

EMILIA TANTAR

CURRICULUM VITÆ

Date of Birth : August 20, 1981
Nationality : Romanian

Computer Science and Communications Research Unit
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RESEARCH INTERESTS

Solutions landscape analysis. Dynamic multi-objective optimization. Multi-objective particle optimization. Rare events simulation. Adaptive components for evolutionary search techniques. Approximation algorithms with performance guarantees. Interactive methods.

CURRENT POSITION

Since 10/2012 ▶ **Research Associate** since the 1st of October 2012, Luxembourg Center for Systems Biomedicine (LCSB), University of Luxembourg, Luxembourg. On maternity leave between September 2012 and January 2013.

EDUCATION

01/10/2005-10/04/2009 ▶ **PhD in Computer Science** (French "Docteur en Informatique", mention "Très honorable") at DOLPHIN Project-Team, INRIA Lille - Nord Europe (French National Computer Science and Automatics Research Institute), LIFL/CNRS UMR 8022 (Fundamental Computer Science Laboratory), Université Lille1, France.

Advisors : Prof. El-Ghazali Talbi and Prof. Clarisse Dhaenens (Lille, FRANCE)

Referees : Prof. Mathias Ehrgott(Auckland, NEW ZEALAND) and Prof. Jacques Teghem (Mons, BELGIUM)

Examiners : Prof. José Rui Figueira (Lisbon, PORTUGAL) and Prof. Sophie Tison (Lille, FRANCE) and Prof. Daniel Vanderpooten (Paris, FRANCE)

Subject : *Landscape analysis in multi-objective combinatorial optimization*

Abstract : The results of the thesis are part of the effort of improving Multi-Objective Combinatorial Optimization (MOCO) methods capabilities, for large instances. The thesis proposes the use of landscape analysis as guiding tool for optimization methods, but also as mean of quantifying the difficulty of problems based on topological analysis. The present study is mainly based on landscape analysis studies that provide information about the distribution of feasible solutions in the objective space. The proposed landscape analysis approaches tackle a somewhat new aspect of MOCO problems, i.e. the topological studies performed over the set of feasible solutions or for specific sets of interests as the Pareto set (the set of best compromise solutions) or the ϵ -Pareto set. These techniques are seen as a priori techniques, providing useful information for the design of approximation methods. Furthermore, the structurality studies are integrated in online interactive techniques in order to help the search process and to provide performance guarantees even for stochastic searches in the multi-objective combinatorial case.

- 2003-2005
- ▷ **Master degree in Computer Science - Combinatorial Optimization**, Faculty of Computer Science, "Al. I. Cuza" University, Iasi, Romania.
Courses : Foundations of Combinatorial Optimization, Parallel and Distributed Algorithms, Optimal Control of Systems with Distributed Parameter, Statistical Analysis of Experimental Algorithms, Special Topics of Algorithmics, Metaheuristics in Complex Systems Design and Verification, Advanced Programming Techniques (in Java), Fuzzy Theories in Optimization, Artificial Neural Networks in Optimization, Semantic Web.
GPA : 9.83 (out of 10)
Graduation project : Framework for multi-criterion optimization using COIN-OR. Linear modeling approach
Advisors : El-Ghazali Talbi and Clarisse Dhaenens (DOLPHIN Project Team, INRIA Lille-Nord Europe, LIFL/USTL)
- 1999-2003
- ▷ **Bachelor of Science**, Faculty of Computer Science, "Al. I. Cuza" University, Iasi, Romania.
Graduation project : Active shape segmentation of C-arm images - 10(out of 10).
Advisors : Neculai Archip (University of British Columbia, Vancouver, Canada, currently at Harvard Medical School) and Cornelius Croitoru (Faculty of Computer Science, "Al. I. Cuza" University, Iasi, Romania).

ACADEMIC RECOGNITION

- 07/2007
- ▷ **Best Paper Award** - Oliver Schutze, Marco Laumanns, **Emilia Tantar**, Carlos A. Coello Coello, El-Ghazali Talbi, *Convergence of stochastic search algorithms to gap-free pareto front approximations*, GECCO 2007 : 892-901, July 7-11, 2007, University College London, London, England.
- 03/2004
- ▷ **1st prize - Emilia Tantar**, *Active Segmentation of C-arm images*, StudIT (Students Communications Sessions), March 26-28, 2004, West University Timisoara, Timisoara, Romania.

