

Curriculum Vitae

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1 – Personal record

Sex: Male

Date of birth: July 29, 1966

Place of birth: Moreira, Maia, Portugal

Nationality: Portuguese

Marital status: married (2 children)

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1.1 Employment history:

Present position (2001-): assistant professor (*“professor auxiliar”*) at the Department of Computer Science of the Faculdade de Ciências da Universidade do Porto (FCUP), Portugal. Teaches courses on operational research, artificial intelligence, heuristic methods for optimization, and computer programming. Research being carried out concerns mainly computational methods for tackling combinatorial optimization problems, often involving simulation and artificial intelligence, with applications in decision support.

Faculdade de Ciências da Universidade do Porto (FCUP)
Departamento de Ciência de Computadores
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Previous position (1999-2001): assistant professor (*“professor auxiliar”*) at the Department of Statistics and Operational Research, Faculdade de Ciências da Universidade de Lisboa (FCUL), Portugal. Taught introductory courses on operational research, and master courses on heuristic methods for optimization. Research carried out concerned the use of heuristic methods for the approximate solution of non-linear and combinatorial optimization problems, and the development of machine learning algorithms.

Faculdade de Ciências da Universidade de Lisboa (FCUL)
Departamento de Estatística e Investigação Operacional
Campo Grande
1749-016 Lisboa, Portugal

1.2 Academic degrees

1996, “Docteur en Sciences Appliquées”, CORE – Center for Operations Research and Econometrics, Université Catholique de Louvain, Belgium. Title: *Universal Service: Issues on Modelling and Computation*.

1992, Post-graduation, Engineering in Industrial Management, Université Catholique de Louvain, Louvain-la-Neuve, Belgium. Title of the thesis: “Conception and implementation of a users friendly system for multicriteria optimization”.

1989, Chemical Engineering, Faculdade de Engenharia da Universidade do Porto, Portugal. Major in *“Information Systems for the Industry”*

1.3 Educational history

1996, May, obtained a PhD degree in Applied Sciences, group of Engineering Mathematics, at the Center for Operations Research and Econometrics (CORE), Université Catholique de Louvain, Belgium.

Title of the thesis: *“Universal Service: Issues on Modelling and Computation”*. The subject concerns the economic conception and computational implementation of a system for modeling universal service. The system developed included a solver for global optimization, a solver for the numerical computation of Nash equilibria, and an object-oriented library for modeling economic problems.

Keywords: computational economics, evolutionary algorithms, non-linear optimization, Nash equilibria computation, object-oriented programming.

1992, completed a post-graduation course in Industrial Management Engineering at the Université Catholique de Louvain, Louvain-la-Neuve, Belgium. Followed the Project Management programme. Subject of the thesis: conception and implementation of a users friendly system for multicriteria optimization. Duration of the course: one year.

1989, course in Implementation of Information Systems for Management at the INESC - Porto, Portugal. Duration of the course: six months.

1989, completed the degree in Chemical Engineering at Faculdade de Engenharia da Universidade do Porto, Portugal. Majored in Information Systems for the Industry. Developed software for real-time control of chemical processes. Duration of the course: five years.

2 – Publications, seminars, and conferences organised

2.1 Scientific publications

2.1.1 Books

- M. Kubo, J. P. Pedroso, M. Muramatsu, and A. Rais. *Mathematical Optimization: Solving Problems using Python and Gurobi*. Kindaikagakusha, Tokyo, Japan, 2012. <http://www.amazon.co.jp/gp/reader/4764904330>
- M. Kubo and J. P. Pedroso. *Metaheuristics: a Programming Guide*. Kyoritsu, Tokyo, Japan, 2009. <http://www.amazon.co.jp/gp/reader/4320122356>

2.1.2 Chapters in books and lecture notes

- J. P. Pedroso and R. Rei. Tree search and simulation. In M. M. Mota, I. F. de la Mota, and D. G. Serrano, editors, *Applied Simulation and Optimization: In Logistics, Industrial, and Aeronautical Practice*. Springer, 2015.
- J. P. Pedroso. Maximizing expectation on vertex-disjoint cycle packing. In B. Murgante, S. Misra, A. M. A. Rocha, C. Torre, J. G. Rocha, M. I. Falcão, D. Taniar, B. O. Apduhan, and O. Gervasi, editors, *Computational Science and Its Applications – ICCSA 2014*, volume 8580 of *Lecture Notes in Computer Science*, pages 32–46. Springer International Publishing, 2014.
- D. F. Rahman, A. Viana, and J. P. Pedroso. A MILP-based approach for hydrothermal scheduling. In S. Helber, M. Breitner, D. Rösch, C. Schön, J.-M. Graf von der Schulenburg, P. Sibbertsen, M. Steinbach, S. Weber, and A. Wolter, editors, *Operations Research Proceedings 2012*, Operations Research Proceedings, pages 157–162. Springer International Publishing, 2014.
- R. J. Rei, J. P. Pedroso, H. Hino, and N. Murata. A tree search approach to sparse coding. In Y. Hamadi and M. Schoenauer, editors, *LION*, volume 7219 of *Lecture Notes in Computer Science*, pages 472–477. Springer, 2012.
- V. Rodrigues, J. P. Pedroso, M. Florido, and S. M. de Sousa. Certifying execution time. In R. Peña, M. C. J. D. van Eekelen, and O. Shkaravska, editors, *FOPARA*, volume 7177 of *Lecture Notes in Computer Science*, pages 108–125. Springer, 2011.
- J. P. Pedroso. Metaheuristics for the asymmetric hamiltonian path problem. In S. D. I. Dimov and N. K. (Eds.), editors, *Numerical Methods and Applications, NMA 2010*, volume 6046 of *Lecture Notes in Computer Science*, pages 272–279, Springer, Heidelberg, 2011. Seventh International Conference on Numerical Methods and Applications, Springer.
- R. Rei, M. Kubo, and J. P. Pedroso. Simulation-based optimization for steel stacking. In L. T. H. An, P. Bouvry, and P. D. Tao, editors, *Modelling, Computation and Optimization in Information Systems and Management Sciences*, Communications in Computer and Information Science (CCIS). Springer, 2008.
- J. P. Pedroso. Simple metaheuristics using the simplex algorithm for non-linear programming. In T. Stützle, M. Birattari, and H. H. Hoos, editors, *Engineering Stochastic Local Search Algorithms: Designing, Implementing and Analyzing Effective Heuristics*, volume 4638 of *Lecture Notes in Computer Science*. Springer, Brussels, Belgium, 2007.
- J. P. Pedroso and M. Kubo. Hybrid tabu search for lot sizing problems. In M. J. Blesa, C. Blum, A. Roli, and M. Sampels, editors, *Hybrid Metaheuristics*, volume 3636 of *Lecture Notes in Computer Science*, pages 66–77. Springer, 2005.
- J. P. Pedroso. Tabu search for mixed integer programming. In C. Rego, editor, *Metaheuristic Optimization via Memory and Evolution: Tabu Search and Scatter Search*. Springer, 2005.

