

Curriculum Vitae

Paola Pellegrini

Paola Pellegrini got a PhD in Economics, in the field of Mathematics for Economics, in March 2007 at Ca' Foscari University in Venice. Her thesis is entitled *ACO: parameters, exploration and quality of solutions*.

She obtained a Degree in Business Economics at Ca' Foscari University in Venice on July 14, 2003, with score 110/110 with honour, presenting a thesis in Operations Research entitled: "Behavioural Model of an Ant Colony for a Problem of Distributive Logistics with multiple time windows: the case Polo S.p.A."

Research Interests

Paola Pellegrini's main research interests concern the application of metaheuristics to optimization problems.

Particular attention is devoted to the metaheuristic Ant Colony Optimization, from theoretical, methodological and applicative points of view.

Another topic of interest concerns economic studies applied to the European Air Traffic Management (ATM) system.

Education in Foreign Countries

From January to December 2005, Paola Pellegrini has been visiting researcher at the research center IRIDIA, Université Libre de Bruxelles. She worked with Mauro Birattari and Marco Dorigo. From August to December 2004 she worked with Julia Higle at University of Arizona.

References

Publications

- [1] Birattari M., Pellegrini P. and Dorigo M., "On the Invariance of Ant Colony Optimization", *IEEE Transactions on Evolutionary Computation*, vol. 11, n. 6, 2007, pp. 732-742.
- [2] Favaretto D., Moretti E. and Pellegrini P., "An Ant Colony System Approach for Variants of the Traveling Salesman Problem with Time Windows", *Journal of Information and Optimization Sciences*, vol. 27, n. 1, 2006, pp. 35-54.
- [3] Favaretto D., Moretti E. and Pellegrini P., "Ant Colony System for a VRP with Multiple Time Windows and Multiple Visits". *Journal of Interdisciplinary Mathematics*, vol. 10, n. 2, 2007, pp. 263-284.
- [4] Pellegrini P. and Moretti E., "A Computational Analysis on a Hybrid Approach: Quick-and-dirty Ant Colony Optimization", to appear on *Applied Mathematical Sciences*, 2007.

Conference Proceedings

- [5] Birattari M., Pellegrini P. and Dorigo M., "On the Invariance of Ant System", *ANTS'2006 - Fifth International Workshop on Ant Colony Optimization and Swarm Intelligence*, Lecture Notes in Computer Science, vol. 4150/2006, Springer Berlin / Heidelberg, 2006, pp. 215-223.
- [6] Pellegrini P. and Birattari M., "Implementation effort and performance: A comparison of custom and out-of-the-box metaheuristics on the vehicle routing problem with stochastic demand", *Engineering Stochastic Local Search Algorithms, 1st International Workshop, SLS 2007*, Lecture Notes in Computer Science, vol. 4638/2007, Springer Berlin / Heidelberg, 2007, pag. 31-45.
- [7] Pellegrini P. and Ellero A., "The small world of pheromone trails", *ANTS'2008 - Sixth International Workshop on Ant Colony Optimization and Swarm Intelligence*, Lecture Notes in Computer Science, vol. 5217/2008, Springer Berlin / Heidelberg, 2008, pag. 387-394.

- [8] Pellegrini P., Favaretto F. and Moretti E., “On max-min ant system’s parameters”. *ANTS’2006 - Fifth International Workshop on Ant Colony Optimization and Swarm Intelligence*, Lecture Notes in Computer Science, vol. 4150/2006, Springer Berlin / Heidelberg, 2006, pp. 203-214.
- [9] Pellegrini P., Favaretto F. and Moretti E., “Multiple Ant Colony Optimization for a Rich Vehicle Routing Problem: a Case Study”, *KES2007 11th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems*, Lecture Notes in Computer Science, vol. 4693/2007, Springer Berlin / Heidelberg, 2007, pag. 627-634.
- [10] Pellegrini P., Favaretto F. and Moretti E., “Exploration in Stochastic Algorithms: An Application on MAX-MIN Ant System”. *NICSO 2008 - International Workshop on Nature Inspired Cooperative Strategies for Optimization*, accepted for publication, 2008.
- [11] Pellegrini P. and Moretti E., “Quick-and-dirty ant colony optimization ”, *GECCO 2007 Genetic and Evolutionary Computation Conference - Track on Ant Colony Optimization, Swarm Intelligence, and Artificial Immune Systems*, 2007, pp. 788.

Technical reports

- [12] Pellegrini P., “Application of Two Nearest Neighbor Approaches to a Rich Vehicle Routing Problem”, TR/IRIDIA/2005-15, Université Libre de Bruxelles, Belgium, 2005.
- [13] Pellegrini P., “Modello di Comportamento di una Colonia di Formiche per un Problema di Logistica Distributiva con Finestre Temporali Multiple: un Caso Aziendale”, TR 115/2003, Department of Applied Mathematics, Ca’ Foscari University, Venice, Italy.
- [14] Pellegrini P. and Birattari M., “Out-of-the-box and custom implementation of metaheuristics. A case study: The vehicle routing problem with stochastic demand”, TR/IRIDIA/2006-008, Université Libre de Bruxelles, Belgium, 2006.
- [15] Pellegrini P. and Birattari M., “Some Combinatorial Optimization Problems on which Ant Colony Optimization is Invariant”, TR/IRIDIA/2006-26, Université Libre de Bruxelles, Belgium, 2006.
- [16] Pellegrini P. and Birattari M., “Instances Generator for the Vehicle Routing Problem with Stochastic Demand”, TR/IRIDIA/2005-10, Université Libre de Bruxelles, Belgium, 2005.
- [17] Pellegrini P., Favaretto F. and Moretti E., “Exploration in Stochastic Algorithms: An Application on MAX-MIN Ant System”. Working Paper 169, Department of Applied Mathematics, University of Venice, Italy, 2008.

