

Veronica Piccialli

- Personal Data

1. Address: Dipartimento di Ingegneria Informatica e Ingegneria Civile, University of Rome Tor Vergata Via del Politecnico, 1 00133 Roma.
2. Phone: +39 06 72597789.
3. Email: veronica.piccialli@uniroma2.it.
4. WWW: <http://people.uniroma2.it/veronica.piccialli/index.html>

- Education and current position

1. National qualification as Full Professor November 2017.
2. National qualification as Associate Professor November 2013.
3. Assistant professor, Dipartimento di Ingegneria Civile e Ingegneria Informatica, Faculty of Engineering, University of Rome Tor Vergata, May 2012-present.
4. Assistant professor, Dipartimento di Informatica, Sistemi e Produzione, Faculty of Engineering, University of Rome Tor Vergata, December 2010-May2012.
5. Assistant professor, Dipartimento di Ingegneria dell'Impresa, Faculty of Engineering, University of Rome Tor Vergata, October the 1st 2008-December the 15th 2010.
6. Two years post doc position, Department of Computer and Systems Science "Antonio Ruberti", Faculty of Engineering, Sapienza University of Rome, October the 1st 2007- September the 30th 2008.
7. One year appointment contract as researcher in the PRIN 2005 program: Problemi e metodi innovativi nell'ottimizzazione non lineare, Italy, Department of Computer and Systems Science "Antonio Ruberti", Faculty of Engineering, Sapienza University of Rome, 2006- 2007.
8. Two years appointment contract as researcher in the FIRB program: Large scale nonlinear optimization, Italy, Department of Computer and Systems Science "Antonio Ruberti", Faculty of Engineering, Sapienza University of Rome, 2003- 2006.
9. Philosophy doctor in "Operations Research" at Sapienza University of Rome. Final exam March the 8th, 2004.
10. Engineer qualification granted by Engineers Association of Rome, July, 2001.
11. Master degree in Computer Science Engineering summa cum laude, Sapienza University of Rome, May the 29th, 2000.

- Research Interests

1. Machine Learning
2. Feature Selection
3. Railway Line Planning
4. Global Optimization
5. Nonlinear Optimization
6. Generalized Nash Equilibrium Problems
7. Semidefinite Programming
8. Max-cut problem

- Patents

MIND-13/08/2018 Un logiciel de synthèse et d'optimisation de procédés de séparation de gaz par membranes. IDN.FR.001.460015.000.S.A.2018.000.31500

- Academic Services

1. Associate Editor in the area "Design and Analysis of Algorithms: Continuous" for INFORMS Journal on Computing, 2019 - todate
2. Reviewer for the following journals:
 - (a) SIAM Journal on Optimization
 - (b) Mathematical Programming
 - (c) Journal of Global Optimization
 - (d) Optimization and engineering
 - (e) Journal of Optimization Theory and Applications
 - (f) Journal of Computational and Applied Mathematics
 - (g) European Journal of Operational Research
 - (h) Neurocomputing
 - (i) Transportation Science
 - (j) Operations Research Letters

- Journal Papers

- [J31] M. Cosmi, G. Oriolo, V. Piccialli and P. Ventura (2019). Single Courier Single Restaurant Meal Delivery (Without Routing), to appear on Operations Research Letters.
- [J30] M. Bozorg, A. Ramirez Santos, B. Addis, V. Piccialli, C. Castel, I. Pinnau, E. Favre (2019). Polymeric membrane materials for nitrogen production from air: a process synthesis study, Chemical Engineering Science, vol. 207, pp. 1196–1213, <https://doi.org/10.1016/j.ces.2019.07.029>.

