

Mauro Passacantando

Short CV and list of publications in the last 5 years

General information

- Passacantando, Mauro
- Date of birth: 22 January 1976
- Nationality: Italian
- Web site: <https://people.unipi.it/mauro.passacantando>
- Google Scholar profile: <https://scholar.google.it/citations?user=GEtI8UUAAAAJ&hl=it>
(1420 citations, h-index 19)
- Scopus profile: <https://www.scopus.com/authid/detail.uri?origin=AuthorProfile&authorId=22635215600>
(944 citations, h-index 16)

Current position

Since September 2022: Associate Professor in Operations Research at the Department of Business and Law, University of Milano-Bicocca, Italy

Previous positions

- From 2019 to 2022: Associate Professor in Operations Research at the Department of Computer Science, University of Pisa.
- From 2012 to 2019: Assistant Professor in Operations Research at the Department of Computer Science, University of Pisa.
- From 2002 to 2012: Assistant Professor in Operations Research at the Department of Applied Mathematics, University of Pisa.

Awards

- September 2018: Full Professorship Qualification in Operations Research (MAT/09).
- March 2017: Associate Professorship Qualification in Operations Research (MAT/09).
- 2017: Winner of an Italian FFABR (“Fondo per il Finanziamento delle Attività Base di Ricerca”) research grant (3000 Euros)
- March 2015: Associate Professorship Qualification in Mathematical Methods of Economics (SECS-S/06).

Education

- November 2005: Ph.D. in Mathematics from the University of Pisa, title of the thesis: *On finite-dimensional equilibrium problems*, supervisor: Prof. Massimo Pappalardo.
- April 2000: M.S. Degree in Mathematics from the University of Pisa (Italy), 110/110 cum Laude.

Research topics

The following research topics have been studied:

- Theory, algorithms and applications of finite-dimensional variational inequalities: links with dynamical systems, solution algorithms, set-valued variational inequalities, applications to deterministic and stochastic traffic network equilibrium problems, applications to network games;
- Theory, algorithms and application of finite-dimensional equilibrium problems (Ky Fan inequalities): existence of solutions, merit functions, solution algorithms, quasi-equilibrium problems, generalized Nash equilibrium models for service provisioning problems in cloud systems, Stackelberg game models for mobile crowdsensing systems, multi-leader-follower game models for the interactions of infrastructure and service providers in 5G networks;
- Optimization and cooperative game models for infrastructure and spectrum sharing in mobile networks;
- Cooperative game models for transportation networks with applications to the Braess paradox;

- Mixed integer linear programming models and algorithms for warehouse management;
- Integer linear programming models for radio-based localization of shipping containers.

Research projects

Participation to the following research projects:

- 2020-2021: Project *Analysis of complex networks: from theory to applications* funded by University of Pisa;
- 2018-2020: Project *Integrated system for the efficient management of large warehouses with high rotation index in Industry 4.0* funded by Regione Toscana;
- 2017-2020: Project of National Relevance PRIN *Nonlinear and Combinatorial Aspects of Complex Networks*;
- 2017-18: Project *Innovative models and algorithms for structured and sparse large scale problems* funded by University of Pisa;
- 2015: Project *Mathematical models and computational methods for complex networks* funded by University of Pisa;
- 2014: Project *Optimization techniques for the real-time management of advertising spaces on the Internet* funded by Solutions di Daniel Pirchio;
- 2014: Project *Optimal routes in a personalized tourist guide* funded by Genesisoft S.a.s.;
- 2012-2013: Project *Cash flow forecast models for cash management in bank branches* funded by Bassilichi S.p.a.;
- 2008: Joint project between University of Pisa and National Sun Yat-Sen University of Kaohsiung (Taiwan);
- 2007-2009: Project of National Relevance PRIN *Nonlinear Optimization, Variational Inequalities, and Equilibrium Problems*;
- 2005-2007: Project of National Relevance PRIN *New Problems and Innovative Methods in Nonlinear Optimization*;
- 2002-2005: Project of National Relevance FIRB *Large Scale Nonlinear Optimization*.