- T. Neto and J. P. Pedroso. Grasp for linear integer programming. In J. P. Sousa and M. G. C. Resende, editors, *METAHEURISTICS: Computer Decision-Making*, Combinatorial Optimization Book Series, pages 545–574. Kluwer Academic Publishers, 2003.
- A. S. Pereira, F. Carvalho, M. Constantino, and J. P. Pedroso. Iterated local search and tabu search for a discrete lot sizing and scheduling problem. In J. P. Sousa and M. G. C. Resende, editors, *METAHEURISTICS: Computer Decision-Making*, Combinatorial Optimization Book Series, pages 575–600. Kluwer Academic Publishers, 2003.
- J. P. Pedroso. Niche search: an evolutionary algorithm for global optimisation. In H.-M. Voigt, W. Ebeling, I. Rechenberg, and H.-P. Schwefel, editors, *Parallel Problem Solving from Nature IV*, volume 1141 of *Lecture Notes in Computer Science*, pages 430–440, Berlin, 1996. International Conference on Evolutionary Computation / PPSN IV, Springer.

2.1.3 Journal papers

- N. Santos, P. Tubertini, A. Viana, and J. P. Pedroso. Kidney exchange simulation and optimization. *Journal of the Operational Research Society*, 2017. (Accepted for publication). <http://dx.doi.org/10.1057/s41274-016-0174-3>
- J. de Armas, A. A. Juan, J. M. Marquès, and J. P. Pedroso. Solving the deterministic and stochastic uncapacitated facility location problem: from a heuristic to a simheuristic. *Journal of the Operational Research Society*, 2017. (Accepted for publication). <http://dx.doi.org/10.1057/s41274-016-0155-6>
- T. Neto, M. Constantino, I. Martins, and J. P. Pedroso. Forest harvest scheduling with clearcut and core area constraints. *Annals of Operations Research*, 9 2016. <https://dx.doi.org/10.1007/s10479-016-2313-2>
- M. Carvalho, A. Lodi, J. P. Pedroso, and A. Viana. Nash equilibria in the two-player kidney exchange game. *Mathematical Programming*, pages 1–29, 2016. <http://dx.doi.org/10.1007/s10107-016-1013-7>
- X. Klimentova, J. P. Pedroso, and A. Viana. Maximising expectation of the number of transplants in kidney exchange programmes. *Computers & Operations Research*, 73:1 – 11, 2016. http://dx.doi.org/10.1007/978-3-319-09129-7_3
- F. Brandão and J. P. Pedroso. Bin packing and related problems: General arc-flow formulation with graph compression. *Computers & Operations Research*, 69:56 – 67, 2016. <http://dx.doi.org/10.1016/j.cor.2015.11.009>
- B. Vieira, A. Viana, M. Matos, and J. P. Pedroso. A multiple criteria utility-based approach for unit commitment with wind power and pumped storage hydro. *Electric Power Systems Research*, 131:244 – 254, 2016. <http://dx.doi.org/10.1016/j.epsr.2015.10.024>
- J. P. Pedroso, S. Cunha, and J. N. Tavares. Recursive circle packing problems. *International Transactions in Operational Research*, 23(1-2):355–368, 2016. <http://dx.doi.org/10.1111/itor.12107>
- V. Rodrigues, B. Akesson, M. Florido, S. M. de Sousa, J. P. Pedroso, and P. Vasconcelos. Certifying execution time in multicores. *Science of Computer Programming*, 111(P3):505–534, November 2015. <http://dx.doi.org/10.1016/j.scico.2015.06.006>
- N. Santos, R. Rebelo, and J. P. Pedroso. A tabu search for the flowshop scheduling problem with sequence dependent setup times. *International Journal of Data Analysis Techniques and Strategies*, 6(3):275–285, 2014. <http://dx.doi.org/10.1504/IJDATS.2014.063062>
- M. Carvalho, J. P. Pedroso, and J. Saraiva. Electricity day-ahead markets: Computation of Nash equilibria. *Journal of Industrial and Management Optimization*, 11(3):985–998, 2014. <http://dx.doi.org/10.3934/jimo.2015.11.985>
- D. F. Rahman, A. Viana, and J. P. Pedroso. Metaheuristic search based methods for unit commitment. *International Journal of Electrical Power and Energy Systems*, 59(0):14 – 22, 2014. <http://dx.doi.org/10.1016/j.ijepes.2014.01.038>
- F. Brandão and J. P. Pedroso. Fast pattern-based algorithms for cutting stock. *Computers & Operations Research*, 48:69–80, 2014. <http://dx.doi.org/10.1016/j.cor.2014.03.003>
- F. Brandão and J. P. Pedroso. A complete search method for the relaxed traveling tournament problem. *EURO Journal on Computational Optimization*, pages 1–10, 2013. <http://dx.doi.org/10.1007/s13675-013-0010-3>

- T. Neto, M. Constantino, J. P. Pedroso, and I. Martins. A branch-and-bound procedure for forest harvest scheduling problems addressing aspects of habitat availability. *International Transactions in Operational Research*, 20(5):689–709, 2013. <http://dx.doi.org/10.1111/itor.12003>
- A. Viana and J. P. Pedroso. A new MILP-based approach for unit commitment in power production planning. *International Journal of Electrical Power and Energy Systems*, 44:997–1005, 2013. <http://dx.doi.org/10.1016/j.ijepes.2012.08.046>.
- R. J. Rei and J. P. Pedroso. Tree search for the stacking problem. *Annals of Operations Research*, 203(1):371–388, 2013. <http://dx.doi.org/10.1007/s10479-012-1186-2>
- R. J. Rei and J. P. Pedroso. Heuristic search for the stacking problem. *International Transactions in Operational Research*, 19(3):379–395, 2012. <http://dx.doi.org/10.1111/j.1475-3995.2011.00831.x>.
- J. P. Pedroso and M. Kubo. Heuristics and exact methods for number partitioning. *European Journal of Operational Research*, 202:73–81, 2010. <http://dx.doi.org/10.1016/j.ejor.2009.04.027>
- P. P. Rodrigues, J. Gama, and J. P. Pedroso. Hierarchical clustering of time series data streams. *IEEE Transactions on Knowledge and Data Engineering*, 20(5):615–627, May 2008. <http://dx.doi.org/10.1109/TKDE.2007.190727>
- J. P. Pedroso. An evolutionary solver for pure integer linear programming. *International Transactions in Operational Research*, 9(3):337–352, May 2002. <http://dx.doi.org/10.1111/1475-3995.00359>
- J. P. Pedroso and N. Murata. Support vector machines with different norms: motivation, formulations, and results. *Pattern Recognition Letters*, 22:1263–1272, 2001. [http://dx.doi.org/10.1016/S0167-8655\(01\)00071-X](http://dx.doi.org/10.1016/S0167-8655(01)00071-X)