PROFESSIONAL AND ACADEMIC EXPERIENCE

- 2010-2012
- ▷ **AFR-Marie Curie PostDoctoral Researcher** in the Computer Science and Communications Research Unit, University of Luxembourg. Research topics : landscape analysis in multi-objective optimization, performance guarantees and stability of Evolutionary Multi-Objective (EMO) algorithms, dynamic multi-objective optimization, convergence of evolutionary algorithms in the presence of stochastic factors.
- 2011
- ▷ **Invited Professor (June-July)** - CINESTAV-IPN (Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional), Mexico city, Mexico in the context of collaboration with Prof. Oliver Schuetze and Prof. Carlos A. Coello Coello.
- 2009-2010
- ▷ PostDoctoral Researcher in the Advanced Learning Evolutionary Algorithms (ALEA) Team, INRIA Bordeaux - Sud-Ouest, Institut de Mathématiques de Bordeaux. Research topics : interacting Markov Chains based modeling in multi-objective optimization, performance guarantees and stability of Evolutionary Multi-Objective (EMO) algorithms.
- 2007 - 2009
- ▷ Lecturer (ATER), Polytech'Lille, Université des Sciences et Technologies de Lille, Lille, France.
- 2009
- ▷ Founding Member and vice-President of the Lille Nord de France IEEE Branch, gathering Computer Science PhD Students (INRIA Lille – Nord Europe, Lille Laboratory of Computer Science, LIFL) and Doctoral School of Engineering Science (EDSPI) affiliated PhD Students.
- 2008
- ▷ **INRIA "Explorateur" scholarship (October-December)** - Centrum Wiskunde & Informatica (CWI), Amsterdam, The Netherlands in the Computational Intelligence and Multi-agent Games (SEN4) group. Research performed in collaboration with Prof. Han La Poutre and Dr. Peter Bosman.
- 2008-2009
- ▷ **Elected member of the LIFL council** (Fundamental Computer Science Laboratory, Lille, France) as one of the two PhD students' representatives (out of 90 students).

- 2005 - 2008
 - ▷ Founding Member of TILDA - Computer Science PhD Students of Lille and Associated PhDs (Thesards en Informatique de Lille et Docteurs Associes), treasurer of the association (2005- March 2007), President (March 2007 - November 2008), <http://tilda.univ-lille1.fr>
 - ▷ EuroDocInfo'08 - European Doctoral School on Computer Science, January 23-24, 2008, Lille, France. (<http://www.lifl.fr/eurodocinfo08>)
- 2007
 - ▷ **Invited researcher** (*May*) - Centro de Estudos de Gestao, Instituto Superior Tecnico, Lisbon, Portugal in the context of collaboration with Prof. Jose Rui Matos Figueira.
 - ▷ COST IC0602 International Doctoral School, Algorithmic Decision Theory : MCDA and MOO (*September*), September 17-21, 2007, Han-sur-Lesse, Belgium.
- 2005
 - ▷ INRIA Research Internship (*July to the end of August*), DOLPHIN Project Team, INRIA Lille-Nord Europe unit (French National Computer Science and Automatics Research Institute), Lille, France.
 - ▷ Socrates/Erasmus European Research Mobility (*January to end of June*), LIFL (Fundamental Computer Science Laboratory), Lille, France (awarded for the 10 first ranked students of the Faculty of Computer Science, "Al. I. Cuza" University, Iasi, Romania).
- 2004
 - ▷ StudIT (Students Communications Sessions), March 26-28, 2004, West University Timisoara, Timisoara, Romania.

RESEARCH GRANTS PARTICIPATION

- Evoperf
 - ▷ Workpackage leader for WP1. Proactive contribution in defining the leading lines of the project. Interdisciplinary project set on a three years collaboration basis between the Computer Science and Communications Research Unit, Luxembourg Center for Systems Biomedicine from the University of Luxembourg, and the Advanced Learning Evolutionary Algorithms (ALEA) team led by Prof. Pierre Del Moral, INRIA Bordeaux – Sud-Ouest, France.

Abstract : Evoperf aims at providing the bases for robust and performance guaranteed evolutionary computations. Such methods have a large spectrum of applications. By choosing a system biomedicine application, Evoperf aims at performing interdisciplinary research.
- Carbon Neutral ICT
 - ▷ **Carbon-Neutral ICT Operations at the University of Luxembourg**, Luxembourg. This interdisciplinary project aims at providing solutions for a carbon-free environment for the Belval Campus which is to be constructed for the University of Luxembourg. The project consists of three main packages : (a) a business model for managing the renewable energy provided by photovoltaic sources, (b) reducing energy consumption for the ICT equipment and operations and (c) a monitoring system for the ICT-driven energy consumption.

Abstract : As a central research area of Pascal Bouvry's Team, the Green IT resource management addresses the need of reducing (through optimization) the ICT-driven energy consumption. The main goal consists in providing solutions and tools capable of self-adaptation against a dynamic computing environment including different stochastic sources and where energy consumption minimization stands as a main objective. Challenging aspects relate to the multi-objective online dynamic nature of the problem.

