- 2008-2015 Elected member in the national secretariat of *ANPRI*, the national association of research professionals of Italy, an established counterpart for labor relations in CNR;
- 2013–2015 Member of the editorial board of the online journal *Maddmaths!* a popular educational publication of mathematical content;
- 2003–2015 Elected member of *AIRO's board of directors*, delegate for international relations and coordinator of external communications; 2009–2015 Treasurer of AIRO; 2011–2015 Vice-president of AIRO;
- 1998–present *Member of AIRO* (Italian Association for Operations Research), the main reference point for Operations Research in the country, and part of the European Network of Operation Research Societies (EURO), associated with INFORMS and IFORS.

Conferences Organization

- 2020 European Research and Innovation Days, 22-24 September 2020 (online event): organization of the session *Latest research on technologies for energy-efficient data hosting and processing: the future of health data management*, with the contribution of 3 ERC grantees, followed on line by 165 delegates;
- ESOF2020 – European Science Open Forum, 2-6 September 2020, Trieste: organization of the session *Artificial Intelligence: A Blessing Or A Threat For Society?* with the contribution of 3 ERC grantees;
- Trieste Next, Festival della Ricerca Scientifica - Big Data, Deep Science - September 2019, Trieste: presentation of ERC funding activities to a large audience of young students and researchers; organization of a round table on Artificial Intelligence with the 3 ERC grantees;
- Organizer of the ERC Session *How New Technology Affects Society?* at the 2019 Annual Meeting of the *American Association for the Advancement of Science (AAAS)*, Washington D.C., USA;
- Member of the organizing committee for the 2018 *ERC Workshop on Artificial Intelligence*, yearly scientific event organized by the European Scientific Council Bruxelles;
- Member of the organizing committee for the 2013 *Joint Conference of the European and American Societies for Operations Research*, in charge of event management and budget (Rome, 2013);
- Chair of the organizing committee for the international winter conferences of AIRO: *AiroWinter 2005, AiroWinter 2007, AiroWinter 2009*;
- Member of the organizing committee for the international *AIRO conference 2009*;
- Member of scientific committee for the international *AIRO conference 2007*;
- Co-organizer of the international conference *MML 2004: Mathematical Methods for Learning: Advances in Knowledge Discovery and Data Mining*, Villa Geno, Como, 21-24 June 2004.

Refereeing Activities for Journals and Funding Agencies

I acted as a referee for the following journals:

- *European Journal of Operational Research, Omega, Discrete Applied Mathematics, Inform's Journal of Computing, Annals of Operations Research, Data Knowledge and Engineering, Optimization Letters, Journal of Scheduling, Computational Biology and Chemistry, Oxford Computer Journal, Computation Optimization and Applications, Journal of the Operations Research Society, BMC Bioinformatics, Journal on Mathematical Modeling and Algorithm, Soft Computing.*

- Since 2016, I am a member of the referee panel for the research funding program of *the Italian Ministry of Economic Development (MISE)*, chapters on Digital Data and Sustainable Production Systems;
- Since 2016, I am evaluator for the research funding program of the *National Science Foundation of Poland*. The work comprises remote evaluation submitted of scientific proposals for the area of computer science and bioinformatics;
- Since October 2020, I am the *Data Analytics and Machine Learning Area Editor* for the Springer Journal *Soft Computing*.

Skills

Language skills:

Italian	Proficient user (C2)	Proficient user (C2)	Proficient user (C2)	Proficient user (C2)
English	Proficient user (C2)	Proficient user (C2)	Proficient user (C2)	Proficient user (C2)
French	Independent user (B2)	Independent user (B2)	Independent user (B2)	Independent user (B2)