2.1.4 Conference papers and other refereed publications

- S. Maher, M. Miltenberger, J. P. Pedroso, D. Rehfeldt, R. Schwarz, and F. Serrano. PySCIPOpt: Mathematical programming in Python with the SCIP optimization suite. In G.-M. Greuel, T. Koch, P. Paule, and A. Sommese, editors, *Mathematical Software – ICMS 2016*, volume 9725 of *Lecture Notes in Computer Science*, pages 301–307. Springer International Publishing, 2016.
- J.P. Pedroso, J.N. Tavares, and J. Leite. An algorithm for packing tubes and boxes. In *International Conference on Computers & Industrial Engineering*, Metz, France, October 2015.
- J. P. Pedroso. Optimization and artificial intelligence for smart devices. In *T-Engine Forum*, Tokyo, Japan, 2014. IEEE Consumer Electronics Society.
- J. P. Pedroso and Y. Smeers. Equilibria on a game with discrete variables. In F. Ferreira, H. Guerra, E. Mayordomo, and J. Rasga, editors, *Programs, Proofs, Processes*, pages 326–335, Azores, Portugal, 2010. Computability in Europe 2010. <https://arxiv.org/abs/1407.8394>
- R. Rei, P. J. Madera, and J. P. Pedroso. Khronos - a high-level framework for discrete event simulation in Python. In *International Conference on Computers & Industrial Engineering*, Troyes, France, July 2009.
- P. Rodrigues, J. Gama, and J. P. Pedroso. ODAC: Hierarchical clustering of time series data streams. In D. S. Joydeep Ghosh, Diane Lambert and J. Srivastava, editors, *Proceedings of the Sixth SIAM International Conference on Data Mining*, pages 499–503, Bethesda, Maryland, USA, April 2006. SIAM. ISBN 0-89871-611-X.
- P. Rodrigues, J. Gama, and J. P. Pedroso. Hierarchical time-series clustering for data streams. In J. Aguilar-Ruiz and J. Gama, editors, *Proceedings of the First International Workshop on Knowledge Discovery from Data Streams*, pages 22–31, Pisa, Italy, 2004. ECML/PKDD.
- J. P. Pedroso, N. Moreira, and R. Reis. A web-based system for multi-agent interactive timetabling. In *ICKEDS'04: International Conference on Knowledge Engineering and Decision Support*, Porto, Portugal, July 2004.
- J. P. Pedroso. Metaheuristics for industrial scheduling. In S. Masuyama, editor, *Proceedings of the International Symposium in Scheduling*, Shizuoka, Japan, September 2004.
- J. P. Pedroso. A multi-agent system for automated timetabling with shared resources. In J. Cha, R. Jardim-Gonçalves, and A. Steiger-Garção, editors, *Proceedings of the 10th ISPE International Conference on Concurrent Engineering*, volume 2 - Advanced design, management and production systems, Madeira Island - Portugal, 2003. A.A. Balkema Publishers.
- J. P. Pedroso. A multi-objective/goal programming approach for timetabling. MIC'2003 — the

Fifth Metaheuristics International Conference, August 2003. Kyoto, Japan.

- J. P. Pedroso. Tabu search for linear integer programming. MIC'2003 — the Fifth Metaheuristics International Conference, August 2003. Kyoto, Japan.
- J. P. Pedroso and N. Murata. Optimisation on support vector machines. In S.-I. Amari, C. L. Giles, M. Gori, and V. Piuri, editors, *IEEE-INNS-ENNS International Joint Conference on Neural Networks*, volume VI, pages 399–404, 2000.
- J. P. Pedroso. Niche search: an application in vehicle routing. In *IEEE International Conference on Evolutionary Computation*, number 1 in 98TH8360, pages 177–182, Anchorage, Alaska, 1998. IEEE.
- J. P. Pedroso. Control of search parameters in evolutionary algorithms. In *Proceedings of the 1997 International Symposium on Nonlinear Theory and its Applications*, pages 1265–1268.
- J. P. Pedroso. Implementation of a library for modelling in economics: design guidelines. In *Proceedings of the 1997 International Symposium on Nonlinear Theory and its Applications*, pages 297–300.
- J. P. Pedroso, Y. Smeers, P. Vasconcelos, and M. Filgueiras. X-AMPL: an interactive, graphical modeling system. In *Conference on Optimization'95*, Braga, Portugal, 1995. Associação Portuguesa para o Desenvolvimento da Investigação Operacional.
- J. P. Pedroso. Numerical solution of Nash and Stackelberg equilibria: an evolutionary approach. In *Proceedings of the First Asia Conference on Simulated Evolution and Learning*, pages 151–160, Taejon, Korea, 1996. First Asia Conference on Simulated Evolution and Learning (SEAL'96).

2.1.5 Technical reports

- A. Gleixner, S. J. Maher, B. Müller, and J. P. Pedroso. Exact methods for recursive circle packing. Technical Report 17-07, ZIB, Takustr.7, 14195 Berlin, 2017. <https://arxiv.org/abs/1702.07799>
- J. P. Pedroso, J. N. Tavares, and J. Leite. A practical algorithm for packing tubes and boxes. Technical Report DCC-2016-01, DCC, Faculdade de Ciências, Universidade do Porto, 2016. <https://arxiv.org/abs/1609.07676>
- J. P. Pedroso and S. Ikeda. Maximum expectation matching under recourse. ISM Research Memorandum 1197, ISM, The Institute of Statistical Mathematics, Tokyo, Japan, May 2016. <https://arxiv.org/abs/1605.08616>
- J. P. Pedroso. Heuristics for packing semifluids. Technical Report DCC-2016-01, DCC, Faculdade de Ciências, Universidade do Porto, 2016. <https://arxiv.org/abs/1607.04403>
- M. Carvalho and J. P. Pedroso. Note on the Cournot and Stackelberg competitions: is it worth to be the last playing? Technical Report DCC-2015-01, DCC, Faculdade de Ciências, Universidade do Porto, 2015.
- J. P. Pedroso, M. Kubo, and A. Viana. Unit commitment with valve-point loading effect. Technical Report DCC-2014-05, DCC, Faculdade de Ciências, Universidade do Porto, 2014. <https://arxiv.org/abs/1404.4944>
- F. Brandão and J. P. Pedroso. Multiple-choice vector bin packing: Arc-flow formulation with graph compression. Technical Report DCC-2013-13, DCC, Faculdade de Ciências, Universidade do Porto, 2013.
- F. Brandão and J. P. Pedroso. Fast pattern-based algorithms for cutting stock. Technical Report DCC-2013-10, DCC, Faculdade de Ciências, Universidade do Porto, 2013.
- F. Brandão and J. P. Pedroso. Cutting stock with binary patterns: Arc-flow formulation with graph compression. Technical Report DCC-2013-09, DCC, Faculdade de Ciências, Universidade do Porto, 2013.
- M. Carvalho and J. P. Pedroso. Equilibria on the day-ahead electricity market. Technical Report DCC-2012-06, DCC, Faculdade de Ciências, Universidade do Porto, 2012.
- F. Brandão and J. P. Pedroso. Solving bin packing related problems using an arc flow formulation. Technical Report DCC-2012-03, DCC, Faculdade de Ciências, Universidade do Porto, 2012.
- J. P. Pedroso and M. Kubo. Stochastic tree search: An illustration with the knapsack problem. Technical Report DCC-2009-02, DCC, FC, Universidade do Porto, 2009.
- J. P. Pedroso. A hybrid solution strategy for production planning. Technical Report DCC-2007-09, DCC, FC, Universidade do Porto, 2007.
- J. P. Pedroso. An evolutionary solver for mixed integer programming. Technical Report DCC-2007-09, DCC, FC, Universidade do Porto, 2007.
- J. P. Pedroso. Hybrid enumeration strategies for mixed integer programming. Technical Report DCC-2004-08, LIACC, Universidade do Porto, 2004.
- R. Reis, N. Moreira, and J. P. Pedroso. Educated brute-force to get $h(4)$. Technical Report DCC-2004-04, LIACC, Universidade do Porto, 2004.

- J. P. Pedroso. Metaheuristics for combinatorial optimisation. Working Paper 9/01, Centro de Investigação Operacional da Universidade de Lisboa, Centro de Investigação Operacional, Faculdade de Ciências da Universidade de Lisboa, 1749-016 Lisboa, Portugal, 2001.
- J. P. Pedroso. An evolutionary solver for linear integer programming. BSIS Technical Report 98-7, Riken

Brain Science Institute, Wako-shi, Saitama, Japan, 1998.