IFREMER ▶ **Extreme Conditions Particle Based Simulation**, Advanced Learning Evolutionary Algorithms (ALEA) - INRIA Bordeaux - Sud-Ouest / IMB and the Sea Exploration Research French Institute (IFREMER). The main axes to be explored as part of the project aim at : (a) providing a comprehensive overview of the existing particle-based rare-events simulation approaches, (b) conducting a simulation based comparison of the developed algorithms and (c) offering a framework dedicated to the analysis of processes evolving under extreme offshore conditions.

Abstract : As a central research area of the ALEA team, the analysis of particle based stochastic paradigms offers the support for designing risk assessment and rare-events simulation algorithms. In a context where the aforementioned axes stand at the core of extreme-conditions offshore structural development approaches, the analysis of processes evolving under critical constraints is imposed. Compared to Markov chain Monte Carlo (MCMC) approaches, the performance of particle based algorithms does not depend on long simulation stability and convergence conditions. A sequential Monte Carlo based approach is here considered, where a set of potential solutions is iteratively refined in order to allow the simulation of critical states. A particular attention will be given to the analysis of theoretical convergence, in order to provide performance guarantee factors and also on numerical performance.

CEA CESTA ▶ **Sparse Antenna Array Optimization**, French Atomic Energy Commission (CEA), project coordinated by Prof. Del Moral (Advanced Learning Evolutionary Algorithms, INRIA Bordeaux - Sud-Ouest / IMB) and Pierre Minvielle (CEA CESTA, Le Barp). External collaboration as a member of the Advanced Learning Evolutionary Algorithms (ALEA) Team, offering support on the design and analysis of different evolutionary approaches. A significant improvement of the formerly obtained results was attained, superseding the cross-entropy based approaches, previously addressed in the project. Furthermore, my role in this project is to introduce the multi-objective aspect, in order to provide good compromise (Pareto) approximate solutions. In this direction, an interacting particle method was designed. Also, the convergence and experimental performances of the algorithm were studied and improved results were obtained.

Abstract : Sparse antenna arrays stand as a high interest topic in the electromagnetic measures domain, communications, etc. From a formal point of view, the optimization of a sparse antenna array, with respect to various constraints, can be modelled over a set of continuous functions describing directivity, lobes, etc. Nonetheless, as a result of the non-convex and highly multi-modal nature of the functions to be optimized, classical algorithms are generally ineffective. Extending previous approaches, a Kullback-Leibler cross-entropy based stochastic paradigm is considered for the study, the algorithm being conducted by performing adaptive changes of the probability density functions in order to explore the search space.

PUBLICATIONS

Book ▶ **Emilia Tantar, Oliver Schutze**, Performance guarantees and landscape analysis in multi-objective optimization, Springer Verlag, (to appear)

Book chapter ▶ **Emilia Tantar, Alexandru-Adrian Tantar, Nouredine Melab, El-Ghazali Talbi**, Landscape Analysis in Adaptive Metaheuristics for Grid Computing, in *Advances in Parallel Computing*, volume 17, Parallel Programming and Applications in Grid, P2P and Networked-based Systems, pp. 313-344, 2009, IOS Press Book Series, ISBN 978-1-60750-004-9.

Journal papers ▶ **Oliver Schetze, Marco Laumanns, Emilia Tantar, Carlos A. Coello Coello, El-Ghazali Talbi**, Convergence of Stochastic Search Algorithms to Gap-Free Pareto Front Approximations, *Evolutionary Computation*, Volume 18, Issue 1, pp.65-96, MIT Press, Spring 2010.

Pierre Minvielle, Emilia Tantar, Alexandru-Adrian Tantar, Philippe Berisset, Sparse Antenna Array Optimization with the Cross-Entropy Method, *IEEE Transactions on Antennas and Propagation*, Volume 59, Issue 8, pp. 2862-2871, IEEE Antennas and Propagation Society, August 2011.

- ▷ **Emilia Tantar, Alexandru-Adrian Tantar, Pascal Bouvry**, On dynamic multi-objective optimization - classification and performance measures, in Proceedings of the IEEE Congress on Evolutionary Computation (CEC 2011), New Orleans, USA, Juin 5-8, pp. 2759-2766, 2011.

Alexandru-Adrian Tantar, Emilia Tantar, Pascal Bouvry, A classification of dynamic multi-objective optimization, in Proceedings of Genetic and Evolutionary Computation Conference (GECCO Companion), Dublin, Ireland, July 12-16, pp. 105-106, 2011.

Emilia Tantar, *A priori* landscape analysis in Bi-Objective Combinatorial Optimization, in Proceedings of the The 6th European Conference on Intelligent Systems and Technologies (ECIT'2010), Iasi, Romania, October 7-9, pp. (to be announced), 2010.