- **Communication and relational skills:** Scientific communication and relational skills developed working in large interdisciplinary teams; Good public relations skills refined through activities for the Italian Association for Operations Research (AIRO), first as delegate member for international relationships and communication, then as vice-president; CLENAD (Comité de Liaison des Experts Nationaux Détachés, member of the directorial board of CLENAD, ANPRI (national association of research professionals of Italy, member of national secretariat); participation to speaking and writing training courses for EU professionals. Attended several courses on communication within the training program of the European Commission. Participation and coordination of working teams composed by experts from different backgrounds; participation to conferences and events for scientific communication to general audiences and stakeholders;
- **Organizational/managerial skills:** Management of large publicly funded research projects; Management of an entire research unit (line) within CNR; Management of technology transfer projects; Integration of research and business units (including budgeting tasks); Negotiation and interactions with private and public sector clients in consulting activities; Organization of large scientific events; administrative activities for project funding and follow-up at European Research Council Executive Agency (ERCEA); Organization of evaluation meetings for the assignment of ERC grants; Participation to training courses on leadership, resilience and team leadership for EU professionals;
- **Software skills:** Experienced user of multiple operating systems (Linux, Windows, Mac). Experienced programmer in several languages (C, C++, Fortran, VisualBasic, Java, Python, R). Design and development of software tools for data analysis, statistics, optimization and simulation. Advanced knowledge of software for statistics and data mining applications (Weka, Spss, Sas, Lsquare, libsvm, matlab), solvers for mathematical programming (GUROBI, FICO, CPLEX, COIN-OR) and logic programming (Prolog, Leibniz), software for graphical traffic simulation (CORSIM), and database managers (Access, MYSQL). Advanced knowledge of Windows and Linux operating systems and of the MS Office suite.

Scientific Production

As of August 2023, Google scholar citations: 2801, H-index 25, I10-index 49

Articles in Peer Reviewed Journals and Edited Books

1. G. Felici. *Talking to Sibilla: An Approach to Context Dependent Natural Language Comprehension*, **European Journal of Operational Research** 85: 263-281 (1995)
2. G. Felici, F.-S. Sun and K. Truemper. *A Method for Controlling Errors in Two-Class Classification*, in **Acts of the XXIII Annual International Computer Software and Applications Conference**. Phoenix (AZ) October 27-29, 1999. IEEE, pp. 186-191 (1999)
3. G. Felici, D. Cantarella, G. Rinaldi, A. Sforza. *Modelli e metodi per la regolazione semaforica*, in **Scienze delle Decisioni per i Trasporti**, S. Pallottino and A. Sciomachen eds. Franco Angeli, (1999)
4. G. Felici, G. Rinaldi. *Programmazione Logica*, in **Scienze delle Decisioni per i Trasporti**, S. Pallottino and A. Sciomachen eds., Franco Angeli (1999)
5. G. Felici, G. Rinaldi, A. Sforza, K. Truemper. *Traffic control: a logic programming approach and a real application*. **Ricerca Operativa**, 94/95:39-60, Franco Angeli (2000)
6. G. Broggio, S. Falcomatà, G. Felici, C. Gentile, B. Paoletti. *An Optimization Framework for ground staff roster management using integer programming*, in **Handbook of Airline Operations**, G.F. Butler and M.R. Keller eds. McGraw-Hill, (2000)
7. G. Felici, K. Truemper. *A Minsat Approach for Learning in Logic Domains*, **INFORMS Journal on Computing** 14(1): 20-36 (2002)
8. V. de Angelis, G. Felici, P. Impelluso. *Integrating Simulation and Optimisation in Health Care Centre Management*, **European Journal of Operational Research** 150: 101-114 (2003)
9. G. Felici, C. Gentile. *Zero-lifting for Integer Block Structured Problems*, **Journal of Combinatorial Optimization** 7(2): 161-167 (2003)
10. M. Caramia, G. Felici. *Improving Search Results with Data Mining in a Thematic Search Engine*, **Computers and Operations Research** 31: 2387-2404 (2004)
11. G. Felici, C. Gentile. *A Polyhedral Approach for the Staff Rostering Problem*, **Management Science** 50(3): 381-393 (2004)
12. L. de Santoli, G. Felici. *Use of an expert system rating for the energy performance of a building*, **Building Service Engineering Research and Technology** 26(4): 349-360 (2005)
13. G. Felici, M. Caramia. *Data Mining in a Web Search Engine*, **Encyclopedia of Data Warehousing and Mining**, I edition, Idea Group Reference; Hershey, 1201-1205, (2005)
14. G. Felici, K. Truemper. *The Lsquare System for Mining Logic Data*, **Encyclopedia of Data Warehousing and Mining**, I edition, Idea Group Reference; Hershey, 693-697 (2005)
15. G. Felici, M. Caramia, *Mining Relevant Information on the Web: A Clique Based Approach*. **International Journal on Production Research** 44: 2771-2787 (2006)
16. G. Felici, G. Rinaldi, A. Sforza, K. Truemper. *A Logic Programming based Approach for on-line Traffic Control*, **Transportation Research part C** 14:175-189 (2006)
17. G. Felici, X. Wang, P. Zhu, and E. Triantaphyllou. *Future Trends in Some Data Mining Areas*, in **Data Mining and Knowledge Discovery Approaches Based on Rule Induction Techniques**, G. Felici and E. Triantaphyllou eds., Massive Computing Series, Springer, Heidelberg, Germany, 692-713 (2006)
18. G. Felici, F-S. Sun, and K. Truemper. *Learning Logic Formulas and Related Error Distribution*, in **Data Mining and Knowledge Discovery Approaches Based on Rule Induction Techniques**, G. Felici