- [J29] L. Bianchi, C. Liti, and V. Piccialli (2019). A new early stopping method for P300 spellers, *IEEE Transactions on Neural Systems & Rehabilitation Engineering*, vol. 27(8), pp. 1635–1643, <https://doi.org/10.1109/TNSRE.2019.2924080>.
- [J28] G. Liuzzi, M. Locatelli, V. Piccialli (2019). A new branch-and-bound algorithm for standard quadratic programming problems, *Optimization Methods and Software*, vol. 34(1), pp. 79 - 97 doi: 10.1080/10556788.2017.1341504.
- [J27] S. Burer, and V. Piccialli (2019). Three Methods for robust grading, *EJOR*, vol. 272(1), 364–371 <https://doi.org/10.1016/j.ejor.2018.06.019>.
- [J26] A. Ramírez-Santos, M. Bozorg, B. Addis, V. Piccialli, C. Castel, E. Favre (2018). Optimization of multistage membrane gas separation processes. Example of application to CO₂ capture from blast furnace gas, *Journal of Membrane Science*, vol. 566, pp 346-366 <https://doi.org/10.1016/j.memsci.2018.08.024>.
- [J25] V. Piccialli and M. Sciandrone (2018). Nonlinear Optimization and Support Vector Machines, *4OR*, vol. 16(2), pp 111–149, <https://doi.org/10.1007/s10288-018-0378-2>
- [J24] E.F. Campana, M. Diez, G. Liuzzi, S. Lucidi, R. Pellegrini, V. Piccialli, F. Rinaldi, A. Serani (2018). A Multi-objective DIRECT algorithm for ship hull optimization, *Computational Optimization and Optimization*, , vol. 71(1), pp. 53 - 72, doi: 10.1007/s10589-017-9955-0.
- [J23] G. Cocchi, A. Galligari, F. Picca Nicolino, V. Piccialli, F. Schoen, M. Sciandrone (2018). Scheduling the Italian National Volley Tournament, *Interfaces* , vol. 48(3), pp. 271 - 284, <https://doi.org/10.1287/inte.2017.0932>.
- [J22] F. Fedeli, R. Mancini, C. Mannino, P. Ofria, G. Oriolo, A. Pacifici, and V. Piccialli (2017). Optimal design of a regional railway service in Italy, *Journal of Rail Transport Planning & Management*, vol. 7(4), pp. 308-319, <https://doi.org/10.1016/j.jrtpm.2017.10.00>.
- [J21] L. Bravi, V. Piccialli, M. Sciandrone (2017). An optimization-based method for feature ranking in nonlinear regression problems. *IEEE Transactions on Neural Networks and Learning Systems*, vol. 28(4), p. 1005 - 1010 .
- [J20] G. Di Pillo, G. Liuzzi, S. Lucidi, F. Rinaldi, V. Piccialli. A DIRECT-type approach for derivative-free constrained global optimization, *Computational Optimization and Applications*, vol. 65(2), pp. 361–397 (2016).
- [J19] L. Bianco, M. Caramia, S. Giordani, V. Piccialli. A Game-theoretic Approach for Regulating Hazmat Transportation. *Transportation Science*, vol. 50 (2), p. 424-438 (2016).
- [J18] V. Cardellini, V. De Nitto Personé, V. Di Valerio, F. Facchinei, V. Grassi, V. Lo Presti, V. Piccialli. A Game-theoretic approach to computation offloading in mobile cloud computing, *Mathematical Programming*, vol. 157 (2), p. 421-449 (2016).
- [J17] G. Liuzzi, S. Lucidi, V. Piccialli. Exploiting derivative-free local searches in DIRECT-type algorithms for global optimization. *Computational Optimization and Applications*, vol. 65(2), pp. 449–4759 (2016).