Emilia Tantar, Clarisse Dhaenens, Jose Rui Figueira, El-Ghazali Talbi, *A priori* landscape analysis in guiding interactive multi-objective metaheuristics, in Proceedings of the IEEE Congress on Evolutionary Computation (CEC 2008), Hong Kong, China, June 1-7, pp. 4104-4111, 2008.

Oliver Schutze, Carlos A. Coello Coello, Emilia Tantar, El-Ghazali Talbi, Computing Finite Size Representations of the Set of Approximate Solutions of an MOP with Stochastic Search Algorithms, in *Proceedings of Genetic and Evolutionary Computation Conference (GECCO 2008)*, July 12-16, Atlanta, USA, pp. 713-720, ACM Press, 2008, ISBN 978-1-60558-131-6.

Emilia Tantar, Oliver Schutze, Jose Rui Figueira, Carlos A. Coello Coello, El-Ghazali Talbi, Computing and selecting epsilon-efficient solutions of 0,1-knapsack problems, in *Multiple Criteria Decision Making for Sustainable Energy and Transportation Systems (Proceedings of the 19th International Conference on Multiple Criteria Decision Making)*, Auckland, New Zealand, January 7-12, 2008, Lecture Notes in Economics and Mathematical Systems, pp.(to be announced), Volume 634, Springer, 2010, ISBN : 978-3-642-04044-3.

Best paper award - Oliver Schutze, Marco Laumanns, Emilia Tantar, Carlos A. Coello Coello, El-Ghazali Talbi, Convergence of Stochastic Search Algorithms to Gap-Free Pareto Front Approximations, in *Proceedings of Genetic and Evolutionary Computation Conference (GECCO 2007)*, July 7-11, University College London, England, pp. 892-901, ACM Press, 2007, ISBN 978-1-59593-697-4.

Emilia Tantar, Clarisse Dhaenens, El-Ghazali Talbi, Landscape Analysis for Multiobjective Combinatorial Optimization. Proceedings of SIAM Conference on Discrete Mathematics, University of Victoria, Victoria, British Columbia, Canada, June 25-28, 2006.

Emilia Tantar, Clarisse Dhaenens, El-Ghazali Talbi, Hyper-ellipse landscape approximation for large combinatorial optimization instances. Proceedings of ECCO XIX - CO, Porto, Portugal, May 11-13, 2006.

Emilia Tantar, Alexandru-Adrian Tantar, Image processing for planetary robots, European Mars and Planetary Conference (EMC), Iasi, Romania, July 26-28, 2004. Printed in Proceedings Mars and Planetary Science and Technology, published by European Mars Society and Performantica Press, edited by H.N. Teodorescu, pp. 75-89, 2004, ISBN 973-7994-83-3.

Emilia Tantar, Alexandru-Adrian Tantar, A Hybrid Approach for solving the job shop problem using a cumulative function, CD proceedings of the 8th International Symposium on Automatic Control and Computer Science (SACCS 2004), Iasi, Romania, October 22 - 23, 2004.