- and E. Triantaphyllou eds., *Massive Computing Series*, Springer, Heidelberg, Germany, 692-713 (2006)
19. G. Felici, V. de Angelis, G. Mancinelli. *Feature Selection for Data Mining*, in **Data Mining and Knowledge Discovery Approaches Based on Rule Induction Techniques**, G. Felici and E. Triantaphyllou eds., *Massive Computing Series*, Springer, Heidelberg, Germany, 692-713 (2006)
 20. G. Felici, M.A. Galante, L. Torosantucci. *Logic Mining for Financial Data*, **Lecture Notes in Computer Science**, Vol. 3991, Computational Science ICCS 2006. Part 1-4, Alexandrov, Albada, Sloot, and Dongarra eds.) vol. 3994, 460-467 (2006)
 21. M. Bielli, G. Felici, M. Mecoli, A. Pacifici. *Equilibrium in Competing Supply-Demand Flow Problems*, **System Science** 33(1) 7-17 (2007)
 22. G. Felici, M. Mecoli. *Resource Assignment with Preference Conditions*, **European Journal on Operational Research** 180(2): 519-531 (2007)
 23. G. Felici, P. Bertolazzi, P. Festa, G. Lancia. *Logic Classification and Feature Selection for Biomedical Data*, **Computers & Mathematics with Applications**, 55(5): 889-899 (2008)
 24. F. Carravetta, G. Felici, P. Palumbo, *Regulation of a Manned Sea-Surface Vehicle via Stochastic Optimal Control*, Proceedings of the **17th Triennial Event of International Federation of Automatic Control**, July 9-11 (2008)
 25. G. Felici, P. Bertolazzi, M.R. Guarracino, A. Chinchuluun, P.M. Pardalos. *Logic formulas based knowledge discovery and its application to the classification of biological data*, in **BIOMAT 2008**, R.P. Mondaini ed., World Scientific, 265 – 279 (2009)
 26. G. Felici, V. Gatta. *The Analysis of Service Quality Through Stated Preferences and Rule-Based Classification*, in **Mathematical Methods for Knowledge Discovery and Data Mining**, G. Felici and C. Vercellis eds. Information Science Reference, IGI Global, 65-81 (2008)
 27. P. Bertolazzi, G. Felici, G. Lancia, *Application of Feature Selection and Classification to Computational Molecular Biology*, in **Biological Data Mining**, Chapter 24, J.Y. Chen ed. Taylor & Francis (2009)
 28. G. Felici, M. Mecoli, P.B. Mirchandani, A. Pacifici. *Equilibrium in a Two-Agent Assignment Problem*, **International Journal of Operational Research**, 6(1): 4-26 (2009)
 29. P. Bertolazzi, G. Felici, E. Weitschek. *Learning to classify species with barcodes*, *BMC Bioinformatics*, 10:1-12 (2009)
 30. G. Felici, B. Simeone, V. Spinelli. *Classification Techniques and Error Control in Logic Mining*, **Annals of Information Systems**, 8:99-119 (2009)
 31. P. Bertolazzi, G. Felici, P. Festa. *Logic Based Methods for SNPs Tagging and Reconstruction*, **Computers & Operations Research**, 37: 1419-1426 (2010)
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I authored ~60 additional papers as peer-reviewed Conference Proceedings, Book Chapters, and Technical Reports.