- J. P. Pedroso. Niche search: an application to the Manhattan newspaper problem. Discussion Paper 9765, Center for Operations Research and Econometrics, Université Catholique de Louvain, Louvain-la-Neuve, Belgium, 1997.

2.1.6 Software provided

- Programs for the book *Mathematical Optimization: Solving Problems using Python and Gurobi*, in http://www.dcc.fc.up.pt/~jpp/code/gurobi_book.
- Programs for the book *Metaheuristics: a Programming Guide*, in http://www.dcc.fc.up.pt/~jpp/code/py_metaheur.
- Python-Glpk interface software between the Glpk LP/MIP solver and the Python programming language (distributed as a standard Debian package for Linux until 2014).
- Software for solving the unit commitment problem: standard version in <http://www.dcc.fc.up.pt/~jpp/code/ucp>, and a version taking into account the valve-loading effect in <http://www.dcc.fc.up.pt/~jpp/code/valve>.
- Software for solving the circle packing problem, in <http://www.dcc.fc.up.pt/~jpp/code/occ>.
- A solver for bin packing and cutting stock (joint work with F. Brandão, found the best known/optimal solution for most benchmark instances available in the literature), in <http://www.dcc.fc.up.pt/~fdabrandao/code>.
- A solver for the relaxed traveling tournament problem (joint work with F. Brandão, found the best known/optimal solution for most benchmark instances in <http://mat.gsia.cmu.edu/TOURN/relaxed/>), in <http://www.dcc.fc.up.pt/~fdabrandao/code/RTTSPsolver/>.
- Tabu search for MIP: an implementation in the C programming language, in <http://www.dcc.fc.up.pt/~jpp/mipts>.

2.2 Seminars

2.2.1 Plenary talks

- Optimizing fuel consumption in thermal electricity production. Plenary talk in *International workshop on Supply Chain Management and Optimization for Low-carbon Society*, Tokyo University of Marine Science and Technology, Tokyo, Japan, December 2012.
- The stacking problem. Plenary talk in *International Symposium on Mathematics of Logistics*, Tokyo, Japan, December 2011.
- Metaheuristics for industrial scheduling. *ISS 2004: International Symposium in Scheduling*, Shizuoka, Japan, September 2004.

2.2.2 Invited presentations

- Optimization problems in kidney exchange programs. Seminar in Combinatorial Optimization, 2016. Zuse Institute Berlin, Germany.
- Heuristics for packing semifluids. In *2015 CYTED-HAROSA Workshop*, Madrid, Spain, 2015.
- Introduction to Mathematical Optimization for Logistics, Two-day workshop, Incheon National University, South Korea, October 2015.
- Heuristics for packing semifluids. Seminar in Combinatorial Optimization, 2015. Zuse Institute Berlin, Germany; The Institute of Statistical Mathematics, Tokyo, Japan, December 2015; National Institute of Informatics, Tokyo, Japan, December 2015; Keio University, Yokohama, Japan, December 2015.
- The Kidney Exchange Programme. Incheon National University, Incheon, South Korea, December 2014.

- From data to solutions: Optimization in Python. Five-day workshop at Tokyo University of Marine Science and Technology, Tokyo, December 2014.
- Equilibria on a Game with Discrete Variables. Math Programming Seminar, Center for Operations Research and Econometrics, February 2014. Université Catholique de Louvain, Louvain-la-Neuve, Belgium.
- The recursive circle packing problem. Ecole Polytechnique, Palaiseau, France, April 2014; and *2013 CYTED-HAROSA Workshop*, Barcelona, Spain, November 2013.
- Optimizing fuel consumption in thermal electricity production. University of Aizu, Fukushima, Japan, December 2012.
- Optimization in health care: a case study. Tokyo University of Marine Science and Technology, Tokyo, Japan, July 2012.
- Optimization in health care: a case study. In *2012 CYTED-HAROSA Workshop*, Barcelona, Spain, June 2012.
- Information systems for health care: a case study. In *Information Processing Society of Japan — Special Interest Group on System Evaluation*, Aizu, Japan, March 2012.
- Issues on algorithm self-tuning, University of Jyväskylä, Finland, August 2011.
- Optimization with Gurobi and Python, Universidade dos Açores, September 2011.
- Local search for the Traveling Salesman Problem, University of Aizu, December 2010.
- Python programming tools for optimization. Three-day workshop at Tokyo University of Marine Science and Technology, Tokyo, December 2006.

2.2.3 Seminars and conference presentations

- J. P. Pedroso. Orienteering on a continuous surface. International Network Optimization Conference, February 2017. Lisbon, Portugal.
- J. P. Pedroso. Heuristics for packing semifluids. Seminar in Combinatorial Optimization, 2015. LIX, École Polytechnique, France.
- R. Rei and J. P. Pedroso. Towards a universal solver for lot sizing problems. IWLS'2014 – International Workshop on Lot Sizing, 2014. Porto, Portugal.
- J. P. Pedroso, M. Kubo, and A. Viana. Unit commitment with valve-point loading effect. IO2013 - XVI Congresso da Associação Portuguesa de Investigação Operacional, 2013. Bragança, Portugal.
- D. F. Rahman, A. Viana, and J. P. Pedroso. A MILP based approach for hydrothermal scheduling in power production planning. IO2013 - XVI Congresso da Associação Portuguesa de Investigação Operacional, 2013. Bragança, Portugal.
- J. P. Pedroso. A grasp for circle packing. EURO Special Interest Group on Cutting and Packing, 2013. Lille, France.
- N. Santos and J. P. Pedroso. A tabu search for the flowshop scheduling problem with sequence dependent setup times. 2011 CYTED-HAROSA Workshop, 2011. Barcelona, Spain.
- A. Viana and J. P. Pedroso. A new MIP based approach for unit commitment in power production planning. VII ALIO/EURO Workshop in applied combinatorial optimization, 2011. Porto, Portugal.
- J. P. Pedroso and Y. Smeers. Equilibria on a game with discrete variables. Computability in Europe 2010, 2010. Azores, Portugal.
- J. P. Pedroso. Metaheuristics for the asymmetric hamiltonian path problem. Seventh International Conference on Numerical Methods and Applications, 2010. Borovets, Bulgaria.
- J. P. Pedroso, A. Viava, and A. Rais. New solution tools to unit commitment in power production planning. EURO XXIV Lisbon – 24th European Conference on Operational Research, July 2010.
- J. P. Pedroso. Simple metaheuristics using the simplex algorithm for non-linear programming. Engineering Stochastic Local Search Algorithms: Designing, Implementing and Analyzing Effective Heuristics, 2007. Brussels, Belgium.
- H. Muraoka, J. P. Pedroso, M. Ohnishi, and M. Kubo. An algorithm for the cardinality constrained bin-packing problem. EURO Special Interest Group on Cutting and Packing, 2006. Porto, Portugal.
- J. P. Pedroso, M. Ohnishi, and M. Kubo. Hybrid tabu search for production planning. MIC'2005 — the Sixth Metaheuristics International Conference, August 2005. Vienna, Austria.

