

# Alejandro ARBELAEZ

Curriculum Vitae (May, 2011)

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## Work Address

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## PERSONAL INFORMATION

<i>Last Name:</i>	ARBELAEZ	<i>Given Name:</i>	Alejandro
<i>Sex:</i>	Male	<i>Marital Status:</i>	Single
<i>Citizenship:</i>	Colombian	<i>Born:</i>	Oct 30, 1983 in Cali (Colombia)
<i>Email:</i>	alejandro.arbelaez@inria.fr alejandro.arbelaez@gmail.com	<i>URL:</i>	<a href="http://www.msr-inria.inria.fr/~arbelaez">www.msr-inria.inria.fr/~arbelaez</a>

## RESEARCH INTERESTS

Constraint Programming, SAT, Local Search, Parallel Search, Machine Learning, and Automatic Parameter Tuning.

## EDUCATION

- *PhD Candidate*  
Université Paris-Sud XI, Orsay - France, 2007 - Current.  
*Thesis Work:* Learning During Search<sup>1</sup>  
**Supervisors:** Youssef Hamadi and Michèle Sebag.  
**Jury:** Barry O'Sullivan, Susan L. Epstein, Thomas Schiex, Eric Monfroy, Frédéric Saubion, and Abdel Lisser.
- *Engineering degree in Computer Science*  
Pontificia Universidad Javeriana, Cali - Colombia, October 2006.  
Five years of coursework (including elective courses) and a research thesis.  
*Thesis Work:* Applying Concurrent Constraint Programming to Bioinformatics: An Exploratory Study. Joint work with J. Gutierrez  
**Supervisor:** Camilo Rueda.

## PROFESSIONAL EXPERIENCE

- **Adaptive Combinatorial Search** (2007 - Current)  
Microsoft Research-INRIA Joint Centre (See <http://www.msr-inria.inria.fr>)  
This project aims to apply learning-based methodologies to solve Constraint Satisfaction Problems (CSPs). Initially, I was involved in the application of Machine Learning

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<sup>1</sup>The defense will take place at the Université Paris-Sud XI, Orsay, the 31th of May.

algorithms to solve CSPs, and more recently, I have been working on a new parallel solver for the Satisfiability Problem (SAT).

**Team leaders:** Youssef Hamadi and Marc Schoenauer.

- **Improving Mozart-Oz Constraint Services Using Gecode (GeOz)** (2006 - 2007)

AVISPA Research Group (See <http://avispa.puj.edu.co>)

The goal of this project is to integrate Gecode as the Mozart-Oz constraint services provider, namely, to replace the Mozart-Oz constraint layer with Gecode and take advantage of its advanced features like batch recomputation.

**Team leaders:** Camilo Rueda and Juan Francisco Díaz.

## LECTURER

I have been the lecturer of Foundations of Programming Languages, first year course on Engineering (2007). Universidad Javeriana Cali - Colombia.

## AWARDS AND DISTINCTIONS

- Laureate Thesis Award. Highest honour awarded for outstanding research thesis. Engineering degree in Computer Science. Universidad Javeriana, Cali - Colombia. 2006.
- Best thesis of the School of Engineering, Universidad Javeriana, Cali - Colombia, year 2006. Nominated to the “Otto de Greiff” award to the best Colombian B.Sc. thesis.

## PUBLICATIONS

Full articles can be downloaded from my personal homepage.

- *Efficient Parallel Local Search for SAT*. A. Arbelaez and Y. Hamadi. under blind review at JAIR.
- *Cooperative Stochastic Local Search*. A. Arbelaez and Y. Hamadi, Solver description, SAT competition 2011.
- *Improving Parallel Local Search for SAT*. A. Arbelaez and Y. Hamadi. LION’11.
- *Continuous Search in Constraint Programming*. ICTAI’10. A. Arbelaez, Y. Hamadi, and M. Sebag
- *Continuous Search in Constraint Programming*. Chapter in Autonomous Search. Springer-Verlag. A. Arbelaez, Y. Hamadi, and M. Sebag.
- *Building Portfolios for the Protein Structure Prediction*. A. Arbelaez, Y. Hamadi, and M. Sebag. WCB’10. A. Arbelaez, Y. Hamadi, and M. Sebag.