- National Conferences
- ▷ **Emilia Tantar, Clarisse Dhaenens, El-Ghazali Talbi**, Methodes interactives guidees par l'analyse du paysage en optimisation combinatoire bi-objectif, 9^{ème} congres de la Societe Française de Recherche Operationnelle et d'Aide À la Decision, Clermont-Ferrand, France, February 25-27, 2008.
 - Emilia Tantar, Clarisse Dhaenens, El-Ghazali Talbi**, Sur l'approximabilite du probléme de flow-shop de permutation bi-objectif. Conference conjointe FRANCORO V / ROADEF 2007, Grenoble, France, February 20-23, 2007.
 - Emilia Tantar, Alexandru-Adrian Tantar, Clarisse Dhaenens, El-Ghazali Talbi**, XMOS : plateforme generique pour l'optimisation multi-objectif, 7^{ème} congres de la Societe Française de Recherche Operationnelle et d'Aide À la Decision (ROADEF), Lille, France, February 6-8, 2006.
- Workshops
- ▷ **Alexandru-Adrian Tantar, Emilia Tantar, Pascal Bouvry**, Load balancing for sustainable ICT, in Proceedings of Genetic and Evolutionary Computation Conference (GECCO Companion), GreenIT Evolutionary Computation Workshop, Dublin, Ireland, July 12-16, pp. 733-738, 2011.
 - Sébastien Varrette, Emilia Tantar, Pascal Bouvry**, On the Resilience of [distributed] Evolutionary Algorithms against Cheaters in Global Computing Platforms, in The 14th International Workshop on Nature Inspired Distributed Computing, part of the International Parallel and Distributed Processing Symposium (IPDPS), Anchorage (Alaska) USA, May 16-20, pp. 409-417, 2011.
 - Pierre Del Moral, Emilia Tantar, Alexandru-Adrian Tantar, Zakoua Guede**, Particle methods - simulation and calibration for extreme sea conditions, Rare Events Simulation Workshop(RES 2010), Bordeaux, France, October 28-29, 2010.
 - Emilia Tantar, Alexandru-Adrian Tantar, Clarisse Dhaenens, El-Ghazali Talbi**, XMOS - An eXact Multi-Objective Solver, Workshop International : Logistique & Transport 2006 (LT'2006), Hammamet, Tunisia, April 30-May 2, 2006.
 - 1st prize - Emilia Tantar**, Active Segmentation of C-arm images, StudIT (Students Communications Sessions), West University Timisoara, Timisoara, Romania, March 26-28, 2004.
- Research Reports
- ▷ **Alexandru-Adrian Tantar, Emilia Tantar, Pascal Bouvry**, Design and classification of dynamic multi-objective optimization problems, CoRR abs/1103.4820 : (2011).
 - F. Caron, P. Del Moral, A. Tantar, E. Tantar**, Simulation particulaire, Dimensionnement en conditions extrêmes. Report for the IFREMER research collaboration contract No. 2010-IFREMER-01 (92 pages), INRIA Bordeaux - Sud-Ouest, Bordeaux, 2010.
 - Emilia Tantar, Oliver Schutze, Jose Rui Figueira, Carlos A. Coello Coello, El-Ghazali Talbi**, Computing and Selecting ϵ -Efficient Solutions of 0,1-Knapsack Problems, Working Paper N. 14/2007, Centro de Estudos de Gestao, Instituto Superior Tecnico, Lisbon, Portugal.
 - Emilia Tantar, Clarisse Dhaenens, Jose Rui Figueira, El-Ghazali Talbi**, Interactive Hybridization of Metaheuristics and Landscape Analysis for Multi-Objective Optimization, ISSN 1646-2955, Working Paper N. 10/2007, Centro de Estudos de Gestao, Instituto Superior Tecnico, Lisbon, Portugal.

SCIENTIFIC SERVICE

- Committees
- ▷ Designated expert by the CSC/University of Luxembourg for the *Formation des Ingé- nieurs, Université Grand Region (Saarland, Liège, Luxembourg, Metz, Nancy, Kaisers- lautern, Trier)*, November 9, 2010, Arlon University Campus, Liège, Belgium.

- Co-Founder and Co-Chair

 - ▷ One of the *representatives of the University of Luxembourg for the University of the Greater Region (UGR) official delegation* that visited Bucharest and Sofia on October 25-26, 2011. The encounters had as purpose to establish common agreements between the UGR and top-ranked universities in Romania, respectively Bulgaria. The delegation included all the presidents and rectors of the UGR Universities as well as vice-presidents, researchers and international relations staff from UGR.
 - ▷ **EVOLVE International Conference - A bridge between probability, set oriented numerics and evolutionary computation**, July 11-13, Leiden, The Netherlands, 2013. (<http://evolve2013.liacs.nl>)
 - ▷ **EVOLVE International Conference - A bridge between probability, set oriented numerics and evolutionary computation**, August 7-9, Mexico City, Mexico, 2012. (<http://evolve.cinvestav.mx>)
 - ▷ **EVOLVE - A bridge between probability, set oriented numerics and evolutionary computation**, May 25-27, Luxembourg, 2011. (<http://evolve.uni.lu>)
 - ▷ Workshop on Evolutionary Algorithms - Challenges in Theory and Practice, March 29, Bordeaux, 2010 (<http://alea.bordeaux.inria.fr/index.php/component/content/article/34>).
 - ▷ Green and Efficient Energy Applications of Genetic and Evolutionary Computation (**GreenGEC**), **GECCO 2013** (Genetic and Evolutionary Computation Conference). July 06-10, 2013. Amsterdam, The Netherlands, <http://www.sigevo.org/gecco-2013/workshops.html>.
 - ▷ Green and Efficient Energy Applications of Genetic and Evolutionary Computation (**GreenGEC**), **GECCO 2012** (Genetic and Evolutionary Computation Conference). July 07-11, 2012. Philadelphia, USA, <http://greengec2012.uni.lu>.
 - ▷ GreenIT Evolutionary Computation, **GECCO 2011** (Genetic and Evolutionary Computation Conference). The aim of this workshop is to bring together researchers interested in addressing challenging issues related to the use of evolutionary computation for power consumption optimization in large-scale and distributed computing systems. July 12-16, 2011. Dublin, Ireland, <http://griphon.uni.lu/greenit>.

