Curriculum vitae

Daniele Vigo – April, 2025

Vitae

Daniele Vigo was born in Milano, Italy, on May 23, 1963.

In 1989 he received the Ms Degree in Electronic Engineering and in 1993 he obtained the Ph.D. in Systems Engineering from the University of Bologna.

In 1994, he beacame Assistant Professor, in 1998 was nominated Associate Professor, and in 2004 was nominated Full Professor of Operations Research at the University of Bologna. He is currently member of the Department of Electrical, Electronic and Information Engineering "Guglielmo Marconi" of the University of Bologna.

Between November, 2019 and November 2022 he was Director of the Interdepartmental Center for Industrial Research on ICT of the University of Bologna.

Research activity

Daniele Vigo has primarily devoted his scientific research to the design and analysis of models and algorithms for Combinatorial Optimization problems. In particular, his research concentrates on defining and evaluating (both theoretically and experimentally) new algorithms, on optimization problems arising in several application areas:

- Vehicle Routing Problem, Traveling Salesman Problem and their variants,
- Logistics (also including Waste Collection and Waste Logistics), Smart Cities and Urban mobility,
- Crew Scheduling and Rostering,
- Bin Packing in one, two and three dimensions,
- Energy production and distribution.

The overall results of his activity appear in more than 160 papers and book chapters (about 40 in the last five years) published by the most prestigious journals and book series in the Operations Research and Management Science field. The bibliometric indexes of Daniele Vigo (May, 2025) are considerably high for his discipline sector both in Italy and internationally:

- Google Scholar H-index = 70 with more than 28,200 citations.
- Scopus h-index = 48 with more than 9,000 citations.

From a methodological point of view his research has encompassed both exact techniques, based on Dynamic Programming, Branch-and-Bound and Branch-and-Cut, and heuristic and metaheuristic techniques. In the last two decades Daniele Vigo has also performed a vast activity of literature survey on packing and routing problems. This latter research led to the preparation of several papers and

book contributions and an edited book on VRP, with Paolo Toth, ([51]), published in the prestigious Discrete Mathematics and Applications series of S.I.A.M. The second edition of the book ([103]) was published by SIAM in 2014. Overall the two books total more than 8000 citations in Scholar.

His paper with Paolo Toth "The granular tabu search (and its application to the vehicle routing problem)" received in 2021 the prestigious "Test of Time Award" by INFORMS Journal on Computing.

His paper with Luca Accorsi "A fast and scalable heuristic for the solution of large-scale capacitated vehicle routing problems", obtained in 2022 the Outstanding Paper in Freight Transportation and Logistics award by the INFORMS TSL society.

Daniele Vigo is involved in a large network of scientific collaborations including more than 90 co-authors, mainly in Europe and North America. He also helds visiting professor position at several univisities: Goethe University, Frankfurt, Germany (2010-14), University of Kaiserslautern, Germany (2011-now), Vrjie Universiteit Amsterdam, Netherlands, (2014-now), University of Lille, France (2018-now), Technical University of Vienna, Austria (2020-24).

Practice

Daniele Vigo has always devoted large energies in the application of OR techniques to the solution of practical problems in various fields.

During his early career he was involved in several European and National projects on Railway Crew Management and Trasportation. More recently he was WP or unit responsible in various applied research project and industrial collaborations:

- EU Project IUWMM on waste management (2004-7), funding EU 121K.
- National Project RACCORSU on waste management software (2006-9), funding EU 141K.
- European JPI project E4-Share (2015-17) on electric car sharing, funding EU 130K.
- National SmartCity Project RIGERS (2014-17), funding EU 230K.
- National Project SWIFT-ECO Driving (2017-18) with ALSTOM, funding EU 160K.
- EU H2020 project PLAMES on smart energy grids (2019-22), funding EU 300K.
- percipient of two USAF AFORS grants in 2018-20 and 2021-23, total funding USD 110K.
- responsible of two contracts with with Thales on satellite scheduling, funding EU 80K.
- responsible of a contract with Huawei France (2022-23) on Telecommunication Networks Design Optinization, funding EU 120K.
- responsible for various applied research contracts financed by important industries and public bodies (Municipality of Bologna, HERA SpA, Geovest, Emilia-Romagna Regional Authority, Alstom railway division ...) totaling about Euro 300K in net funding and further Euro 100K for professional services in the last 20 years.

He was a member of the Scientific Advisory Board of PTV Gmbh, Germany, from 2017 to 2018.

In 2007 he was a co-founder of Optit srl, a spinoff company developing state-of-the-art optimization algorithms for logistics and industrial applications (www.optit.net). He left the company in 2022 when it has reached an yearly balance of about EU 2M and with more than 40 employees.

He also co-founded in 2016 the EURO Practicioners forum as an EURO Working Group on Practice of OR.