- [J16] L. Grippo, L. Palagi, M. Piacentini, V. Piccialli, G. Rinaldi. SpeedP: An algorithm to compute SDP bounds for very large Max-Cut instances. *Mathematical Programming*, vol. 136, p. 353-373, ISSN: 0025-5610, doi: 10.1007/s10107-012-0593-0 (2012).
- [J15] L. Grippo, L. Palagi, V. Piccialli. An unconstrained minimization method for solving low rank SDP relaxations of the max cut problem, *Mathematical Programming Series A*, vol. 126, n. 1, pp. 119-146 (2011).
- [J14] A.Y. Alfakih, M.F. Anjos, V. Piccialli, H. Wolkowicz. Euclidean Distance Matrices, Semidefinite Programming, and Sensor Network Localization (a survey), *Portugaliae Mathematica*, vol. 68, n. 1, pp. 53-102 (2011).
- [J13] F. Facchinei, V. Piccialli, M. Sciandrone. Decomposition Algorithms for Generalized Potential Games. *Computational Optimization and Applications*, vol.50, pp. 237-262 (2011).
- [J12] D. di Serafino, G. Liuzzi, V. Piccialli, F. Riccio, G. Toraldo. A Modified Dividing RECTangles Algorithm for a Problem in Astrophysics. *Journal of Optimization Theory and Applications*, vol. 151, Number 1 (2011), 175-190, doi: 10.1007/s10957-011-9856-9 (2011).
- [J11] G. Liuzzi, S. Lucidi, V. Piccialli. A DIRECT-based approach for large-scale global optimization problems, *Computational Optimization and Applications*, vol. 45, n. 2, pp. 353-375 (2010).
- [J10] G. Liuzzi, S. Lucidi, V. Piccialli. A partition-based Global Optimization Algorithm, *Journal of Global Optimization*, vol.48, n. 1, pp. 113-128 (2010).
- [J9] E. Campana, G. Liuzzi, S. Lucidi, D. Peri, A. Pinto, V. Piccialli. New Global Optimization Methods for Ship Design Problems, *Optimization and Engineering*, vol. 10, n.4, pp. 533-555 (2009).
- [J8] L. Grippo, L. Palagi, V. Piccialli. Necessary and sufficient global optimality conditions for NLP reformulations of linear SDP problems, *Journal of Global Optimization*, vol. 44, n 3, pp. 339 - 348 (2009).
- [J7] F. Facchinei, A. Fischer, V. Piccialli. Generalized Nash Equilibrium Problems and Newton methods, *Mathematical Programming Series B*, Vol. 117, n. 1-2, pages 163-194 (2009). **This paper is one of the eight most cited articles published on Mathematical Programming in 2009-2010.**
- [J6] F. Facchinei, A. Fischer, V. Piccialli. On Generalized Nash Games and Variational Inequalities, *Operations Research Letters*, vol. 35, n. 2, pp. 159-164(2007).
- [J5] S. Lucidi, V. Piccialli, M. Sciandrone. An Algorithm Model for Mixed Variable Programming. *SIAM Journal on Optimization*, November 2005, vol. 15, n. 4, pp. 1057 - 1084.
- [J4] G. Liuzzi, S. Lucidi, V. Piccialli, M. Villani. Induction motors design by a mixed-variable approach. *Computational Management Science*, vol. 2, n. 3, pp. 213 - 228 (2005).

- [J3] S. Lucidi, V. Piccialli. A derivative based algorithm for a particular class of mixed variable optimization problems. *Optimization Methods and Software*, vol.19, n.3-4, pp. 371-387 (2004).
- [J2] G.Liuzzi, S.Lucidi, V.Piccialli, A.Sotgiu. A Magnetic Resonance device designed via global optimization techniques. *Mathematical Programming*, vol. 101, n. 2, pp. 339-364 (2004).
- [J1] S. Lucidi, V. Piccialli. New Classes of Globally Convexized Filled Functions for Global Optimization. *Journal of Global Optimization*, vol. 24, pp. 219-236 (2002).

- Submitted Papers

- [1] L. Galli, G. Galvan, T. Levato, C. Liti, V. Piccialli and M. Sciandrone (2018). Football: do team performances win the match? A machine learning based study, submitted to EJOR.
- [2] P. Mancuso, V. Piccialli, A. Sudoso (2019). Pasta dilemma: the impact of private label on product forecast. An integrated approach based on neural networks and statistical methods, submitted to [EJOR](#).
- [3] C. Castel, M. Bozorg, A. Ramirez Santos, B. Addis, V. Piccialli, E. Favre (2019). Optimal process design of biogas upgrading membrane systems: polymeric vs high performance inorganic membrane materials, submitted to [Journal of Membrane Science](#).
- [4] A. Sudoso and V. Piccialli (2019). Non-Intrusive Load Monitoring with an Attention-based Deep Neural Network, submitted to [Neurocomputing](#).