Software Packages and Platforms:

Integrated with my research and consultancy work experimental or production software related with data analysis and optimization methods and algorithms have often been produced and released on open-source, usually coded in C and C++.

- GROPT – Optimization software for the distribution of crude oil by tanker ship developed for Agip Petroli (ENI)
- BLOG - DNA Barcoding with LOGic formulas
- LAF - Logic Classification of Strings with Alignment-Free Distance
- GELA - Gene Expression Logic Analyzer
- NGS – Next Generation Sequencing Read Comparisons with Alignment-Free Distance
- MALA - MicroArray Logic Analyzer
- BINAT - Biological Networks Analysis Tool
- MISSEL - Multiple Sub Sequences Extractor For Classification
- CAMUR - Classifier With Alternative And Multiple Rule-Based Models

Scientific Dissemination

I have presented my research in a large number of international conferences and workshops, and in various universities and research institutions. Below are selected lists of representative invited lectures and communications.

- *Programmazione Logica e Controllo del Traffico. L'applicazione dell'informatica al settore trasporti: come vincere la scommessa?* ENEA, Casaccia, February 1997;
- *The Leibniz System for Logic Programming and its application to Traffic Control.* University of Arizona, Tucson, November 1997;

- *Ship Scheduling Algorithms for Hydrocarbon Products Distribution Problems* (Workshop on Applied/Advanced Research in Combinatorial Optimization). Department of Mathematical Modeling, Technical University of Denmark, April 1999;
- *Algoritmi di Apprendimento in Domini Logici*. University of Rome "Tor Vergata", April 2000;
- *Metodi Matematici e Logici per la Ricerca in Medicina*. Policlinico Gemelli di Roma, April 2001;
- *Intelligent Traffic Control via Logic Programming*. Comune di Napoli, September 2001;
- *Tecniche di Ottimizzazione per il Data Mining*. STA - Servizi per la Mobilità Roma, February 2002;
- *Tecniche di Ottimizzazione per il Data Mining*. Dipartimento di Informatica e Sistemistica, University of Naples "Federico II", May 2002;
- *Data Mining: Theory and Applications*. University of Texas at Dallas, Dallas, April 2004;
- *Intelligent Traffic Control: a Logic Approach*. Istituto di Analisi e Calcolo "M. Picone", CNR, 2004;
- *Tecniche di Ottimizzazione per il Data Mining*. University of Milan "La Bicocca", April 2005;
- *Introduzione al Data Mining*. ISTAT Bari, November 2005;
- *Data Mining: seminario introduttivo*. Ericcson, November 2005;
- *Data Mining for TLC data*. Ericcson, September 2006;
- *Logic Mining for Financial Data*. Workshop on Computational Methods for Financial Markets at ICCS 2006: Advancing Science through Computation. University of Reading, UK May 2006;
- *Parallel computing and refinement of DNF in Logic Data Mining*. "EURO XXI: OR for Better Management of Sustainable Development", 21st European Conference on Operations Research, Reykjavik, Iceland July 2006 ;
- *A real application of traffic signal control model based on logic programming and queues estimation*. "EURO XXI: OR for Better Management of Sustainable Development", 21st European Conference on Operations Research, Reykjavik, Iceland July 2006;
- *Equilibrium in Multi-Agent Assignment Problem*. XXXVII Annual Conference of the Italian Operations Research Society. Cesena, Italy September 2006;
