

Gwenaël Joret – C.V.
(as of January 17, 2018)

Contact information

Université Libre de Bruxelles
Computer Science Department
Campus de la Plaine, CP 212
1050 Brussels, Belgium

E-mail: gjoret@ulb.ac.be
URL: www.ulb.ac.be/di/algo/gjoret/

Personal information

Nationality: Belgian

Positions

2012 - current Assistant Professor, Université Libre de Bruxelles (ULB)¹
2013 - 2014 ARC DECRA Research Fellow, The University of Melbourne
2008 - 2012 Postdoctoral Researcher of the Belgian Fund for Scientific Research (FNRS), ULB
2004 - 2008 Research Fellow of the FNRS, ULB

Education

2007 Ph. D. in Computer Science, ULB

Thesis: *Entropy and Stability in Graphs*

Advisors: Jean Cardinal and Jean-Paul Doignon

2004 M. Sc. in Computer Science, La Plus Grande Distinction (*Greatest Honours*), ULB

Publications

All papers are available from www.ulb.ac.be/di/algo/gjoret/

1. S. Felsner, G. Joret, P. Micek, W. T. Trotter, and V. Wiechert. Burling graphs, chromatic number, and orthogonal tree-decompositions. *Electronic Journal of Combinatorics*, accepted.
2. V. Dujmović, G. Joret, P. Morin, S. Norin, and D. R. Wood. Orthogonal tree decompositions of graphs. *SIAM Journal on Discrete Mathematics*, to appear.
3. G. Joret, P. Micek, and V. Wiechert. Planar posets have dimension at most linear in their height. *SIAM Journal on Discrete Mathematics*, 31, no. 4:2754–2790, 2018.
4. S. Fiorini, G. Joret, and O. Schaudt. Improved approximation algorithms for hitting 3-vertex paths. Proceedings of the *18th Conference on Integer Programming and Combinatorial Optimization (IPCO 2016)*.
5. G. Joret and D. R. Wood. k_4 -minor-free induced subgraphs of sparse connected graphs. *SIAM Journal on Discrete Mathematics*, to appear.
6. S. Fiorini, T. Huynh, G. Joret, and K. Pashkovich. Smaller extended formulations for the spanning tree polytope of bounded-genus graphs. *Discrete and Computational Geometry*, 57, no. 3:757–761, 2017.
7. A. Gagol, G. Joret, J. Kozik, and P. Micek. Pathwidth and nonrepetitive list coloring. *Electronic Journal of Combinatorics*, 23, no. 4:P4.40, 2016.

