Michaël Gabay, PhD

Chief Product Officer

52 rue Rivay 92300 Levallois-Perret, France ℘ +33 (0)6 19 24 74 75 ⊠ michael@gabay.email ∽ ™ www.gabay.email

Experience January 2017 - Chief Product Officer, Artelys, Paris, France. Present I create, innovate and lead Artelys software developments and architecture. In particular, I lead developments of the Artelys Crystal software platform and Artelys Knitro. I also provide expertise in optimization and energy. • Artelys Crystal is a software platform used to create specialized software dealing with complex business problems using quantitative mathematical methods. For instance, Artelys Crystal Super Grid, is a specialized software dedicated to long term capacity expansion planning studies in power systems. Artelys Knitro is the leading solver for nonlinear optimization. The solver can be used to solve any mathematical optimization problem (including blackbox optimization, mixed-integer, and large scale problems). April 2015 - Project Manager, Artelys, Paris, France. December 2016 I led projects in R&D, software development and energy studies. Especially, I managed software developments on Artelys Knitro, Artelys Crystal Super Grid and later, led the reunification of the Artelys Crystal software products within the Artelys Crystal Platform. I also intervened as an optimization expert on various research projects and as a consultant and project manager on energy studies, for example, for the French Regulatory Commission of Energy. October 2014 - Optimization Expert, Artelys, Paris, France. March 2015 As an optimization and software development expert, I worked on software developments, consulting and R&D projects, especially in the field of energy. For example: • Software developments and maintenance of Artelys Crystal Super Grid. • Study of localized electricity injection costs to assess regional balance between regions in France. • Evaluation and enhancement of a network state merging module used to consolidate European transmission operators data into a consistent network state (done within European project iTesla: http://www.itesla-project.eu/) October 2011 - PhD Candidate, G-SCOP Laboratory - Université Joseph Fourier, Grenoble, France. September 2014 PhD thesis focused on Complexity and Combinatorial Optimization. Teaching Assistant, Grenoble INP – Génie Industriel, Grenoble, France. Teachings in Computer Science, Scheduling and Probabilities (bachelor's degree and master's degree, 192 hours). February 2011 - Master's Thesis, G-SCOP Laboratory, Grenoble, France. July 2011 Research project on the identical coupled-tasks scheduling problem. June 2010 - Internship, Amadeus, Sophia-Antipolis, France. September 2010 Developed an Eclipse plug-in to generically serialize/deserialize Java objects to and from XML using reflection.

Education

- 2011–2014 **PhD in Mathematics and Computer Science**, *Université Joseph Fourier*, Grenoble, France. PhD thesis: *High-Multiplicity Scheduling and Packing Problems* Research in Combinatorial Optimization, Operations Research and Computer Science, on scheduling and packing problems under encoding size assumptions.
- 2010–2011 **Master's Degree in Computer Science**, *Université Joseph Fourier*, Grenoble, France. Specialization in Operations Research and Combinatorial Optimization.
- 2008–2011 **Diplôme d'ingénieur (equivalent to Master's Degree) in Computer Science and Applied Mathematics**, *ENSIMAG (Grenoble INP)*, Grenoble, France. Specialization in Decision Sciences with a very strong emphasis on Computer Science and Operations Research.

Skills

General:Product Design, Project Management, Supervision & LeadershipEnergy:Power Systems Modeling & AnalysisDevelopment:Software design & architecture, DevOps, Continuous Integration & Deployment (CI/CD), VersioningExpertise:Algorithm design, Operations Research, Combinatorial Optimization, (Meta-)heuristics, Exact Algorithms,
Linear & Nonlinear OptimizationLanguages:C, C++, Java, Python, ShellScientific:Python, R, Scilab, MapleSolvers:Knitro, XPRESS, CPLEX, CP, Gurobi, Choco,
CLP, CBCModeling:AMPL, OPL, PuLP, Osi

Languages

French: Native English: Fluent German: Basic

TOEIC: 975/990

Publications

Online list of publications with access to the full texts: http://publis.gabay.email

Articles

International journals:

- M. Gabay, N. Brauner, and V. Kotov. Improved lower bounds for the online bin stretching problem. 4OR, 15(2):183–199, Jun 2017.
- [2] M. Gabay, C. Rapine, and N. Brauner. High-Multiplicity Scheduling on One Machine with Forbidden Start and Completion Times. *Journal of Scheduling*, upcoming, 2016.
- [3] M. Gabay, V. Kotov, and N. Brauner. Online bin stretching with bunch techniques. *Theoretical Computer Science*, 602:103-113, 2015.
- [4] M. Gabay and S. Zaourar. Vector bin packing with heterogeneous bins: application to the machine reassignment problem. *Annals of Operations Research*, pages 1–34, 2015.
- [5] H. Kellerer, V. Kotov, and M. Gabay. An efficient algorithm for semi-online multiprocessor scheduling with given total processing time. *Journal of Scheduling*, 18(6):623–630, 2015.

Preprints, working papers and technical reports:

- [6] M. Gabay, H. Cambazard, and Y. Benchetrit. A Reduction Algorithm for Packing Problems. 2014.
- [7] M. Gabay, G. Finke, and N. Brauner. Identical coupled task scheduling problem: the finite case. Technical report, 2011.

Conferences

With proceedings:

[8] M. Gabay, A. Grigoriev, V. J. C. Kreuzen, and T. Oosterwijk. High multiplicity scheduling with switching costs for few products. In *Operations Research Proceedings 2014*, pages 437–443, 2016.

National et international audience:

- [9] M. Gabay and J.-H. Hours. Nonlinear least squares with Artelys Knitro (Artelys Knitro: Nouveautés). In 18ème congrès annuel de la Société française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF), Metz, France, 2017.
- [10] M. Gabay, H. Cambazard, and Y. Benchetrit. A dominance criterion for packing problems. In *IFORS 2014* - 20th Conference of the International Federation of Operational Research Societies, Barcelone, Espagne, 2014.
- [11] M. Gabay, V. Kotov, and N. Brauner. Algorithme d'Approximation pour le Bin Stretching Semi-Online. In 15ème congrès annuel de la Société française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF), Bordeaux, France, 2014.
- [12] M. Gabay, N. Brauner, and C. Rapine. Complexité paramétrée pour le problème d'ordonnancement sur une machine avec instants de début et fin interdits. In *14ème congrès annuel de la Société française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF)*, Troyes, France, 2013.
- [13] M. Gabay and S. Zaourar. A GRASP approach for the machine reassignment problem. In *EURO 2012, 25th European Conference on Operational Research*, Vilnius, Lithuania, 2012.
- [14] M. Gabay, G. Finke, and N. Brauner. Identical Coupled Task Scheduling Problem: The Finite Case. In ISCO 2012, 2nd International Symposium on Combinatorial Optimization, Athens, Greece, 2012.