- J. P. Pedroso and M. Kubo. A hybrid metaheuristic for lot sizing problems. Hybrid Metaheuristics 2005, August 2005. Barcelona, Spain.
- J. P. Pedroso, N. Moreira, and R. Reis. A web-based system for multi-agent interactive timetabling. ICKEDS'04: International Conference on Knowledge Engineering and Decision Support, July 2004. Porto, Portugal.
- J. P. Pedroso. A multi-agent system for automated timetabling with shared resources. CE2003: 10th ISPE International Conference on Concurrent Engineering: Research and Applications, July 2003. Madeira, Portugal.
- J. P. Pedroso and C. Rego. Scatter search for mixed integer programming. IFORS'2002: sixteenth triennial conference of the International Federation of Operational Research Societies, July 2002. Edinburgh, UK.
- J. P. Pedroso. Tabu search for mixed integer programming. Seminar, Center for Operations Research and Econometrics, 2002. Université Catholique de Louvain, Louvain-la-Neuve, Belgium.
- J. P. Pedroso. Construction heuristics for mixed integer programming. Combinatorial Optimization 2002, April 2002. Paris, France.
- J. P. Pedroso. Metaheuristics using the simplex algorithm for nonlinear programming. NOLTA'2001 — the 2001 International Symposium on Nonlinear Theory and its Applications, 2001. Miyagi, Japan.
- J. P. Pedroso and N. Murata. Support vector machines with different norms: motivation, formulations, and results. RecPad 2000 — 11th Portuguese Conference on Pattern Recognition, 2000. Porto, Portugal.
- J. P. Pedroso and N. Murata. Optimisation on support vector machines. IEEE-INNS-ENNS International Joint Conference on Neural Networks, 2000. Como, Italy.
- J. P. Pedroso. An evolutionary solver for pure integer linear programming. IFORS'1999 — the fifteenth triennial conference of the International Federation of Operational Research Societies, August 1999. Beijing, China.
- J. P. Pedroso. Minimizing a spanning tree with niche search. INFORMS, 1998. Montreal, Canada.
- J. P. Pedroso. Niche search: an application in vehicle routing. IEEE International Conference on Evolutionary Computation, 1998. Anchorage, Alaska.
- J. P. Pedroso. Control of search parameters in evolutionary algorithms. NOLTA'1997 — the 1997 International Symposium on Nonlinear Theory and its Applications, 1997. Honolulu, Hawaii.
- J. P. Pedroso. Implementation of a library for modelling in economics: design guidelines. NOLTA'1997 — the 1997 International Symposium on Nonlinear Theory and its Applications, 1997. Honolulu, Hawaii.
- J. P. Pedroso. Niche search and Evolutionary computation. Science and Technology Seminar, University of Macau, 1997.
- J. P. Pedroso. Niche search: an evolutionary algorithm for global optimisation. Parallel Problem Solving from Nature IV, 1996. Berlin.
- J. P. Pedroso, Y. Smeers, P. Vasconcelos, and M. Filgueiras. X-AMPL: an interactive, graphical modeling system. Conference on Optimization'95, 1995. Braga, Portugal.

2.3 Organisation of conferences and seminars

- Member of the scientific committee of the “International Conference on Decision Making in Manufacturing and Services (DMMS)”, Zakopane, Poland, September 2017.
- Organiser of the session on “Kidney exchange programs” in the stream “Healthcare Logistics” of the EURO 2016 conference.
- Member of the organising committee of “5th Porto Meeting on Mathematics for Industry”, FCUP, Porto, Portugal, April 2014.
- Member of the organising committee of “VII ALIO/EURO Workshop on Applied Combinatorial Optimization”, FCUP, Porto, Portugal, 2011.
- Member of the scientific committee of the “Seventh International Conference on Numerical Methods and Applications”, Bulgaria, 2010.
- Member of the organising committee of EU/MEeting 2009: European Chapter on Metaheuristics' Workshop on Debating the future: new areas of application and innovative approaches. ISEP, Polytechnic School of Engineering of Porto, Portugal 29-30 April 2009.
- Member of the International Program Committee of CIE'39: International Conference on Computers & Industrial Engineering, Troyes, France, 2009.

3 – Educational achievements

3.1 Lecturing

This section summarises teaching activities in the faculties of sciences of two universities: the University of Porto (FCUP) and Lisbon University (FCUL). For all the courses taught, a set of exercises, example programs, and texts on special topics have been elaborated. In the cases where no adequate bibliography was found, supporting texts have been prepared.

I ought to say that my views on lecturing are likely to change in the near future. I have limited experience on using classes available in the Internet as tools for supporting my own classes, but I think the trend is to increasingly make use of that information. It is not yet clear to me how to put the two things — real and virtual classes — together in a coherent way, as real classes require synchronism and one of the main interests of virtual classes is to be exempt of it. My current challenge in pedagogy is to put together a system for using both real and virtual classes for teaching.

3.1.1 Undergraduate courses at FCUP

- Decision Support Methods.
 - Introduction to Computer Programming(*).
 - Numeric Programming.
 - Data Structures(*).
 - Software project.
 - Technical communication.
 - Complements of Artificial Intelligence
- (*) *courses with more than 400 students.*

3.1.2 Graduate courses at FCUP

- Sociology and Ethics in Informatics.
- Advanced Search Methods.
- Advanced Topics in Informatics (module on Combinatorial optimization).
- Advanced Topics in Artificial Intelligence.
- Health Decision Support Systems.
- PhD seminar.

3.1.3 Undergraduate courses at FCUL (1998-2001)

- Introduction to Operational Research.
- Project on Operational Research.

3.1.4 Graduate courses at FCUL (1998-2001)

- Combinatorial models: Arc-routing problems; Set covering and set partitioning problems.
- Heuristic methods: Local search; Random search; Evolutionary algorithms; Tabu search; Simulated annealing. (each subject being a separate module in the masters course on operational research.)

3.2 PhD thesis advising

- Margarida Carvalho, “Integer programming games”, FCUP (public presentation in May 2016). Co-advisor: Andrea Lodi. *This work was awarded the prize “Best PhD dissertation in 2016” by the Portuguese Operational Research Society (APDIO).*
- Filipe Brandão, “Modeling and solution of packing and cutting problems”, FCUP (submitted, awaiting final examination). *Software developed in this thesis was awarded the Wolsey Prize 2016.*
- Rui Rei, “Monte Carlo tree search for combinatorial optimization”, FCUP (submitted, awaiting final examination).
- Teresa Neto, “Mathematical models and algorithms for forest management”, FCUL (to be concluded in 2017). Co-advisors: Miguel Constantino, Isabel Martins (Universidade de Lisboa).
- Nicolau Santos, “Prescriptive tools for data-supported optimization”, FCUP (started in September 2015).