¹On leave at The University of Melbourne during the 2013–2014 academic year

8. S. Fiorini, T. Huynh, G. Joret, and A. Varvitsiotis. The excluded minors for isometric realizability in the plane. *SIAM Journal on Discrete Mathematics*, 31, no. 1:438–453, 2017.
9. G. Joret, P. Micek, and V. Wiechert. Sparsity and dimension. *Combinatorica*, to appear.
Also in: Proceedings of the *27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2016)*.
10. G. Joret, P. Micek, W. T. Trotter, R. Wang, and V. Wiechert. On the dimension of posets with cover graphs of treewidth 2. *Order*, 34, no. 2:185–234, 2017.
11. G. Joret, P. Micek, K. G. Milans, W. T. Trotter, B. Walczak, and R. Wang. Tree-width and dimension. *Combinatorica*, 36, no. 4:431–450, 2016.
12. G. Joret and A. Vetta. Reducing the rank of a matroid. *Discrete Mathematics and Theoretical Computer Science*, 17, no. 2:143–156, 2015.
13. J. Cardinal and G. Joret. Hitting all maximal independent sets of a bipartite graph. *Algorithmica*, 72, no. 2:359–368, 2015.
14. J. Barát, V. Dujmović, G. Joret, M. Payne, L. Scharf, D. Schymura, P. Valtr, and D. R. Wood. Empty pentagons in point sets with collinearities. *SIAM Journal on Discrete Mathematics*, 29, no. 1:198–209, 2015.
15. V. Dujmović, G. Joret, J. Kozik, and D. R. Wood. Nonrepetitive colouring via entropy compression. *Combinatorica*, 36, no. 6:661–686, 2016.
16. L. Esperet and G. Joret. Coloring planar graphs with three colors and no large monochromatic components. *Combinatorics, Probability, and Computing*, 23, no. 4:551–570, 2014.
17. G. Joret, C. Paul, I. Sau, S. Saurabh, and S. Thomassé. Hitting and harvesting pumpkins. *SIAM Journal on Discrete Mathematics*, 103, no. 1:1363–1390, 2014.
Also in: Proceedings of the *19th Annual European Symposium on Algorithms (ESA 2011)*.
18. N. E. Clarke, S. Fiorini, G. Joret, and D. O. Theis. A note on the Cops & Robber game on graphs embedded in non-orientable surfaces. *Graphs and Combinatorics*, 30, no. 1:119–124, 2014.
19. S. Fiorini, G. Joret, and D. R. Wood. Excluded forest minors and the Erdős-Pósa property. *Combinatorics, Probability, and Computing*, 22, no. 5:700–721, 2013.
20. V. Dujmović, D. J. Harvey, G. Joret, B. Reed, and D. R. Wood. A linear-time algorithm for finding a complete graph minor in a dense graph. *SIAM Journal on Discrete Mathematics*, 27, no. 4:1770–1774, 2013.
21. V. Dujmović, F. Frati, G. Joret, and D. R. Wood. Nonrepetitive colourings of planar graphs with $O(\log n)$ colours. *Electronic Journal of Combinatorics*, 20, no. 1:P51, 2013.
22. L. Esperet and G. Joret. Boxicity of graphs on surfaces. *Graphs and Combinatorics*, 29, no. 3:417–427, 2013.
23. G. Joret and D. R. Wood. Complete graph minors and the graph minor structure theorem. *Journal of Combinatorial Theory, Series B*, 103, no. 1:61–74, 2013.
24. J. Cardinal, E. D. Demaine, S. Fiorini, G. Joret, I. Newman, and O. Weimann. The Stackelberg minimum spanning tree game on planar and bounded-treewidth graphs. *Journal of Combinatorial Optimization*, 25, no. 1:19–46, 2013.
Also in: Proceedings of the *5th Workshop on Internet & Network Economics (WINE 2009)*.
25. J. Cardinal, S. Fiorini, G. Joret, R. M. Jungers, and J. I. Munro. Sorting under partial information (without the ellipsoid algorithm). *Combinatorica*, 33, no. 6:655–697, 2013.
Also in: Proceedings of the *42th ACM Symposium on Theory of Computing (STOC 2010)*.