Major international and national collaborations

- Wayne State University, Detroit (USA): Boris S. Mordukhovich
- Kazan University (Russia): Igor V. Konnov
- Polytechnique de Montréal (Canada): Brunilde Sansò
- National Sun Yat-Sen University of Kaohsiung (Taiwan): Jen-Chih Yao
- Bar-Ilan University (Israel): Yuval Hadas
- Sharif University of Technology, Tehran (Iran): Ali Movaghar, Marzieh Malekimajd
- University of Tabriz (Iran): Hadi S. Aghdasi, Mina Zolfy Lighvan, Hamta Sedghani
- Polytechnic University of Milan (Italy): Danilo Ardagna, Lorela Cano, Antonio Capone, Giuliana Carrello, Matteo Cesana
- IMT Lucca: Giorgio Stefano Gnecco
- University of Genova: Marcello Sanguineti
- Sapienza University of Rome (Italy): Stefano Lucidi, Marco Sciandrone
- University of Padova (Italy): Francesco Rinaldi
- University of Pisa (Italy): Marco Avvenuti, Giancarlo Bigi, Paolo Corsini, Giacomo Lanza, Giandomenico Mastroeni, Massimo Pappalardo, Maria Grazia Scutellà, Alessio Vecchio

Conferences

52 talks in International Conferences (3 as invited speaker); organizer of 3 workshops/conferences.

Reviewer activity

- Reviewer for the Italian Evaluation of Research Quality (VQR 2015-2019).
- Proposal reviewer for the National Science Foundation (USA) in 2015.
- Proposal reviewer for the Joint Mobility Program MIUR-DAAD in 2017.
- Member of the Program Committee of the following international conferences: 11th International Conference on Operations Research and Enterprise Systems (ICORES 2022), 3-5 February 2021, Onli-

ne streaming; 10th International Conference on Operations Research and Enterprise Systems (ICORES 2021), 4-6 February 2021, Online streaming; 9th International Conference on Operations Research and Enterprise Systems (ICORES 2020), 22-24 February 2020, Valletta, Malta; 8th International Conference on Operations Research and Enterprise Systems (ICORES 2019), 19-21 February 2019, Prague, Czech Republic; 7th International Conference on Operations Research and Enterprise Systems (ICORES 2018), 24-26 January 2018, Funchal, Madeira, Portugal.

– Reviewer for the following international conferences: Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS-2021), 17-18 December, 2021, Jaipur, Rajasthan, India; International Conference on Automation and Computing (ICAC 2014), 12-13 September 2014, Craneld University, Craneld, UK; Applied Mathematics, Modelling and Computational Science (AMMCS 2013), 26-30 August 2013, Waterloo, Canada.

– Reviewer for the following international journals: 4OR, Calcolo, European Journal of Operational Research, IEEE Transactions on Cloud Computing, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Mobile Computing, IEEE Transactions on Services Computing, IEEE Transactions on Vehicular Technology, INFORMS Journal on Computing, Journal of Global Optimization, Journal of Optimization Theory and Applications, Journal of Parallel and Distributed Computing, Mathematical Programming, Nonlinear Analysis, Optimization, Optimization Letters, Optimization Methods and Software, Set-Valued and Variational Analysis, SIAM Journal on Control and Optimization.

– Reviewer of 3 Ph.D. dissertations (University of Florence, University of Catania).

Teaching activity

– 23 courses of Operations Research and Optimization in Bachelor and Master Degree in Computer Science, Computer Science Engineering, Management Engineering, Embedded Computing systems, Artificial Intelligence and Data Engineering from University of Pisa (2002–2021);

– visiting professor at the Barcelona Graduate School of Mathematics, Spain (2019), Ph.D. course “An Introduction to Equilibrium Problems and their Applications”.

– visiting professor at École des Mines de Nancy – Université de Lorraine, France (2017, 2018), teacher of the graduate course “Operations Research”.

– supervisor of 12 Bachelor theses and 5 Master’s theses from University of Pisa;

Publications

1 Monograph, 44 Journal articles, 15 Book Chapters, 7 Conference Proceedings, 3 Textbooks in Italian.

List of publications in the last five years:

Books

– Bigi G., Castellani M., Pappalardo M., Passacantando M. (2019), Nonlinear Programming Techniques for Equilibria, EURO Advanced Tutorials on Operational Research, Springer.

Journal articles

– Sedghani H., Lighvan M.Z., Aghdasi H.S., Passacantando M., Verticale G., Ardagna D., (2022), A Stackelberg Game approach for Managing AI Sensing Tasks in Mobile Crowdsensing, IEEE Access, vol. 10, pp. 91524-91544.