3.3 Master thesis advising

- João Viana, “Domain specific languages for mathematical programming within functional programming”, under way (started in September 2016), FCUP. Co-advisor: Pedro Baltazar Vasconcelos.
- Ana Lúcia Pinto, “Modeling and Optimization Production by Extrusion”, public presentation in November 2015, FCUP.
- Paolo Paronuzzi, “New Integer Programming Models for Balanced Multi-country KEP”, public presentation in December 2014, Università di Bologna, Scuola di Ingegneria e Architettura, Italy. Co-advisors: Enrico Malaguti, Ana Viana.
- Bruno Vieira, “A Multiple Criteria Utility-based Approach for the Unit Commitment with Wind Power and Pumped Storage Hydro”, public presentation in November 2013, Institute of Engineering, Polytechnic of Porto, Portugal and University of Bremen, Germany. Co-advisors: Ana Viana, Manuel Matos (Portugal), Herbert Kopfer, Jörn Schönberger (Germany).
- Filipe Brandão, “Bin Packing and Related Problems: Pattern-Based Approaches”, public presentation in October, FCUP.
- Sílvia Cunha, “Assignment Algorithms for Kidney Exchange”, public presentation in November 2012, FCUP. Co-advisor: Ana Viana.
- António Magalhães, “Optimization Models for Hydro-Thermal Electricity Production”, public presentation in November 2012, FCUP. Co-advisor: Ana Viana.
- Margarida Carvalho, “Nash Equilibria: a Case Study in the Energy Market”, public presentation in November 2011, FCUP. Co-advisor: João Tomé Saraiva, FEUP.
- Sónia Dias, “Traffic optimization: a case study in the Porto metropolitan area”, public presentation in December 2010, FCUP.
- Rui Rei, “Shop Floor Simulation Engine”, public presentation in November 2008, FCUP. Co-advisor: Peter Madera, Qimonda.
- Dora Melo, “Development of an interactive system for timetabling”, public presentation in December 2006, FCUP. Co-advisors: Nelma Moreira and Rogério Reis.
- Pedro Rodrigues, “Hierarchical clustering models for continuous data flows”, public presentation in November 2005, FCUP. Co-advisor: João Gama. *This work was awarded the prize “Best MSc dissertation” of CTDIA’2006, São Paulo, Brazil, at the International Joint Conference 2006, Simpósio Brasileiro de Inteligência Artificial*
- Susana Fernandes, “Heuristic methods for the Job Shop Scheduling”, public presentation in July 2003, FCUL.
- Teresa Neto, “Metaheuristics for Mixed-Integer Programming”, public presentation in March 2003, FCUL.
- Cecília Fonseca, “Parametrization in evolutionary algorithms”, public presentation in March 2003, FCUL.
- Filipe Carvalho, “Modeling an industrial scheduling problem with Constraint Programming”, public presentation in October 2002, FCUL.
- Ana Sofia Pereira, “Metaheuristics for an industrial scheduling problem”, public presentation in October 2002, FCUL.
- Magda Ruivo, “Comparison of heuristics for non-linear optimization”, public presentation in July 2002, FCUL.

4 – Funded research projects

4.1 European Commission Projects

- “ELENA: European Local ENergy Assistance”. European Commission, managed by the European Investment Bank (EIB). Four years project starting in March 2012. Team: Gaia Municipality (*principal contractor*); FEUP, FCUP, Around Knowledge (subcontracted). Principal investigator at FCUP. Outcome: software for interactive optimisation of traffic network in Gaia, integrated into a traffic simulator. U.E. funding: 1 022 572 € (FCUP: 35 200 €).
- “FIT4U: Framework of Integrated Technologies for User Centred Products”. European Commission, “Framework Programme 7”, three years project (2009-2012), ID 229336. Principal investigator at INESC Porto. The aim of this project was to support the development of competitive strategies based on new industrial paradigms; the main point concerned development and manufacturing of products that can quickly respond to the consumer specific needs (user-centred production). Our group provided simulation and decision-support tools to help the manufacturing process dealing with very small lots, or customised products. U.E. funding: 3 984 125 € (INESC Porto: 260 000 €).
- “CIVITAS-ELAN: Mobilising citizens for vital cities” European Project for traffic rationalization in Ljubljana, Gent, Zagreb, Brno and Porto; workpackage on “simulation-based optimisation of traffic”. European Commission, “Framework Programme 7”, four year project (2008-2012), ID 218954. Principal investigator at FCUP. The CIVITAS-ELAN project aimed at mobilising citizens by developing with their support clean mobility solutions for vital cities, ensuring health and access for all. Our group developed simulation tools for a part of the Porto city with mobility issues, as well as a method of simulation-based optimisation, based on that tool, for helping the design of the traffic network. U.E. funding: 17 800 000 € (FCUP: 66 120 €).
- “LISCOS: Large Scale Integrated Supply Chain Optimisation Software Based Upon Branch-and-Cut and Constraint Programming Methods”, European Commission, “Framework Programme 5”. Three years project, principal investigator at FCUL (together with Miguel Constantino), three years project (1999-2002). This project concerned the development of tools and technologies for large scale, integrated supply chain optimisation. The aim was to produce software for planning and scheduling, integrating and exploring the strengths of mixed integer programming and constraint programming. Our group has developed a model and software for a Portuguese paint company, where changeover costs made previous approaches ineffective. U.E. funding: 3 195 527 € (FCUL: 193 260 €).

4.2 Portuguese Science Foundation (FCT) and European Regional Development Fund (ERDF) projects

- “TEC4Growth: Pervasive Intelligence, Enhancers and Proofs of Concept with Industrial Impact, research line SMILeS – Smart, Mobile, Intelligent and Large Scale Sensing”, ERDF (2015–2018, Project NORTE-01-0145-FEDER-000020). Principal researcher on task “Mobility efficiency” at CEGI, INESC TEC. This project is on the usage of recent information tools for improving transportation and mobility. The task *mobility efficiency* aims at developing algorithms and methods for supporting currently emerging transportation models, in particular for exploiting the potential of the Internet of Things.
- “mKEP - Models and optimisation algorithms for multi-country kidney exchange programs”, FCT (2016–2019, Project PTDC/IIM-GES/2830/2014). Researcher at INESC TEC. Principal investigator: Ana Viana. This project concerns modelling, optimisation and analysis of international cooperation issues in kidney transplantation programmes. Funding: 65 000 €.
- “CORAL – Sustainable Ocean Exploitation: Tools and Sensors”, ERDF (2016–2019, Project NORTE-01-0145-FEDER-000036). Principal researcher on task “Modelling Tools” at CEGI, INESC TEC. This project is on tools for

supporting sustainable ocean exploration and exploitation. The task *modelling tools* aims at providing a framework for supporting collecting ocean information with state-of-the-art artificial intelligence and optimisation tools.

- “*SEROW - Sectoring and Routing Optimisation for Waste Management - theory into practice*”, FCT (2012–2015, Project PTDC/EGE-GES/121406/2010). Researcher at INESC Porto. Principal investigator: Cândida Mourão. This project concerns the development of metaheuristics and/or matheuristics for the problem of simultaneously partitioning a graph and routing, so that vehicle loads are comparable and distance is minimized. Funding: 65 000 €
- “*KEP - New models for enhancing the kidney transplantation process*”, FCT (2011 to 2014, Project PTDC/EGE-GES/110940/2009). Researcher at INESC Porto. Principal investigator: Ana Viana. KEP concerns research and development of decision-support tools to facilitate and improve the kidney transplantation process involving living kidney donors. It promotes an important project of public healthcare planning and management for developing advanced models and solution techniques to “optimally” match up kidney patients with donors. New optimisation models are being developed based on thorough analysis of several significant issues involving the kidney transplantation which have not successfully addressed previously. Funding: 126 000 €
- “*COORDINATOR: High-performance hybrid algorithms for wind-hydro-thermal power production coordination*”, FCT (2010 to 2013 (Project PTDC/EGE-GES/099120/2008). Researcher at INESC Porto. Principal investigator: Ana Viana. This project concerned the design, implementation, validation and evaluation of the hybrid algorithms performance for the management of power production, thought the development of new optimisation algorithms, based in paradigms of exact hybridisation methods and heuristics, for short-term energy production planning. Funding: 58 572 €
- “*CROME - Criativity in Optimisation with Metaheuristics*”, FCT (2007–2010, Project PTDC/GES/73801/2006). Researcher at INESC Porto. Principal investigator: José Soeiro Ferreira. CROME focused on the development of tools for incorporating soft operational research criteria on the design and evaluation of metaheuristics. Funding: 84 508 €
- “*Meta-Sim - Hybridising simulation and metaheuristics to support stochastic decision making*”, FCT (2005–2007, Project POCI/EGE/61362/2004). Researcher at INESC Porto. Principal investigator: Jorge Pinho de Sousa. Focused on the integration of heuristics and optimization. Funding: 60 000 €
- “*Adaptive Learning Systems II*”, FCT (2005–2008, Project POCI/EGE/61362/2004). Researcher at INESC Porto. Principal investigator: João Manuel Portela Gama. Focused on new methods for machine learning and classification. Funding: 57 000 €