- Students Chair

 - ▷ **GECCO 2013** (Genetic and Evolutionary Computation Conference), July 06-10, Amsterdam, The Netherlands, 2013. (<http://www.sigevo.org/gecco-2013/>)

- Research coordination

 - ▷ **2013-**, Member of the **IEEE CIS Webinars Subcommittee**.
 - ▷ **November 2010-August 2012**, *GRIPHON Working Group (Grids, Parallel Computing, Ad-Hoc Networks and Optimization)*. Weekly event organized inside Prof. Pascal Bouvry's Team regrouping team members along with presentations given by invited researchers. Computer Science and Communications Research Unit, FSTC, University of Luxembourg, Luxembourg, <http://griphon.uni.lu>
 - ▷ **September 2009-September 2010**, Co-responsible of the ALEA (Advanced Learning and Evolutionary Algorithms) Working Group, held every Thursday from 14h, at Institut de Mathematiques de Bordeaux (IMB). The ALEA Working Group serves as a forum for the ALEA Team members and invited researchers. The event stands as a common ground for the group members and the invited speakers to present their ongoing research, interact and exchange knowledge. Each session is focused on the discussion and peer review of current and future projects, related aspects and incentive research topics. The event provides a regular schedule of presentations covering but not being restricted to ALEA's research themes.
 - ▷ Interactive Visual Cooperation of Methods (Cooperation visuelle interactive des methodes), final year project, Herve DELANNOY and Karl BROQUET, 2nd year Master Pro IAGL, Sciences and Technology University of Lille (Universite des Sciences et Technologies de Lille) - project supervised in collaboration with Prof. Clarisse Dhaenens.

Student
coordination

- ▷ *Dynamic Packet-size Optimization in MPEG Audio Streaming over Wireless LAN*, Master thesis research internship, Chinnapong ANGSUCHOTMETEE, 2nd year Master of Science Information Technology, University of Luxembourg, from King Mongkut's University of Technology Thonburi, Thailand - project supervised in collaboration with Dr. Alexandru-Adrian Tantar, March-April 2011(full-time).

Learning and anticipation techniques, part of *Carbon-neutral ICT Operations* at the University of Luxembourg, Cristina GHET and Diana MAROSIN, 1st year Master in Information and Computer Science, University of Luxembourg - project supervised in collaboration with Dr. Alexandru-Adrian Tantar, March-June 2011.

Dynamic sustainability procedures, part of *Carbon-neutral ICT Operations* at the University of Luxembourg, Mária SVORENOVA and Reyhan YILMAZ, 1st year Master in Information and Computer Science, University of Luxembourg - project supervised in collaboration with Dr. Alexandru-Adrian Tantar, March-June 2011.

Benchmarks for dynamic multi-objective optimization problems, Masoud TABATABEI and Vaishnavi REJENDRA, 1st year Master in Information and Computer Science, University of Luxembourg - project supervised in collaboration with Dr. Alexandru-Adrian Tantar, March-June 2011.

Interactive Visual Cooperation of Methods (Coopération visuelle interactive des méthodes), final year project, Hervé DELANNOY and Karl BROQUET, 2nd year Master Pro IAGL, Sciences and Technology University of Lille (Université des Sciences et Technologies de Lille) - project supervised in collaboration with Prof. Clarisse Dhaenens.

Scientific
Committee

- ▷ IEEE Congress on Evolutionary Computation (**IEEE CEC 2013**), Cancun, Mexico, June 20-23, 2013.

IEEE Symposium Series on Computational Intelligence (**IEEE SSCI 2013**), Singapore, April 16-19, 2013.

5th International Conference on Evolutionary Computation Theory and Applications (**ECTA 2013**), Vilamoura, Algarve, Portugal, September 20-22, 2013.

2nd International Conference on Smart Grids and Green IT Systems 2012 (**SMARTGREENS**), Aachen, Germany, 9 - 10 May, 2013.

Understanding Problems Workshop, Genetic and Evolutionary Computation Conference, 2012 (**GECCO-UP**), 2012, Philadelphia, USA, 07 – 11 July, 2012.

IEEE Congress on Evolutionary Computation (**IEEE CEC 2012**) held as part of the 2012 IEEE World Congress on Computational Intelligence (IEEE WCCI), Brisbane, Australia, June 10-15, 2012.

9th International Conference on Electrical Engineering, Computing Science and automatic Control (**CCE 2012**) Mexico City, September 26-28, 2012.

4th International Conference on Evolutionary Computation Theory and Applications (**ECTA 2012**), Barcelona, Spain, October 5-7, 2012.

1st International Conference on Smart Grids and Green IT Systems 2012 (**SMARTGREENS**), held in conjunction with CSEDU 2012, WEBIST 2012 and CLOSER 2012, Porto, Portugal, 19 - 20 April, 2012.

