

Sofia Zaourar

PhD Candidate in Optimization

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Education

- Sep 2011 – present **PhD in Optimization**, *Inria*, Grenoble, France.
In BIPOP team, under the supervision of Jerome Malick, in the field of nonsmooth convex optimization.
Title: Decomposition methods in optimization: theory, algorithms and applications in the inexact case.
- 2010 – 2011 **MSc in Computer Science**, *Université Joseph Fourier*, Grenoble, France.
Specialization: Operations Research and Combinatorial Optimization. Ranked 2nd out of 63.
- 2008 – 2011 **MSc and BSc in Computer Science and Applied Mathematics**, *Ensimag*, Grenoble, France.
Top French engineering school in Informatics, Applied Mathematics and Telecommunications.
- 2005 – 2008 **Mathematics and Physics Preparation Courses**, *Lycée Joffre*, Montpellier, France.
Preparation program for the nationwide competitive examination to the French engineering schools.
- 2005 **High School Baccalaureate Diploma with honors**, Algiers, Algeria.

Professional Experience

- Sep 2011 – present **PhD in Optimization**, *Inria*, Grenoble, France.
Working on accelerating Benders Decomposition by exploiting cheap information with unknown accuracy.
- Sep 2011 – present **Teaching Assistant**, *Ensimag*, Grenoble, France.
Giving tutorials in Numerical Optimization (70h), Analysis (54h), Algorithmic (40h) and Databases (18h).
- April – May 2013 **Visiting Scholar**, *Scientific computing lab, University of British Columbia*, Vancouver, Canada.
Contributing to BiqCrunch (semidefinite programming based solver) on the quadratic assignment problem. Implementing performant heuristics to recover feasible solutions during the branch & cut procedure.
- Feb – Jul 2011 **Research Intern**, *Inria*, Grenoble, France.
Working on stabilizing constraint decomposition for inexact unit-commitment problems. Theoretical study, implementation and validation on real-life problems of EDF daily electricity production management.
- Jun – Aug 2010 **R&D Intern**, *Bouygues e-lab (R&D department of Bouygues company)*, Paris, France.
Benchmarking a Local Search solver on a real-life frequency assignment problem. Modeling the problem and solving very large-scale instances using LS solver and a MILP solver (GLPK) for performance comparisons.
- Feb – May 2010 **Research Intern**, *Inria*, Grenoble, France.
Exact solving of graph bipartition problem. Working on semidefinite programming based bounds within a branch & bound procedure. Implementing efficient heuristics to compute initial solutions.
- Jun – Jul 2009 **Summer Intern**, *Opti-Time (Routes optimization software company)*, Grenoble, France.
Implementing a generator of realistic test-problems for TourSolver, a delivers and crew scheduling software.

Team Projects and Competitions

- 2011 – 2012 **Google ROADEF/EURO challenge 2012: Machine reassignment**. Proposed a local-search based heuristic. Final rank: 8th/11th in the junior/open-source categories, out of 82 teams.
- Jan 2011 **Master project**. Implementing several heuristics for a real-life warehouse location-routing problem.
- Jun 2010 **FFJM competition 2010: Electrical network design**. Proposed a constraint generation approach, using network flow algorithms and CPLEX solver for subproblems. Ranked 1st in the group category.
- Jan 2010 **Software engineering school project**. Development of a compiler for an object oriented language.
- Jun 2009 **C-language school project**. Implementation of a Motion-JPEG decoder.

Computer Skills

- Math. tools Matlab, Scilab, Gurobi, CPLEX, Cbc, GLPK, R.
- Programming C/C++, Python, bash, Java, Ada, OCaml, Fortran, SQL, \LaTeX .

Miscellaneous

- Languages French and Arabic: native; English: fluent; German: basic notions.
- Associations Ensimag art club secretary (2009-2011); Organization of Grenoble new PhD's welcome day 2012.
- Interests Mountain hiking, dance, yoga, contemporary art, fashion, travels.