26. S. Fiorini and G. Joret. Approximating the balanced minimum evolution problem. *Operations Research Letters*, 40, no. 1:31–35, 2012.
27. V. Dujmović, G. Joret, and D. R. Wood. An improved bound for First-Fit on posets without two long incomparable chains. *SIAM Journal on Discrete Mathematics*, 26, no. 3:1068–1075, 2012.
28. G. Joret and D. R. Wood. Nordhaus-Gaddum for treewidth. *European Journal of Combinatorics*, 33, no. 4:488–490, 2012.
29. S. Fiorini, G. Joret, D. O. Theis, and D. R. Wood. Small minors in dense graphs. *European Journal of Combinatorics*, 33, no. 6:1226–1245, 2012.
30. V. Bruyère, G. Joret, and H. Mélot. Trees with given stability number and minimum number of stable sets. *Graphs and Combinatorics*, 28, no. 2:167–187, 2012.
31. J. Cardinal, S. Fiorini, and G. Joret. Minimum entropy combinatorial optimization problems. *Theory of Computing Systems*, 51, no. 1:4–21, 2012.
Also in: Proceedings of the *5th Conference on Mathematical Theory and Computational Practice: Computability in Europe (CiE 2009)*.
32. G. Joret and K. G. Milans. First-Fit is linear on posets excluding two long incomparable chains. *Order*, 28, no. 3:455–464, 2011.
33. J. Barát, G. Joret, and D. R. Wood. Disproof of the list Hadwiger conjecture. *Electronic Journal of Combinatorics*, 18, no. 1:R232, 2011.
34. V. Dujmović, G. Fijavž, G. Joret, T. Sulanke, and D. R. Wood. On the maximum number of cliques in a graph embedded in a surface. *European Journal of Combinatorics*, 32, no. 8:1244–1252, 2011.
35. G. Joret. Stackelberg network pricing is hard to approximate. *Networks*, 57, no. 2:117–120, 2011.
36. J. Cardinal, E. D. Demaine, S. Fiorini, G. Joret, S. Langerman, I. Newman, and O. Weimann. The Stackelberg minimum spanning tree game. *Algorithmica*, 59, no. 2:129–144, 2011.
Also in: Proceedings of the *10th International Workshop on Algorithms and Data Structures (WADS 2007)*.
37. S. Fiorini, G. Joret, and U. Pietropaoli. Hitting diamonds and growing cacti. Proceedings of the *14th Conference on Integer Programming and Combinatorial Optimization (IPCO 2010)*.
38. G. Joret and D. R. Wood. Irreducible triangulations are small. *Journal of Combinatorial Theory, Series B*, 100, no. 5:446–455, 2010.
39. J. Cardinal, S. Fiorini, G. Joret, R. M. Jungers, and J. I. Munro. An efficient algorithm for partial order production. *SIAM Journal on Computing*, 39, no. 7:2927–2940, 2010.
Also in: Proceedings of the *41th ACM Symposium on Theory of Computing (STOC 2009)*.
40. G. Joret, M. Kamiński, and D. O. Theis. The Cops and Robber game on graphs with forbidden (induced) subgraphs. *Contributions to Discrete Mathematics*, 5, no. 2:40–51, 2010.
41. J.-P. Doignon, S. Fiorini, and G. Joret. Weighted graphs defining facets: a connection between stable set and linear ordering polytopes. *Discrete Optimization*, 6, no. 1:1–9, 2009.
42. S. Fiorini and G. Joret. On a theorem of Sewell and Trotter. *European Journal of Combinatorics*, 30, no. 2:425–428, 2009.
43. J. Cardinal, S. Fiorini, and G. Joret. Minimum entropy orientations. *Operations Research Letters*, 36, no. 6:680–683, 2008.
44. A. Bernáth and G. Joret. Well-balanced orientations of mixed graphs. *Information Processing Letters*, 106, no. 4:149–151, 2008.

45. N. Bougard and G. Joret. Turán’s theorem and k -connected graphs. *Journal of Graph Theory*, 58, no. 1:1–13, 2008.
46. J. Cardinal, S. Fiorini, and G. Joret. Tight results on minimum entropy set cover. *Algorithmica*, 51, no. 1:49–60, 2008.
Also in: Proceedings of the *9th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2006)*.
47. J. Cardinal, S. Fiorini, and G. Joret. Minimum entropy coloring. *Journal of Combinatorial Optimization*, 16, no. 4:361–377, 2008.
Also in: Proceedings of the *16th International Symposium on Algorithms and Computation (ISAAC 2005)*.
48. J.-P. Doignon, S. Fiorini, and G. Joret. Facets of the linear ordering polytope: a unification for the fence family through weighted graphs. *Journal of Mathematical Psychology*, 50, no. 3:251–262, 2006.