- *Clustering and optimization in genetic data: the problem of Tag-SNPs selection*. XXXVIII Annual Conference of the Italian Operations Research Society. Genoa, Italy September 2007;
- *Barcode Analysis with Optimized Logic Formulas*. XXXVIII Annual Conference of the Italian Operations Research Society. Genoa, Italy September 2007;
- *A Graph Coloring Approach for Box Clustering Techniques*. 22nd International Conference on Operations Research. Prague, Check Republic July 2007 ;
- *Clustering and optimization in genetic data: the problem of Tag-SNPs selection*. 22nd International Conference on Operations Research. Prague, Check Republic July 2007;
- *Logic Mining Methods: Introduction and Applications to Bioinformatics*. Workshop on Bioinformatics, 22nd International Conference on Operations Research. Prague, Check Republic July 2007;
- *Species Classification with Optimized Logic Formulas*. Second International Barcode of Life Conference, Taiwan September 2007;
- *Integer and Logic Programming for Knowledge Extraction and its applications to Biological Data*. Georgia Tech College of Computing, November 2008;
- *Data Mining and Knowledge Extraction from Scientific Data bases*. Invited lecture at WC7 – Seventh World congress on Alternatives and Animal Use in the Life Sciences. Rome, Italy August 2009;
- *Integer and Logic Programming for Knowledge Extraction from Large Data Sets*, Rutcor center for Operations Research, Rutgers University, NJ, March 23, 2011;
- *Robust Heuristics for Data Discretization and Feature Selection in Supervised Learning*, Rutcor center for Operations Research, Rutgers University, NJ, November 11, 2011;
- *Integer Programming models for feature selection and supervised learning*, SMAC Seminar, Department

- of Statistics, Pennsylvania State University, October 23, 2015;
- *DNA barcoding for species classification: methods, algorithms and results*, Center for Medical Genomics, Pennsylvania State University, October 16, 2015;
 - ODS-2017: International Conference on Decision Science, XLVII Annual Meeting of AIRO – Italian Operations Research Society. A presentation was given: *European Research Council – A closer look*, Sorrento 4-7 September 2017;
 - EURO 2018, 29th European Conference on Operations Research, *The European Research Council Grants: an opportunity not to be missed for scientists in Operations Research and Applied Mathematics*, 7-12 July, 2018, Valencia, Spain;
 - *Chained to the blockchain: the other side of bitcoins*, ERC Lunch Seminar, April 9, 2018;
 - EURO 2019, 30th European Conference on Operations Research (OR), *ERC funding schemes and a focus on the contributions of the discipline of OR to the funded projects*, June 23-26, 2019, Dublin, Ireland;
 - *EU Strategies for Scientific Research*, meeting organized by the office for international relationships and the Bruxelles office of Consiglio Nazionale delle Ricerche, October 13-14, 2019, Napoli, Italy ;
 - EMBEDS 2019 WORKSHOP organized by the new “Economics and Management in the era of Data Science Department of Excellence (EMBEDS)” of the Sant'Anna School of Advanced Studies, *Talk on ERC Grants*, November, 26-27, 2019, Pisa, Italy;
 - *Regularization methods in regression: from Ridge Regression to Mixed Integer Programming*, invited seminar for the Ph.D. School at HEC University of Liege, 22 October 2019;
 - *A guided tour in the land of complexity*, ERC Lunch Seminar, October 20, 2020, available at youtu.be/HT2tKsNh0Qg.

Rome, August 2023

Giovanni Felici