- Book Chapters

- [C3] G. Liuzzi, S.Lucidi, V. Piccialli. Global optimization of simulation based complex systems. In G. Dellino, C. Meloni, (Eds.) *Uncertainty Management in Simulation-Optimization of Complex Systems: Algorithms And Applications*, Operations Research/Computer Science Interfaces Series, Springer (2015).
- [C2] L. Bianco, M. Caramia, S. Giordani and V. Piccialli. Operations research models for global route planning in hazardous material transportation. In Rajan Batta, Changhyun Kwon (Eds.), *Handbook of OR/MS Models in Hazardous Materials Transportation*, p. 49-101, Springer (2013).
- [C1] L. Palagi, V. Piccialli, F. Rendl, G. Rinaldi, and A. Wiegele. Computational Approaches to Max-Cut. In M.F. Anjos and J.B. Lasserre (Eds.), *Handbook of Semidefinite, Cone and Polynomial Optimization: Theory, Algorithms, Software and Applications*, Springer, New York (2011).

- Conference Proceedings

- [P4] L. Bianchi, M. Cosmi, C. Liti, V. Piccialli. Features reduction for P300 Spellers. In *Proceedings of the Sixth International Brain-Computer Interface*

Meeting: BCI Past, Present, and Future May 30 - June 3 2016 Asilomar Conference Center, Pacific Grove, California, USA, 2016.

- [P3] F. Fedeli, R. Mancini, C. Mannino, P. Ofria, G. Oriolo, A. Pacifici, and V. Piccialli (2017). Optimal design of a regional railway service in Italy, Proceedings of Railille 2017, Lille, Francia, 4-7 aprile 2017.
- [P2] L. Bianchi, C. Liti, V. Piccialli. (2017). Can feature selection be used to detect physiological components in P300 based BCI for Amyotrophic lateral sclerosis patients? Proceedings of the 7th Graz Brain-Computer Interface Conference 2017, September , Graz, DOI: 10.3217/978-3-85125-533-1-51
- [P1] C. Liti, V. Piccialli. (2017). Predicting soccer match outcome using machine learning algorithms in Conference: MathSport International 2017 Conference At: Padua (Italy)

- Technical Reports and Others

- [1] V. Piccialli. Methods for solving Mixed Variable Programming Problems, Ph.D. Thesis. Department of Computer and Systems Science "Antonio Ruberti", Sapienza University of Rome. (2004)
- [2] N. Krislock, V. Piccialli, H. Wolkowicz. Robust Semidefinite Programming Approaches for Sensor Network Localization with Anchors. University of Waterloo Department of Combinatorics and Optimization Waterloo, Canada Research Report CORR 2006-12(2006).
- [3] G. Liuzzi, S. Lucidi, V. Piccialli. Partitioning techniques for global optimization. In V. De Simone, D. Di Serafino, G. Toaldo (Eds.) Recent Advances in Non-linear Optimization and Equilibrium Problems: a Tribute to Marco D'Apuzzo. Quaderni di Matematica - vol. 27 (2012).

- Invited Conference Presentations

1. S. Lucidi, V. Piccialli, M. Sciandrone. An Algorithm Model for Mixed Variable Programming. "SIAM conference on Optimization". May 20th-22nd 2002, Toronto (Canada) (2002)
2. S. Lucidi, V. Piccialli, M. Sciandrone. A derivative Free Algorithm for Mixed Variable Programming. AIRO2002 September 9th-13th 2002, L'Aquila, Italy (2002)
3. V. Piccialli. Methods for solving Mixed Variable Programming Problems. McMaster Optimization Day May 10th 2004, Hamilton, Canada (2004)
4. G. Liuzzi, S. Lucidi, V. Piccialli, M. Villani. Induction Motors Design by a Mixed Variable Approach. Optimization2004 July 25th-28th 2004, Lisbon, Portugal (2004)
5. G. Liuzzi, S. Lucidi, V. Piccialli, M. Villani. Induction Motors Design by a Mixed Variable Approach. AIRO2004 September 7th-10th 2004, Lecce, Italy (2004)