– Lanza G., Passacantando M., Scutellà M.G. (2022), Sequencing and Routing in a Large Warehouse with High Degree of Product Rotation, Flexible Services and Manufacturing Journal, doi: 10.1007/s10696-022-09463-w.

– Lucidi S., Passacantando M., Rinaldi F. (2022), Solving non-monotone equilibrium problems via a DIRECT-type approach, Journal of Global Optimization, vol. 83 (4), pp. 699-725.

– Lanza G., Passacantando M., Scutellà M.G. (2022), Assigning and sequencing storage locations under a two level storage policy: optimization model and matheuristic approaches, Omega, vol. 108, Article 102565.

– Sedghani H., Ardagna D., Passacantando M., Lighvan M.Z., Aghdasi H.S. (2021), An Incentive Mechanism based on a Stackelberg Game for Mobile Crowdsensing Systems with Budget Constraint, Ad Hoc

Networks, vol. 123, Article 102626.

- Passacantando M., Raciti F. (2021), A performance measure analysis for traffic networks with random data and general monotone cost functions, *Optimization*, doi:10.1080/02331934.2021.1910693.
- Passacantando M., Gnecco G., Hadas Y., Sanguineti M. (2021), Braess' paradox: a cooperative game-theoretic point of view, *Networks*, vol. 78 (3), pp. 264-283.
- Passacantando M., Raciti F. (2021), Optimal road maintenance investment in traffic networks with random demands, *Optimization Letters*, vol. 15 (5), pp. 1799-1819.
- Pappalardo M., Passacantando M., Raciti F. (2020), A stochastic network equilibrium model for electric power markets with uncertain demand, *Optimization*, vol. 69 (7-8), pp. 1703-1730.
- Cano L., Carello G., Cesana M., Passacantando M., Sansò B. (2019), Modeling the techno-economic interactions of infrastructure and service providers in 5G networks with a multi-leader-follower game, *IEEE Access*, vol. 7 (1), pp. 162913-162940.
- Malekimajd M., Ardagna D., Ciavotta M., Gianniti E., Passacantando M. Rizzi A.M. (2018), An Optimization Framework for the Capacity Allocation and Admission Control of MapReduce Jobs in Cloud Systems, *The Journal of Supercomputing*, vol. 74 (10), pp. 5314-5348.
- Bigi G., Passacantando M. (2017), Differentiated oligopolistic markets with concave cost functions via Ky Fan inequalities, *Decisions in Economics and Finance*, vol. 40 (1-2), pp. 63-79.
- Bigi G., Passacantando M. (2017), Auxiliary problem principles for equilibria, *Optimization*, vol. 66 (12), pp. 1955-1972.
- Ardagna D., Ciavotta M., Passacantando M. (2017), Generalized Nash Equilibria for the Service Provisioning Problem in Multi-Cloud Systems, *IEEE Transactions on Services Computing*, vol. 10 (3), pp. 381-395.
- Cano L., Capone A., Carello G., Cesana M., Passacantando M. (2017), On Optimal Infrastructure Sharing Strategies in Mobile Radio Networks, *IEEE Transactions on Wireless Communications*, vol. 16 (5), pp. 3003-3016.

