Ronan Le Bras

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344 Bill and Melinda Gates Hall, Cornell University Ithaca, NY 14853 $(607)\ 333\text{-}8758$

Education	Ph.D. candidate in Computer Science Cornell University, Ithaca NY, USA	2009 - 2016
	Advisor: Prof. Carla P. Gomes Committee: Prof. Carla P. Gomes, Prof. Bart Selman, Prof. John E. Hopcroft Thesis: Leveraging Human Insights into Problem Structure for Scientific Discovery	
	M.S. in Computer Engineering Ecole Polytechnique Montreal, Montreal QC, Canada	2008 - 2009
	Advisor: Prof. Gilles Pesant Thesis: Applying Probabilistic Message-Passing Algorithms to Search Heuristics for Solving Constraint Satisfaction Problems *Nominated for the best 2010 University Master's Thesis*	
	B.Eng. in Software Engineering Ecole Polytechnique Montreal , Montreal QC, Canada *Degree with highest honors*	2004 - 2008
	C.P.G.E. in Mathematics and Physics Montaigne, Bordeaux, France	2001 - 2004
Research Interests	Computational Sustainability; Combinatorial Optimization; Artificial Intelligence; Automated Reasoning; Big Data; Machine Learning; Bayesian Inference; Human Computation; Crowdsourcing	
Scholarships	Alexander Graham Bell Canada Graduate Scholarship Natural Sciences and Engineering Research Council of Canada (NSERC	2009 - 2010
	Masters Research Scholarship Fonds québécois de la recherche sur la nature et les technologies (FQRN	2009 - 2010 TT)
	J.A. Desève Funds Scholarship Fonds J.A. Desève	2009
	Scholarship for excellence in Master's program Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT)	2008 - 2009
	Scholarship for excellence Rotary International, The Rotary Foundation	2004
Teaching Experience	Guest Lecturer Cornell University, Department of Computer Science Graduate course, Topics in Computational Sustainability	Spring 2013

Review sessions and office hours in Artificial Intelligence *TA Award of Excellence *

Cornell University, Department of Computer Science

Teaching Assistant

 $Fall\ 2010$

Teaching Assistant

Jan-Dec 2007

University of HEC Montreal, Department of Quantitative Methods Lectures and tutorials in *Probability and Statistics*

Teaching Assistant

Jan-Dec 2007

Ecole Polytechnique Montreal, Department of Computer Science Lectures and lab sessions in *Computer Architecture* Lab sessions in *Programming Language* (C⁺⁺)

Research & Development Experience

Cornell University

2009 - 2016

Research Assistant to Prof. Carla P. Gomes Research in Computational Sustainability

Ecole Polytechnique Montreal

Jan-Apr 2008

 $Research\ Assistant\ to\ Prof.\ Gilles\ Pesant$

part-time

full-time

Research on constraint-centered search heuristics for combinatorial problems

Caisse de dépôt et placement du Québec

May-Aug 2007

 $Intern,\ Market-risk\ Department$

full-time

Improvement of market data processes; automation of financial portfolio values computation

Univoc Services Inc.

May-Dec 2006

Scientific Programmer, R&D Department

full-time

Numerical designs for a speech-recognition analyzer system based on Monte-Carlo simulations; integration of numerical functions within a graphical user interface

Professional Service PC member

AAAI 2011 CPAIOR 2013 IJCAI 2013/2015

Reviewer

AAAI 2010/2011/2013/2014/2015

Annals of Mathematics and Artificial Intelligence

CP 2010/2011

CPAIOR 2012/2013/2014

IJCAI 2013/2015

INFORMS Journal of Computing

ITCAI 2010

Journal of Combinatorial Designs

SAT 2013

SIAM Journal on Discrete Mathematics (SIDMA)

SoCS 2013/2014

Publications

Conferences and Journals

[2015]

[1] Zou, T., **Le Bras**, R., Salles, M., Demers, A., and Gehrke, J. (2015). Cloudia: a deployment advisor for public clouds. *The VLDB Journal*, *Special Issue on the Best Papers of VLDB 2013*

[2] Ermon, S., **Le Bras**, R., Suram, S. K., Gregoire, J. M., Gomes, C. P., Selman, B., and van Dover, R. B. (2015). Pattern decomposition with complex combinatorial constraints: Application to materials discovery. In the 29th Conference on Artificial Intelligence, AAAI'15

[2014]