- *Continuous Search in Constraint Programming: An Initial Investigation.* A. Arbelaez and Y. Hamadi. CP'09 Doctoral Program.
- *Online Heuristic Selection in Constraint Programming.* A. Arbelaez, Y. Hamadi, and M. Sebag. SoCS'09.
- *Exploiting Weak Dependencies in Tree-based Search.* A. Arbelaez and Y. Hamadi. SAC'09.
- *Process Calculi to Analyze Emerging Applications in Concurrency.* A. Arbelaez, A. Aristizabal, J. Gutierrez, H. A. Lopez, C. Rueda, and F. Valencia.
- *A Generic Framework to Model, Verify and Simulate Genetic Regulatory Networks.* A. Arbelaez, J. Gutierrez, C. Rueda, and C. Olarte. CLEI'06.
- *Timed CCP in systems biology. Association for Logic Programming (ALP).* The ALP newsletter Vol. 19, No 4. Nov-Dec 2006. A. Arbelaez, J. Gutierrez, and J. Perez.

## LANGUAGES

- Spanish: Native language
- English: Fluent written and spoken
- French: Intermediate knowledge

## COMPUTATIONAL PROFICIENCY

Programming languages: C, C++, Python, Java, HTML, PHP, Javascript, Matlab, Mozart-Oz

Databases: Microsoft Access, MySQL, SQLite.

Operating systems: Windows, Linux, and MacOS.

## Attended Conferences, Schools, and Talks

- April 2011: Speaker in the Algorithmic Intelligence (Research Group at the IT University of Copenhagen) Seminar.
- Jan 2011: Full Paper Presentation in LION'11, Learning and Intelligent Optimization Conference.
- Oct 2010: Full Paper Presentation in ICTAI'10, International Conference on Tools with Artificial Intelligence.
- June 2010: Short Paper Presentation in WCB'10, Workshop on Constraint Based Methods for Bioinformatics.

- Oct 2009: Short Paper and Poster Presentation in CP-DP'09, Constraint Programming Doctoral Program.
- July 2009: Full Paper Presentation in SoCS'09, International Symposium on Combinatorial Search.
- July 2009: Participation in IJCAI'09, International Joint Conference on Artificial Intelligence.
- July 2008: Participation in ACP Summer School'08: Modelling with Constraints: Theory and Practice ACP Summer School.
- July 2008: Invited Poster Presentation in Microsoft Summer School.
- May 2008: Participation in CPAIOR'08, International Conference on Integration of Artificial Intelligence (AI) and Operations Research (OR) Techniques in Constraint Programming.
- Dec 2007: Participation in LION'07, Learning and Intelligent Optimization Conference.
- Aug 2006: Full Paper Presentation in CLEI'06, Latin-American Computing Conference.

## **OTHER ACTIVITIES**

- Reviewer:
  - International Conference on Integration of Artificial Intelligence (AI) and Operations Research (OR) Techniques in Constraint Programming, CPAIOR, 2010, 2011.
  - International Conference on Tools with Artificial Intelligence, ICTAI 2010.
  - Techniques for Implementing Constraint Programming Systems, TRICS 2010.
- Program Committee Member:
  - Doctoral Symposium on Engineering Stochastic Local Search Algorithms, SLS-DS 2009.
  - Parallel Methods for Constraint Solving, workshop at CP 2011.
- Teaching assistant of several undergraduate courses. Universidad Javeriana. Cali - Colombia. 2002-2005.
- Research Groups:
  - TAO research group. 2007 - Current.
  - Avispa research group. 2005 - Current.

- Sport Teams:
  - Nittaku table tennis club. Cali - Colombia. (1994 - 2007)
  - Palaiseau table tennis club. Palaiseau - France. (2009 - Current)

## REFERENCES

*NOTE: Letters of Recommendation would be available upon request.*

- Dr. Youssef Hamadi. Director of the Constraint Reasoning Group in Microsoft Research. Cambridge, United Kingdom. email: [youssefh@microsoft.com](mailto:youssefh@microsoft.com).
- Dr. Frank D. Valencia. CNRS associated research scientific at the École Polytechnique de Paris, France. email: [frank.valencia@lix.polytechnique.fr](mailto:frank.valencia@lix.polytechnique.fr)
- Pr. Marc Schoenauer. Director of the TAO research group at the Université Paris-Sud. Orsay, France. email: [marc.schoenauer@inria.fr](mailto:marc.schoenauer@inria.fr).
- Pr. Michèle Sebag. Director of the TAO research group at the Université Paris-Sud. Orsay, France. email: [michele.sebag@lri.fr](mailto:michele.sebag@lri.fr).
- Pr. Camilo Rueda. Dean of the Department of Sciences and Engineering of Computing, Universidad Javeriana, Cali, Colombia. Visiting Researcher at IRCAM (Institut de Recherche et Coordination Acoustique/Musique), Paris, France. email: [crueda@cic.puj.edu.co](mailto:crueda@cic.puj.edu.co).