Book Chapters

- Passacantando M., Raciti F. (2022), A multiclass network international migration model under shared regulations, *AIRO Springer Series*, to appear.
- Passacantando M., Raciti F., Rassias M.T. (2022), A two-stage game theoretical model of social interactions and location choice in city areas, to appear.
- Passacantando M., Raciti F. (2022), A variational inequality approach to a class of network games with local complementarities and global congestion, in "Optimization in Artificial Intelligence and Data Sciences", L. Amorosi, P. Dell'Olmo, I. Lari (eds.), *AIRO Springer Series*, vol. 8, Springer, Cham, pp. 1-11.
- Lanza G., Passacantando M., Scutellà M.G. (2022), A fast heuristic approach for the assignment and sequencing storage location problem under a two level storage policy, in "Optimization in Artificial Intelligence and Data Sciences", L. Amorosi, P. Dell'Olmo, I. Lari (eds.), *AIRO Springer Series*, vol. 8, Springer, Cham, pp. 151-161.
- Passacantando M., Raciti F. (2022), A variational formulation of network games with random utility functions, in "Approximation and Computation in Science and Engineering", N.J. Daras and T.M. Rassias (eds.), *Springer Optimization and Its Applications*, vol. 180, Springer, Cham, pp. 667-677.
- Passacantando M., Raciti F. (2021), Congestion control and optimal maintenance of communication networks with stochastic cost functions: a variational formulation, in "Mathematical Analysis in Interdisciplinary Research", I.N. Parasidis, E. Providas, T.M. Rassias (eds.), *Springer Optimization and Its Applications*, vol. 179, Springer, Cham, pp. 599-617.
- Passacantando M., Raciti F. (2021), A note on network games with strategic complements and the Katz-Bonacich centrality measure, in "Optimization and Decision Science", R. Cerulli, M. Dell'Amico, F. Guerriero, D. Pacciarelli, A. Sforza (eds.), *AIRO Springer Series*, vol. 7, Springer, Cham, pp. 51-61.
- Passacantando M., Gnecco G., Hadas Y., Sanguineti M. (2021), On Braess' paradox and average quality of service in transportation network cooperative games, in "Optimization and Decision Science", R. Cerulli, M. Dell'Amico, F. Guerriero, D. Pacciarelli, A. Sforza (eds.), *AIRO Springer Series*, vol. 7, Springer, Cham, pp. 27-37.
- Passacantando M., Raciti F. (2021), Optimal improvement of communication network congestion via

nonlinear programming with generalized Nash equilibrium constraints, in “Optimization and Decision Science”, R. Cerulli, M. Dell’Amico, F. Guerriero, D. Pacciarelli, A. Sforza (eds.), AIRO Springer Series, vol. 7, Springer, Cham, pp. 39-49.

– Passacantando M., Raciti F. (2021), A variational formulation of network games with random utility functions, in “Approximation and Computation in Science and Engineering”, N.J. Daras and T.M. Rassias (eds.), Springer Optimization and Its Applications, Springer, to appear.

– Passacantando M., Raciti F. (2021), A note on generalized Nash games played on networks, in “Nonlinear Analysis, Differential Equations, and Applications”, T.M. Rassias (ed.), Springer Optimization and Its Applications, vol. 173, Springer, Cham, pp. 365-380.

– Passacantando M., Raciti F. (2021), On the approximation of monotone variational inequalities in L^p spaces with probability measure, in “Nonlinear Analysis and Global Optimization”, T.M. Rassias and P.M. Pardalos (eds.), Springer Optimization and Its Applications, vol. 167, Springer, Cham, pp. 403-425.

– Passacantando M., Raciti F. (2019), A traffic equilibrium nonlinear programming model for optimizing road maintenance investments, in “Advances in Optimization and Decision Science for Society, Services and Enterprises”, M. Paolucci, A. Sciomachen, and P. Uberti (eds.), AIRO Springer Series, vol. 3, Springer, Cham, pp. 267-277.

Conference Proceedings

– Lanza G., Passacantando M., Scutellà M.G. (2022), The Green Sequencing and Routing Problem, Proceedings of the 13th International Conference on Computational Logistics (ICCL 2022), Barcelona, Spain, to appear.

– Baiardi F., Maggi D.M., Passacantando M. (2022), Discovering How to Attack a System, Proceedings of the 19th International Conference on Security and Cryptography (SECRYPT 2022), pp. 548-553, Lisbon, Portugal.

– P. Nepa, A. Motroni, A. Congi, E.M. Ferro, M. Pesi, G. Giorgi, A. Buffi, M. Lazzarotti, J. Bellucci, S. Galigani, M. Frosolini, M. Braglia, A. Bigongiari, G. Isola, F. Bertuccelli, M.G. Scutellà, M. Pappalardo, M. Passacantando, D. Lo Schiavo, A. Rubichi, C. Salvador, F. Bonifacio, F. Zani (2019), I-READ 4.0: Internet-of-READers for an efficient asset management in large warehouses with high stock rotation index, Proceedings of the 5th IEEE International Forum on Research and Technology for Society and Industry (RTSI 2019), pp. 67-72, Florence, Italy.

– Gianniti E., Ardagna D., Ciavotta M., Passacantando M., (2017), A Game-Theoretic Approach for Runtime Capacity Allocation in MapReduce, Proceedings of the 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2017), pp. 1080-1089, Madrid, Spain.