The SPRINT project in collaboration with Optit and HeraComm was a succesful application of Operations Research to personnel scheduling operations. The project was finalist at the prestigious INFORMS Wagner Prize in 2013 and finalist at the EURO EEPA in 2012 and 13. The project was awarded the AIRO Excellence in Application Award in 2017. Projects on waste management were also fimalists at Veolia Logistics Innovation Challenge i 2014 and at SMAU Digital Innovation in 2015. Finally a project on district heating optimization received the excellence in research award at the 17th International Symposium on District Heating and Cooling, Nottingham, 2021.

From December 2019 to November 2022, he was the Director of CIRI-ICT (Interdepartmental Center for Industrial Research on ICT) of the University of Bologna.

From July 2020, to November 2022 he was the President of Consorzio T3-LAB on technology transfer.

Education

Daniele Vigo was and is resposible of numerous courses in Operations Research at undergraduate, graduate and PhD level at various faculties of the University of Bologna and in several European universities .

He was coordinator of the PhD program in Automatic and Operations Research at DEI, University of Bologna from 2012 to 2016 and coordinator of the PhD program in Biomedical, Electrical and Systems Engineering (IBES `https://phd.unibo.it/ibes/en/phd-programme`) at DEI from 2016 to 2020.

He was supervisor or co-supervisor of 20 PhD students, most of which are now employed in presitgious Italian and European universities. He was also responsible of more than 30 post-doc and pre-doc contracts activated within research and applied projects.

Service and Management

Daniele Vigo has performed several service activities for the diffusion and development of OR in Academia and in the society.

In 2012 he founded the EURO Working Group VeRoLog on Vehicle Routing and Logistics Optimization (www.verolog.eu). He is also coordinator and member of the Advisory board of VeRoLog since 2012. VeRoLog is one of the largest working groups of EURO with more than 2500 members worldwide and organizes regularly conferences, doctoral dissertation awards and PhD schools for the vast research community on Routing and Logistics.

He was Vice-President and then President (2016-19) of AIRO the Italian Operations Research Society and member of the scientific committee of the Centro Interuniversitario per la Ricerca Operativa (C.I.R.O.). On November, 2020 he was nominated Honorary Member of AIRO. During his period as president, AIRO created AIROYoung, the chapter devoted to young researchers which quickly became a very active and succesful inintiative organizing regular conferences and schools to support early careers in OR. AIROYoung later promoted the creation of EUROYoung a Working Group within EURO with similar purposes.

From 2011-2014 he was director of the Centro di Formazione AIRU, the training centre for the Italian Urban Heating Association (AIRU).

He was member of the board of the Italian Federation of Applied Mathematics (FIMA) from 2016 to 2019.

He was president of the committee for the National Habilitation Procedure for Operations Research from 2016 to 2018.

Daniele Vigo has taken part in numerous national and international conferences, often organizing and chairing sessions and in some cases as invited speaker. In particular, recently he was:

- Stream organizer at the EURO Conferences, held in Reikyavik 2006, Vilnius 2012, Rome 2013, Barcelona (IFORS) 2014, Glasgow 2015 and Quebec 2017 (IFORS).
- Member of the Program Committee: Odysseus Meeting since 2007, Tristan conference since 2010, EURO 2015 Glasgow and EURO 2018 Valencia, VeRoLog conferences since 2012.
- Chair of the Program Committee of EURO 2016 conference in Poznan.
- Chair of the organizing committee of the Verolog conference, Bologna, June 18-20, 2012, AIRO Conference, Cesena, 2006.
- Member of the jury of the EURO/EJOR Best Papers Award in 2014-2015.
- Member of the jury for the EURO Distinguished Service Awards since 2020.
- Member of the jury for the Robert Herman Awards of INFORMS since 2019 (Chair 2023).

He served as Editor or member of the editorial or advisory board (AB) of the following journals:

- AIRO-Springer book series on Operations Research (Springer) Editor-in-chief (2017-now),
- Transportation Science (INFORMS), AE (2015-23), Advisory Board member from 2024,
- Operations Research (Transportation Area) (INFORMS) AE (2000-02),
- Operations Research Letters (Transportation Area) (Elsevier) AE (2002-05),
- Journal of Vehicle Routing Algorithms AB (2016-19).
- Public Transport (Springer), AE and AB (2023-now),
- EURO Journal on Transportation and Logistics (Elsevier) AE (2017-now), BM (2011-now),
- Transportation Research Part C : Emerging Technologies (Elsevier) AB (2023-now),
- Logistics (MDPI) AE (2014-now).

He was member of the evaluation committee for PhD theses or Professorship Habilitation at the Universities of Montreal, Copenhagen, Salerno, Modena-Reggio Emilia, Vienna, Barcelona, Troyes, Lille, Kaiserslautern, Toulouse, Nantes, Angers, Leuven, Antwerpen, Amsterdam, Rotterdam, Wageningen, Lorient, Eindhoven, Frankfurt (Oder), Passau and Bologna.

List of publications by Daniele Vigo

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