6. G. Liuzzi, S. Lucidi, V. Piccialli. A New Global Optimization Method Based on the Use of Distributed Local Minimizations. SIAM2005 May 16th-19th 2005, Stockholm, Sweden (2005)
7. G. Liuzzi, S. Lucidi, V. Piccialli. New Global Optimization Method Based on the Use of Distributed Local Minimizations. AIRO2005 September 6th-9th 2005, Camerino (2005)
8. F. Facchinei, A. Fischer, V. Piccialli. Generalized Nash equilibrium problems and Newton methods. Waterloo, October 31st 2005, Computational mathematics colloquium (2005)
9. F. Facchinei, A. Fischer, V. Piccialli. Generalized Nash equilibrium problems and Newton methods. SIMAI2006, 22-26 May 2006, Ragusa (2006)
10. L. Grippo, L. Palagi, V. Piccialli. A class of nonlinear programming algorithms for a class of semidefinite programming problems. EURO 2006 July 2nd-5th 2006, Reykjavic (2006)
11. L. Grippo, L. Palagi, V. Piccialli. A class of nonlinear programming algorithms for a class of semidefinite programming problems. AIRO 2006 September 12th-15th 2006, Cesena (2006)
12. L. Grippo, L. Palagi, V. Piccialli. An unconstrained minimization method for solving low rank SDP relaxations of the max cut problem. International School of Mathematics "G. Stampacchia" Workshop new problems and innovative methods in nonlinear optimization July 31st - August 9th (2007)
13. L. Grippo, L. Palagi, V. Piccialli. An unconstrained approach for solving low rank SDP problems. AIRO 2007, September 5th-8th 2007, Genova (2007).
14. F. Facchinei, A. Fischer, V. Piccialli, M. Sciandrone. Decomposition Algorithms for Generalized Potential Games. Dresden, June 3rd 2008.
15. F. Facchinei, V. Piccialli, M. Sciandrone. Decomposition Algorithms for Generalized Potential Games. AIRO2008, Ischia, September 8th-11th 2008.
16. V. Piccialli. Regularization methods for solving linear semidefinite programming problems. Firenze, June 23th 2009.
17. L. Bianco, M. Caramia, S. Giordani, V. Piccialli. Regulating HazMat Transportation: a game theory approach. ISMP09, Chicago, August 23-28th 2009.
18. L. Bianco, M. Caramia, S. Giordani, V. Piccialli. Regulating HazMat Transportation: a game theory approach. AIRO09, Siena, September 8-11th 2009.
19. L. Grippo, L. Palagi, M. Piacentini, V. Piccialli, F. Rendl, G. Rinaldi, A. Wiegele. SpeedP: a fast method for solving the SDP relaxation of Max Cut. Invited Speaker EWMINLP, Marseille, April 12th-16th 2010.
20. L. Grippo, L. Palagi, M. Piacentini, V. Piccialli, F. Rendl, G. Rinaldi, A. Wiegele. SpeedP: a fast method for solving the SDP relaxation of Max Cut. First Alpen-Adria Workshop on Optimization 2010, University of Klagenfurt (Austria) June 3rd-6th 2010.

21. L. Grippo, L. Palagi, M. Piacentini, V. Piccialli, G. Rinaldi. Max-Cut Heuristics for Huge Graphs. Invited Speaker Algorithms and Optimization in Action, IASI CNR, Rome, November 25, 2011.
22. V. Piccialli, F. Facchinei, V. Cardellini, V. Di Valerio, V. Grassi, F. Lo Presti, V. De Nitto Personè. Cyber foraging as a generalized Nash equilibrium problem. EUROPT 2013, Firenze, June 25-28, 2013.
23. V. Piccialli, F. Facchinei, V. Cardellini, V. Di Valerio, V. Grassi, F. Lo Presti, V. De Nitto Personè. Non-cooperative computation offloading in mobile cloud computing, ICCOPT 2013, Caparica, Lisbon, Portugal, July 27th-August 1st, 2013.
24. L. Bravi, V. Piccialli, M. Sciandrone. A Feature Ranking Method for Nonlinear Regression. INFORMS 2014, San Francisco, California, November 9-12, 2014.
25. V. Piccialli, L. Bravi, M. Sciandrone, An optimization-based method for feature ranking in nonlinear regression problems, AIRO2015, Pisa, Settembre 2015.
26. F. Fedeli, R. Mancini, C. Mannino, P. Ofria, G. Oriolo, A. Pacifici, and V. Piccialli (2017). Optimal design of a regional railway service in Italy, Railille 2017, Lille, Aprile 2017.
27. G. Liuzzi, M. Locatelli, V. Piccialli. A new branch-and-bound algorithm for standard quadratic programming problems, 5th Alpen-Adria-Workshop on Optimization, Klagenfurt, December 6-9, 2017.
28. Invited Seminar at LUISS: Machine Learning and Optimization for Neuroscience, 22nd of May 2018
29. A. Ramírez-Santos, M. Bozorg, B. Addis, V. Piccialli, C. Castel, E. Favre (2018). Membrane System Design Optimization, ISMP 2018, Bordeaux, France.
30. Invited Speaker at Optimization, Game Theory, and Data Analysis December 20-21, 2018, University of Vienna, Austria : A new branch-and-bound algorithm for standard quadratic programming problems