- [3] Le Bras, R., Xue, Y., Bernstein, R., Gomes, C. P., and Selman, B. (2014). A human computation framework for boosting combinatorial solvers. In the 2nd AAAI Conference on Human Computation and Crowdsourcing, HCOMP'14
- [4] **Le Bras**, R., Gomes, C. P., and Selman, B. (2014). On the erdos discrepancy problem. In the 20th International Conference on Principles and Practice of Constraint Programming, CP'14
- [5] **Le Bras**, R., Bernstein, R., Gregoire, J. M., Suram, S. K., Gomes, C. P., Selman, B., and van Dover, R. B. (2014). A computational challenge problem in materials discovery: Synthetic problem generator and real-world datasets. In the 28th Conference on Artificial Intelligence, AAAI'14

[2013]

- [6] Le Bras, R., Bernstein, R., Gomes, C. P., and Selman, B. (2013). Crowdsourcing backdoor identification for combinatorial optimization. In the 23rd International Joint Conference on Artificial Intelligence, IJCAI'13
- [7] Le Bras, R., Gomes, C. P., and Selman, B. (2013). Double-wheel graphs are graceful. In the 23rd International Joint Conference on Artificial Intelligence, IJCAI'13
- [8] Zou, T., Le Bras, R., Salles, M. V., Demers, A., and Gehrke, J. (2013). Cloudia: a deployment advisor for public clouds. In the 39th International Conference on Very Large Data Bases, VLDB'13
- [9] Le Bras, R., Dilkina, B., Xue, Y., Gomes, C. P., McKelvey, K. S., Montgomery, C., and Schwartz, M. K. (2013). Robust network design for multispecies conservation. In the 16th Conference on Artificial Intelligence, AAAI'13
- [10] Dilkina, B., Gomes, C. P., Lai, K., **Le Bras**, R., McKelvey, K. S., Sabharwal, A., Schwartz, M. K., Suter, J., and Xue, Y. (2013). Large conservation landscape synthetic and real-world datasets. In *the 16th Conference on Artificial Intelligence*, AAAI'13
- [11] Finger, M., Le Bras, R., Gomes, C. P., and Selman, B. (2013). Solutions for hard and soft constraints using optimized probabilistic satisfiability. In the 16th International Conference on Theory and Applications of Satisfiability Testing, SAT'13

[2012]

- [12] **Le Bras**, R., Gomes, C. P., and Selman, B. (2012). From streamlined combinatorial search to efficient constructive procedures. In the 15th Conference on Artificial Intelligence, AAAI'12
- [13] **Le Bras**, R., Ermon, S., Damoulas, T., Bernstein, R., Gomes, C., Selman, B., and van Dover, R. B. (2012). Materials discovery: New opportunities at the intersection of constraint reasoning and learning. In *International Conference on Computational Sustainability*, CompSust'12
- [14] Ermon, S., **Le Bras**, R., Gomes, C. P., Selman, B., and van Dover, R. B. (2012). Smt-aided combinatorial materials discovery. In the 15th International Conference on Theory and Applications of Satisfiability Testing, SAT'12

[2011]

[15] Le Bras, R., Damoulas, T., Gregoire, J. M., Sabharwal, A., Gomes, C. P., and van Dover, R. B. (2011). Constraint reasoning and kernel clustering for pattern decom-

position with scaling. In the 17th International Conference on Principles and Practice of Constraint Programming, CP'11

[2009]

[16] Le Bras, R., Zanarini, A., and Pesant, G. (2009). Efficient generic search heuristics within the embp framework. In the 15th International Conference on Principles and Practice of Constraint Programming, CP'09

Workshops

[2012]

[17] Le Bras, R., Bernstein, R., Gomes, C. P., Selman, B., and van Dover, R. B. (2012). Human computation for combinatorial materials discovery. In the Human Computation for Science and Computational Sustainability NIPS Workshop, HCSCS'12

[2010]

[18] Le Bras, R., Damoulas, T., Gregoire, J. M., Sabharwal, A., Gomes, C. P., and van Dover, R. B. (2010). Computational thinking for material discovery: Bridging constraint reasoning and learning. In the 2nd International Workshop on Constraint Reasoning and Optimization for Computational Sustainability, CROCS'10

Technical Reports

[2012]

[19] Le Bras, R., Perrault, A., and Gomes, C. (2012). Polynomial time construction for spatially balanced latin squares. Technical report, http://hdl.handle.net/1813/28697, "eCommons Cornell University"

References

Carla P. Gomes, Ph.D.

Professor and Director of the Institute for Computational Sustainability Department of Computer Science, Department of Information Science Charles H. Dyson School of Applied Economics and Management Cornell University 353 Gates Hall, Ithaca NY 14853 (607) 255-9189 gomes@cs.cornell.edu

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