Conference abstracts

- [18] Favaretto D., Moretti E. and Pellegrini P., “An Ant Colony System Approach for Variants of the Traveling Salesman with Time Windows: a Case Study”, 35th AIRO convention, Lecce, Italy, September 2004.
- [19] Libardo A., Pasini G. and Pellegrini P., “Analysis of a Case Study for a Capacitated Plant Location Problem”, 37th AIRO convention, Cesena, Italy, September 2006.
- [20] Pellegrini P., “Ant colony optimization: analysis of the exploration”, 37th AIRO convention, Cesena, Italy, September 2006.
- [21] Pellegrini P., “A Measure of the Difficulty of Instances for a Rich Vehicle Routing Problem”, Informs Annual Meeting 2005, San Francisco, USA, 2005.
- [22] Pellegrini P., “Ant Colony System for a Vehicle Routing Problem with Multiple Time Windows: a Case Study”, 34th AIRO convention, Venice, Italy, September 2006.
- [23] Pellegrini P., Favaretto F. and Moretti E., “Parameters’ values in max-min ant system: empirical analysis”, *EURO 2006: 21st European Conference on Operational Research*, Reykjavik, 2006.
- [24] Pellegrini P., Favaretto F. and Moretti E., “On exploration in stochastic algorithms. An application to ant colony optimization ”, 39th AIRO convention, Ischia, Italy, September 2008.

Teaching Activity

In the academic year 2008/2009, Paola Pellegrini has been teaching assistant of mathematics and logistics at Ca' Foscari University in Venice, Italy.

In the academic year 2006/2007, she has taught the class Elements of informatics for economics, and she has been teaching assistant of mathematics at Ca' Foscari University in Venice, Italy.

In the academic year 2006/2007, she has been teaching assistant of microeconomics, logistics and of the PhD class microeconomics II, at Ca' Foscari University in Venice, Italy.

Conference Organization

In 2009 Paola Pellegrini has been part of the program committee of *GECCO 2009 Genetic and Evolutionary Computation Conference*, track on Combinatorial Optimization and Metaheuristics, and of *SLS2009 - Engineering Stochastic Local Search Algorithms: Designing, Implementing and Analyzing Effective Heuristics*. In 2007 she has been part of the program committee of *GECCO 2007 Genetic and Evolutionary Computation Conference*, track on ant colony optimization, swarm intelligence, and artificial immune systems. In 2004 she participated in the organization of the *The Tenth International Conference on Stochastic Programming*, at the Department of System and Industria Engineering of University of Arizona. In 2003 Paola Pellegrini participated in the organization of the 34th AIRO convention, at the Department of Applied Mathematics of Ca' Foscari University in Venice.

Summer Schools Attended

She has taken part to the summer school *Logistics, transports and telecommunications*, Santo Stefano di Cadore (BL), Italy, 2004.

Referee Activity

Paola Pellegrini has been referee for the following international journals: *IEEE Transactions on Evolutionary Computation*, *IEEE Transactions on Systems, Man and Cybernetics*, *Constraints Journal*, *Annals of Operations Research*, *Journal of Artificial Intelligence Research*, *Computers and Mathematics with Applications*, *Swarm Intelligence*, *Computers and Mathematics with Applications*, *European Journal of Operations Research*. Moreover, she has been referee for the following conferences and workshops: *GECCO 2007 Genetic and Evolutionary Computation Conference*, *ANTS'2006 - Fifth International Workshop on Ant Colony Optimization and Swarm Intelligence*.

Foreign Languages

English: fluent. French: fluent.

Programming Languages

ASP, SQL, Visual Basic, R, Bash, C and C++.

Working Experience

Since November 2008 Paola Pellegrini cooperates with Università degli Studi di Trieste. In particular, she works in the context of the Contract-based Air Transportation System (CATS) project. The group she belongs to assesses the economical sustainability of a Collaborative-Decision Making protocol between airports, ANSPs and airspace users.

Since March 2007 to October 2008 she has been employed at Pellegrini S.p.A.. Mainly, she produced printing and management software.

From April to December 2006 she has worked in the project "Studio trasportistico dell'assetto economico e logistico delle aree interessate dal progetto della gronda sud di Milano", for IUAV University in Venezia.

In July and August 2003 she has produced an intranet application based on a relational database, to be integrated to the management system of an Italian firm.

In February and March 2003 she worked for a training period at Polo S.p.A..

From January to December 2002 Paola Pellegrini worked for a training period at Pellegrini S.p.A., participating in the start up of a new informative system, and cooperating in converting archives and personalized applications

already in use. Moreover I developed numerous web interfaces for updating data and querying the database, contributing to the realization of intranet applications, both on the commercial field and on the logistic field.

email: paolap@pellegrini.it

Venice, 28/01/2009