4.3 Projects with industrial partners

- “*Probabilistic models for electricity distribution*”, EDP Distribuição. Aim: providing a data-supported probabilistic model for end-user electricity consumption, suitable for usage in realistic simulation tools. One year project, 2017. Research team: João Pedro Pedroso, João Nuno Tavares, Sónia Gouveia.
- “*Mailing optimization*”, SONAE MC. Aim: optimizing coupon-client matching accuracy in periodic mailing for a large retail company. Short project, May to July 2014. Principal investigator: Bernardo Almada-Lobo.
- “*Information management and resource optimisation*”, Briel - Indústria de Electrodomésticos, S.A. Principal investigator. One year project, started in October 2007. Lead to the implementation of a system to optimize load balance between production lines, using simulation-based optimisation.
- “*Simulation-based optimization of steel inventory*”, Fujitsu Research Institute (Japan). Principal investigator: Mikio Kubo. One year project, started in October 2007. Lead to the description of the stacking problem, which was tackled by means of a specific heuristics used in a time-limited tree search.
- “*Shop-Floor Simulation on IC production*”, Qimonda Portugal S.A., principal investigator together with Peter Madera. One year project, started in September 2007. Lead to an open-source software simulator aimed at a meticulous description and assessment of issues arising in supply chain management (with a special focus on memory chip production).
- “*Large Scale Production Planning*”, Fujitsu Research Institute (Japan). Principal investigator: Mikio Kubo. Six months project, 2004. Lead to the development of metaheuristics for lot sizing and scheduling, in particular exploring a hybrid of tabu search with mathematical programming.

4.4 Other projects

- “SmartLogistics@IB: Red Iberoamericana de Logística Inteligente en la Gestión Sostenible del Transporte en Núcleos Urbanos”, 2015–2018 (three years). CYTED2014-P514RT0013. Main researcher: Dr. Javier Faulin.
- “HAROSA@IB: Red Iberoamericana de Algoritmos, Software Libre y Computación Distribuida para la resolución de problemas de Routing, Scheduling y Disponibilidad de Sistemas”, 2011–2014 (three years). CYTED2010-511RT0419. Main researcher: Dr. Angel A. Juan.
- “*An Optimizer for Container Loading (OCC - Optimizador de carga de contentores)*”, QREN SII&DT, Projeto em Co-Promoção OCC_13824, ref. FCOMP-01-0202-FEDER-013824, Operational Competitiveness Programme, as part of the National Strategic Reference Framework, 2013. Researcher at FCUP. Principal investigator: João Nuno Tavares. Lead to a description of the recursive tube packing problem, and software for its optimization.
- “*Learning methods for guiding optimization*”. INESC Porto. Principal investigator; September to December 2011. Lead to a new variant of tree search incorporating knowledge of the search history into the exploration of the tree.
- “*Agilplan: production planning in the shoe industry*”. INESC Porto, 2010. Principal investigator: Rui Rebelo. Prize “Innovation in Shoe Business” of the Portuguese National Institute of Industrial Property, for the development of planning software. <http://www.oficinasoftware.pt/agilplan.html>
- “*Fast algorithms for variations of the Shortest Path Problem*”, Tokyo University of Marine Science and Technology (Japan), 2006 to 2008 (two years). Principal investigator: Mikio Kubo. Focused on new methods for an old problem, to deal with potentially huge graph sizes.
- “*A parallel Solver for MIP*”, Grid Technology Research Center (Japan), July to December 2005 (six months). Principal investigators: Mikio Kubo and Katsuki Fujisawa. Focused on the parallelization of the search in mixed integer optimization.

5 – Additional information

5.1 Professional and academic activities

5.1.1 Faculty management and support activities

- 2015-: Scientific committee, degree in Computer Science, FCUP.
- 2016: Prepared interchange program between Universidade do Porto and The Institute of Statistical Mathematics, Tokyo, Japan;
- 2015: Prepared interchange program between Universidade do Porto and Incheon National University, Korea.
- 2014: Prepared Erasmus interchange program between Universidade do Porto and the Polytechnic University of Valencia, Spain.
- 2012: Participated in the jury of *IJUP* – a programme at Universidade do Porto for promoting junior student's research.
- 2010, 2014, 2015: Jury at the admission examinations for special students, FCUP.
- 2009: Prepared Erasmus interchange program between Universidade do Porto and University of Ghent, Belgium.
- 2009: Prepared interchange program between Universidade do Porto and Aizu University, Japan.
- 2008: Managed the Department's job fair, FCUP.
- 2008: Implementation of a software for the automation of exam's elaboration and correction.
- 2005-2011: Scientific committee, Master in Analysis and Optimization, joint degree of the departments of Mathematics and of Computer Science, FCUP.
- 2005-2008: Management of the library, FCUP.
- 2003: Implementation of a system for semi-automated, simultaneous timetabling by several departments in parallel.
- 2002: Implementation of a system for exercise submission through the Internet and automated evaluation (used for student evaluation, as well as for student's practising ever since).
- 2002: Implementation of a system for semi-automated timetable construction.
- 2001-2003: department's class timetabling.
- 2001: department's examinations timetabling.
- 1999: organization of the contest "Curto-circuito", at a national level (in Portugal) for promoting operational research in high schools.

5.1.2 Training on educational systems

- "Applying the Methods of Physics to Education Research", Prof. David Harrison (University of Toronto). Universidade do Porto, March 2013.
- "Science and Ethics", Prof. Carl Djerassi. Universidade do Porto, October 2011
- "Tools to Develop Higher Order Thinking Skills", Prof. Susan M. Zvacek (University of Kansas). Universidade do Porto, July 2011.
- "Reading on scene", Rute Pimenta and Nuno Simões. Universidade do Porto, February 2008.
- "Creative Writing", Pedro Sena-Lino. Universidade do Porto, May 2007,
- "Vision and Creativity Workshop", Prof. Victor Vidal, (Technical University of Denmark). INESC Porto, October 2002.

5.1.3 Jury in theses

- Jury, PhD thesis in Computer Science of Ivone Amorim, “Linear Finite Transducers Towards a Public Key Cryptographic System”, presented at Faculdade de Ciências da Universidade do Porto in May 2016. Advisors: Rogério Reis and António Machiavelo.
- Confidential reporter for PhD theses undergoing on Doctoral Programme in Network and Information Technologies, Universitat Oberta de Catalunya (2014,2015).
- Jury (examiner), PhD thesis in Statistics and Operations Research of Gonçalo Xufre da Silva, “Automated learning through local unit neural networks”, presented at Faculdade de Ciências da Universidade de Lisboa in February 2006. Advisor: António José Rodrigues.
- Jury, PhD thesis of Carlos M. Soares, “Learning Rankings of Learning Algorithms”, presented at Universidade do Porto in September 2004. Advisor: Pavel Brazdil.