8th International Conference on Electrical Engineering, Computing Science and Automatic Control (**CCE 2011**), Merida, Yucatan, Mexico, October 26-28, 2011.

International Conference on Evolutionary Computation Theory and Applications (**ECTA 2011**), Paris, France, October 24-26, 2011.

Sixth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (**3PGCIC 2011**), Global Optimization in Large Scale Distributed Systems Track, Barcelona, Spain, October 26-28, 2011.

IEEE SSCI'2011 : Symposium on Foundations of Computational Intelligence (FOCI 2011), Paris, France, April 11-15, 2011.

ICEC (International Conference on Evolutionary Computation), part of IJCCI (International Joint Conference on Computational Intelligence), Valencia, Spain, October 24-26, 2010.

The 6th European Conference on Intelligent Systems and Technologies, Iasi, Romania, October 7-9, 2010.

Reviewer

- ▷ **Soft Computing**, Springer.
Journal of Optimization Theory and Applications, Springer.
Information Sciences, Elsevier.
Computers & Operations Research, Elsevier.
Applied Mathematics and Computation, Elsevier.
Computers and Mathematics with Applications, Elsevier.

- External Reviewer
- ▷ **Journal of Mathematical Modeling and Algorithms (JMMA)**, Special Issue on *Recent Developments in Bioinspired Algorithms*, 2010.
 - European Journal of Operational Research (EJOR)**, Elsevier, Special Issue on *Cooperative Combinatorial Optimization*, Volume 199, Issue 3, December 2009.
 - Journal of Heuristics**, Springer, Special Issue on *Advances in Metaheuristics for Multiobjective Optimization*, Volume 14, No. 4, August 2008.
 - RAIRO - Operations Research**, EDP Sciences, Special Issue on *Cooperative methods for Multiobjective Optimization*, Volume 42, No. 1, January-March 2008.
 - ISPDC 2008** - 7th International Symposium on Parallel and Distributed Computing.
- Organizer
- ▷ **Co-organizer**, Rare Events Simulation Workshop (RES 2010). Workshop offering an extensive insight of the rare event simulation and analysis domain, with topics varying from fundamental to application oriented aspects. October 28-29, 2010, Bordeaux, France, <http://alea.bordeaux.inria.fr/index.php/conferences/rareeventsworkshop>.
 - ▷ Workshop on Evolutionary Algorithms - Challenges in Theory and Practice, March 29, Bordeaux, 2010. (<http://alea.bordeaux.inria.fr/index.php/component/content/article/34>)
 - ▷ EuroDocInfo'09, Mons, Belgium, January 22-23, 2009.
 - ▷ **Chair of the organizing committee** EuroDocInfo'08, Lille, France, January 23-24, 2008. (<http://www.lifl.fr/eurodocinfo08>)
 - ▷ 7th ROADEF congress (Societe Française de Recherche Operationnelle et d'Aide À la Decision), Lille, France, February 6-8, 2006. (<http://www.lifl.fr/ROADEF2006/>)
 - ▷ <Web/>.Net Workshop, Iasi, Romania, May 16-17, 2002. (<http://www.infoiasi.ro/~web>)
 - ▷ <Web/> Workshop, Iasi, Romania, May 5, 2001. (<http://www.infoiasi.ro/~web>)
- Invited seminars
- ▷ **Emilia Tantar**, Multi-objective particle methods and stochastic factors, **CINVESTAV - IPN Seminario Departamental**, Mexico city, Mexic, 29 June 2011.
 - Emilia Tantar**, Performance guarantees and landscape analysis for evolutionary multi-objective optimization, **Séminaires de l'Équipe OPAL du Laboratoire IBISC**, Evry, France, 30 March 2010.
 - Emilia Tantar**, Landscape Analysis in Multi-objective Combinatorial Optimization, **SEN4 CWI Seminars**, Amsterdam, The Netherlands, 9 October 2008.
- Talks
- ▷ **Emilia Tantar**, SEN4 CWI Invited seminar - Landscape Analysis in Multi-objective Combinatorial Optimization, Amsterdam, The Netherlands, 9 October 2008.
 - ▷ **Emilia Tantar**, *A priori* Landscape Analysis in Multi-objective Combinatorial Optimization, EuroDocInfo'08, Lille, France, January 23-24, 2008.
 - ▷ **Emilia Tantar**, Landscape Analysis for Multi-objective Optimization, COST IC0602 International Doctoral School, Algorithmic Decision Theory : MCDA and MOO, Hansur-Lesse, Belgium, September 17-21, 2007.
 - ▷ **Emilia Tantar**, Approximabilité du flow-shop bi-objectif. PM2O (Multi-objective mathematical programming) working group meeting, Angers, France, February 9, 2007.
 - ▷ **Emilia Tantar**, Interactive image processing for the Web, November<Web/>, Iasi, Romania, November 29, 2003.
 - ▷ **Emilia Tantar**, "Visual Web Design", <Web/>.NET, Iasi, Romania, May 16-17, 2002.