- Professional Experience

1. Appointment contract as researcher in the PRIN 2005 program: Problemi e metodi innovativi nell'ottimizzazione non lineare, Italy, November 2006-October 31st, 2007.
2. Appointment contract as researcher in the FIRB program: Large scale nonlinear optimization, November 2003-October 2006.
3. Postdoctoral fellowship, Department of Combinatorics and Optimization, University of Waterloo, September 2005- March 2006.
4. Visiting scholar, University of Waterloo, Department of Combinatorics and Optimization, invited by Prof. Henry Wolkowicz, April-June 2004.

- Teaching Experience

Teaching Assistant of the courses:

1. Operations Research (2000/01 and 2001/02), Diploma in Ingegneria Informatica at Sapienza University of Rome.
2. Operations Research (2001/02, 2005/6) Computer Science Engineering, at Sapienza University of Rome.
3. Nonlinear Optimization of Management Engineering, at Sapienza University of Rome (2001/02, 2002/03, 2003/04, 2004/05, 2006/07, 2007/08).

Academic Courses:

1. Operation Research of Transportation Engineering, at Sapienza University of Rome (2005).
2. Operation Research of Computer Science Engineering, at Sapienza University of Rome in Rieti, 2007/2008.
3. Queue Theory of Management Engineering, at University of Rome Tor Vergata, 2008/09 (undergraduate).
4. Master course Operations Research of Computer Science Engineering, at University of Rome Tor Vergata, 2011/12.
5. Master course Optimization of Management Engineering, at University of Rome Tor Vergata, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14, 2014/15.
6. Master course Optimization Methods for Big Data of Computer Science Engineering and Management Science Engineering, at University of Rome Tor Vergata, 2015/16 and 2016/17.
7. Master course Optimization Methods for Big Data of Computer Science Engineering and Control Theory Engineering, at University of Rome Tor Vergata, 2017/18.

PhD Courses:

1. Ten lectures on the topic Derivative Free Optimization as part of the Continuous Optimization course for the Ph.D. in Systems Science Engineering Sapienza University of Rome, April 2004.
2. Ten lectures on the topic Semidefinite Programming as part of the Continuous Optimization course for the Ph.D. in Systems Science Engineering at Sapienza University of Rome, April 2005.
3. Twenty lectures on the topic Semidefinite Programming as part of the Continuous Optimization course for the Ph.D. in Systems Science Engineering at Sapienza University of Rome, February 2010.
4. Eight hours course as invited senior scientist at the EURO Summer Institute 2010 at the University of Klagenfurt, Austria, August 20 - September 4, 2010.
5. Twenty hours on the topic Algorithms for Constrained Optimization for the PhD Program Information Engineering and Science at University of Siena, May 2015.
6. Four hours on Semidefinite Optimization as invited senior scientist in the COST/MINO PhD School on Advanced Optimization Methods 2016, IASI-CNR, Rome, Italy, June, 2016

7. Twenty hours on the topic Algorithms for Constrained Optimization for the PhD Program Information Engineering and Science at University of Siena, May 2017.

PhD Students:

1. Chiara Liti
2. Marjan Bozorg in cotutelle with Université de Lorraine
3. Antonio Maria Sudoso