5.1.4 Paper refereeing

- 2004~: occasional book reviewer of the Journal of the Operational Research Society.
- 2017: Systems, European Journal of Operational Research, Graph Theory, Journal of Global Optimization, Operations Research.
- 2016: European Journal of Operational Research, Mathematical Methods of Operations Research, Mathematical Programming, Computers & Industrial Engineering, IEEE Transactions on Knowledge and Data Engineering, Discussiones Mathematicae Graph Theory.
- 2015: International Transactions in Operational Research, Chemical Engineering Science, Open Mathematics, Cluster computing, European Journal of Operational Research, TRON Symposium, Mathematical Problems in Engineering.
- 2014: International Transactions in Operational Research, Discrete Applied Mathematics, European Journal of Operational Research, IEEE Transactions on Power Systems, International Symposium on Integrated Circuits'2014.
- 2013: International Journal of Electrical Power and Energy Systems, Investigação Operacional 2013, Central European Journal of Mathematics, International Transactions in Operational Research, Discrete Applied Mathematics.
- 2012: Investigação Operacional em Ação — casos de Aplicação, APDIO (Portuguese operational research society), IEEE International Symposium on Parallel and Distributed Processing with Applications
- 2011: Intelligent Decision Technologies, VII ALIO/EURO Workshop in applied combinatorial optimization.
- 2010: European Journal of Operational Research. International Journal of Information Technology & Decision Making, Engineering Optimization, International Journal of Production Research, International Conference on Numerical Methods and Applications.
- 2009: Annals of Operations Research, Computers and Industrial Engineering, European Journal of Operational Research.
- 2008: Computers and Operations research
- 2007: Journal of Scheduling and Computers & Operations Research.
- 2005: European Journal of Operational Research.
- 2004: Annals of Operations Research and Computers & Operations Research.
- 2003: European Journal of Operational Research.
- 2001: Investigação Operacional, European Journal of Operational Research, Meta-heuristics International Conference, and Portuguese Conference on Artificial Intelligence.
- 1999: Investigação Operacional and IEEE Transactions on Evolutionary Computation.

5.1.5 Research initiatives and leadership

- Founded and led the *Optimization Interunit Line*, a research group focusing on both on the interdisciplinary applications of optimization and on its theoretical foundations, from 2011 to 2014, grouping more than 20 researchers at INESC - Porto and at FCUP. The homepage is <http://www.dcc.fc.up.pt/~jpp/OPTIMIZATION>.
- Prize “Innovation in Shoe Business” of the Portuguese National Institute of Industrial Property, for the planning software of project Agilplan. <http://www.oficinasoftware.pt/agilplan.html>

5.1.6 Invited researchers

- Yuji Shinano, researcher at Zuse Institute Berlin, May 2016. Joint work on Monte Carlo tree search for mixed integer optimization.
- Benjamin Müller, PhD candidate at Zuse Institute Berlin, April 2016. Joint work on the recursive ring packing problem.
- Xenia Klimentova, PhD. Researcher at INESC - Porto, 2011 to 2014 (post-doctorate). Joint research on models for kidney exchange programmes. Work on research proposal leading to a funded project on multi-country kidney exchange programmes.
- Kazuhaki Takahashi, graduate student at Aizu University. August/September 2009. Research on parallelization of a solver to the Number Partitioning Problem.
- Masahiro Yukawa, PhD, from Riken Brain Science Institute, Japan. Seminar series on “Efficient adaptive filtering algorithms”. June 2009.
- Abdur Rais, PhD. Researcher at INESC - Porto, 2007 to 2010 (3 years post-doctorate). Joint research on methods for production planning; coauthor of the book “Introduction to Mathematical Optimization using Python and Gurobi”. Work on research proposals leading to funded projects on kidney exchange programmes.
- Mikio Kubo, Professor at Tokyo University of Marine Science and Technology. FCUP, March 2004, February to March 2006, February to March 2007, October 2010 to March 2011. Research leading to several joint papers, and the joint books on “Metaheuristics: a Programming Guide” and “Introduction to Mathematical Optimization using Python and Gurobi”.

5.1.7 Periods abroad, as invited researcher

- The Institute of Statistical Mathematics, Tokyo, Japan, December 2015.
- Incheon National University, South Korea, October 2015.
- Zuse Institute Berlin, Germany, September 2015.
- Tokyo University of Marine Science and Technology, Japan, academic year 2004/2005; December 2007; December 2011; April-September 2012.
- University of Jyväskylä, Finland, August 2011.
- Waseda University and University of Aizu, Japan, December 2010.
- Riken Brain Science Institute, Japan, December 2008.
- CORE - Center for Operations Research and Econometrics, Louvain-la-Neuve, Belgium, September 2007.
- Waseda University, Tokyo, December 2002.
- Riken Brain Science Institute, Japan, August 1999.

5.2 Fellowships

2012, 2009 Fellowship of the Portuguese Science Foundation for sabbatical leaves.

1998 Grant PRAXIS XXI/BPD/9987/96, Portuguese Science Foundation, “Neural Networks and Evolutionary Computation: Applications in Economics and Game Theory” (interrupted for starting lecturing at FCUL).

1997-1998 Post-doctoral fellowship of two years, “European Science and Technology Fellowship Programme in Japan”. Worked on the conception and implementation of an intelligent modeling system for NP-hard optimization. “Laboratory for Information Synthesis”, Institute of Physical and Chemical Research (RIKEN), Wako-shi, Japan.

1996 Post-doctoral fellowship of four months, CORE, UCL, Belgium. Worked on mathematical modeling for combinatorial optimization problems. Focused on modeling production planning problems, and on computational issues related to the implementation of a library of cutting plane algorithms for *branch-and-cut*.

1996 Post-doctoral fellowship of three months, Tokyo University of Mercantile Marine, Department of Information Engineering and Logistics. Worked on the development of heuristic methods for the solution of large-sized combinatorial problems.

1993-1996 Doctoral fellowship, Université Catholique de Louvain.

5.3 Entrepreneurship and related activities

- Scientific evaluator and motivator for the creation of the company Around Knowledge by ex-students (winner of the Innovation and Entrepreneurship Initiative of the MIP-Portugal programme in 2010).
- Co-founder of the Portuguese Shogi Association.
- Co-founder of the company “Widescope – Optimization Solutions”. Member until 2003.
- Co-founder of “Matriz – Associação de Gravura do Porto”, a non-profit organization for the promotion of printmaking.

5.3.1 Activities before obtaining the PhD

1990-1991, Centro de Informatica da Universidade do Porto. Worked with the development team of prof. Luis Damas on the maintenance of the systems developed, mainly the Yap Prolog compiler.

1989-1990, Fiotel - Empresa de Fios Têxteis, Lda. Managed the Information and Computer Department of the company. Acted as a managing consultant.

5.4 General knowledge

- Languages spoken (by decreasing fluency): Portuguese (mother language), French, English, Spanish, Japanese.
- Attended wood-printing workshops by Profs. Hiroshi Maruyama (AICART, Porto, 2003), José Altino (Árvore, Porto, 2001), and Mami Higuchi (Tokyo, Japan, 1998).
- Followed a drawing course at the Atelier de Dessin, Louvain-la-Neuve, Belgium, from 1993 to 1995.
- Musical education: has the first degree of the Conservatório de Musica do Porto. Attended the classical guitar classes of prof. José Pina for 5 years.
- Followed a 3 months course in creative writing in 2006.
- Other activities:
 - Painting is a hobby since a long time ago. Had solo exhibitions at the Gallery Poem in Tokyo, and participated in collective exhibitions in Belgium, Japan and Portugal.
 - Enjoys playing chess and shogi (Japanese chess).