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- Special Issue ▷ Evolutionary Computing & Complex Systems, Soft Computing Journal (A Fusion of Foundations, Methodologies and Applications / Computational Intelligence and Complexity), Tantar A., Tantar E. Bouvry P., Schütze O., Coello Coello C., Del Moral Pierre (Guest Editors), Di Nola A. (Editor-in-Chief), Loia V. (Co-Editor-in-Chief), 2013.
- Books ▷ EVOLVE - A bridge between Probability, Set Oriented Numerics and Evolutionary Computation, Studies in Computational Intelligence, Springer, Tantar E., Tantar A., Bouvry P., Del Moral P., Legrand P., Coello Coello C., Schütze O. (Editors), ISBN 978-3-642-32725-4, 430 p., 2013.
 EVOLVE II - A bridge between Probability, Set Oriented Numerics and Evolutionary Computation, Advances in Intelligent and Soft Computing, Springer, EVOLVE 2012 International Conference Proceedings, Schütze O., Coello Coello C., Tantar A., Tantar E., Bouvry P., Del Moral P., Legrand P. (Editors), ISBN 978-3-642-31518-3, 504 p., 2013.
- Proceedings ▷ GECCO'11 : Proceedings of the 13th Annual Conference Companion on Genetic and Evolutionary Computation (GECCO), SIGEVO, ISBN : 978-1-4503-0690-4, Dublin, Ireland, 2011.
- Series ▷ EVOLVE 2011 International Workshop Proceedings, A bridge between Probability, Set Oriented Numerics and Evolutionary Computation, Bouvry P., Tantar A., Tantar E. Del Moral P., Legrand P., Schuetze O. (Editors), May 25-27, 2011, University of Luxembourg, ISBN : 978-2-87971-106-5, ISSN : 2222-9434, 2011.

TEACHING

- 2011 ▷ **Advanced Optimization Techniques**, CSC Doctoral School, University of Luxembourg. Full responsibility for the organization, together with Dr. Alexandru-Adrian Tantar. The lectures given by Prof. Pierre Del Moral, Dr. Alexandru-Adrian Tantar and myself covered from the theoretical fundamentals to the practical aspects related to stochastic optimization techniques, distributed optimization and multi-objective optimization. I was in charge of Module 6 "Cooping with multi-objective optimization in a coherent way." The audience covered PhD students in computer science, mathematics and engineering, from the University of Luxembourg, but also from the University of the Greater Region, regrouping Saarland University, University of Liège, University of Luxembourg, The Universities of Lorraine, University of Kaiserslautern, University of Trier.
- 2006-2008 ▷ **Fundamental Algorithmic Mathematics**, 1st year, Continuous Education, UFR IEEA (FIL) - Computer Science. Course notes preparation, specification of practical work topics, on-going evaluation and final exam evaluation.
- 2007-2009 ▷ **Graph theory and Combinatorics**, 3rd year Software Engineering and Statistics (GIS), Polytech'Lille, with Prof. Clarisse DHAENENS - . Responsible for the seminar and the laboratory component module.
- Data structures**, 3rd year Software Engineering and Statistics (GIS), Polytech'Lille, with Prof. Anne eTIEN - practical work on implementing and using trees, queues, stacks, etc. (C based programming). Responsible for the laboratory component module and for the final laboratory evaluation.
- Computer programming in C**, 3rd year Computer Science - Microelectronics - Automation (IMA), Polytech'Lille, with Prof. Nathalie DEVESA and Prof. Franck SEYNHAVE (during two semesters) - initiation to the C programming language, basic concepts of data structures and algorithms. Responsible for the seminar, the laboratory component and for the final laboratory evaluation.
- Introduction to computer programming**, 3rd year Scientific Instrumentation and Applied Business (ITEC), Polytech'Lille, with Prof. Stephane JANOT - initiation to the C programming language, basic concepts of data structures and algorithms. Responsible for the laboratory component and for the final laboratory evaluation.

HOBBIES

- Visual web design
 - ▷ Aeronautics, Arcade story computer games, Brain-teasers.
 - ▷ 2nd prize for web design of the "Al. I. Cuza" University site, with Stefan Tanasa and Codrin Juravle, representing the WebGroup.
- Essay, poetry
 - ▷ 3rd prize for creativity during National Creation Camp, Galaciuc, Romania, 1995.

REFEREES

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