Talks in conferences and workshops

- Jan. 2018 “Graph entropy and sorting: From classical to quantum”, Aussois optimization workshop, Aussois, France.
- Nov. 2017 “Weak coloring numbers”, Journ’ees Graphes et Algorithmes (JGA 2017), Bordeaux, France.
- Nov. 2017 “Graph entropy and sorting: From classical to quantum”, Workshop in honor of János Körner, Rome, Italy.
- June 2017 “Progress on the AVD edge coloring conjecture”, CANADAM 2017, Toronto, Canada.
- July 2016 “Sparsity and dimension”, 2016 Workshop on Structure in Graphs and Matroids, Eindhoven University of Technology, Eindhoven, The Netherlands.
- March 2016 “Sparsity and dimension”, Bellairs workshop on graph theory, Holetown, Barbados.
- Oct. 2015 “Sparsity and dimension”, 7th workshop on Graph Classes, Optimization, and Width Parameters (GROW 2015), Aussois, France.
- June 2015 “Sparsity and dimension”, Workshop on Structure in Combinatorics, Institut Henri Poincaré, Paris, France.
- June 2014 “On the dimension of posets with cover graphs of treewidth 2”, SIAM Conference on Discrete Mathematics, Minneapolis, United States.
- Apr. 2013 “Tree-width and dimension”, Conference honoring the 65th birthday of Jean-Paul Doignon, Université Libre de Bruxelles, Brussels, Belgium.
- Mar. 2013 “Tree-width and dimension”, Dagstuhl Seminar on Bidimensional Structures: Algorithms, Combinatorics and Logic. Dagstuhl, Germany.
- Aug. 2012 “Excluded forest minors and the Erdős-Pósa property”, 21st International Symposium on Mathematical Programming (ISMP 2012), Berlin, Germany.
- June 2012 “Nonrepetitive coloring via entropy compression”, Journées Combinatoires Rhone, Alpes, Provence. Lyon, France.
- June 2012 “An improved bound for First-Fit on posets without two long incomparable chains”, SIAM Conference on Discrete Mathematics, Halifax, Canada.
- May 2012 “Excluded forest minors and the Erdős-Pósa property”, Graph Theory @ Georgia Tech, Conference honoring the 50th birthday of Robin Thomas, Atlanta, United States.
- June 2011 “Hitting and harvesting pumpkins”, 7th Slovenian International Conference on Graph Theory, Bled, Slovenia.

- Sept. 2010 “Small minors in dense graphs”, Banff Workshop on New Trends in Structural Graph Theory, Banff, Canada.
- June 2010 “Sorting under partial information (without the ellipsoid algorithm)”, 42th ACM Symposium on Theory of Computing (STOC 2010), Cambridge, Massachusetts, USA.
- Jan. 2010 “Sorting under partial information (without the ellipsoid algorithm)”, 14th Combinatorial Optimization Workshop, Aussois, France.
- Dec. 2009 “The Stackelberg minimum spanning tree game on planar and bounded-treewidth graphs”, 5th Workshop on Internet & Network Economics, Rome, Italy.
- Nov. 2009 “Complete graph minors and the graph minor structure theorem”, 11èmes Journées Graphes et Algorithmes, Montpellier, France.
- May 2008 “Weighted graphs defining facets: a connection between stable set and linear ordering polytopes”, ROGICS 2008: International Conference on Relations, Orders and Graphs: Interaction with Computer Science, Mahdia, Tunisia.
- Nov. 2006 “Tight results on minimum entropy set cover”, DIAMANT/EIDMA Symposium 2006, Vught, The Netherlands.
- Aug. 2006 “Tight results on minimum entropy set cover”, 9th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems, Barcelona, Spain.
- June 2006 “Graphes pondérés produisant des facettes du polytope des ordres totaux”, Troisièmes Journées Polyèdres et Optimisation Combinatoire, Avignon, France.
- May 2006 “On weighted graphs yielding facets of the linear ordering polytope”, DIMACS Workshop on Polyhedral Combinatorics of Random Utility, Rutgers University, New Jersey, USA.
- Dec. 2005 “Minimum entropy coloring”, 16th International Symposium on Algorithms and Computation, Sanya, China.
- Nov. 2005 “A weighted generalization of α -critical graphs in connection with linear ordering polytopes”, DIAMANT/EIDMA Symposium 2005, Mierlo, The Netherlands.
- Sept. 2005 “On a weighted generalization of α -critical graphs”, 7th International Colloquium on Graph Theory, Hyères, France.
- June 2005 “Une nouvelle famille de facettes du polytope des ordres totaux”, Deuxièmes Journées Polyèdres et Optimisation Combinatoire, 2005, Marseille, France.

Talks in seminars

- Feb. 2017 “The forbidden minors for isometric realizability in the plane”, Probabilidade e Combinatória, Instituto Nacional de Matemática Pura e Aplicada, Rio de Janeiro, Brazil.
- Dec. 2016 “Orthogonal tree decompositions of graphs”, Combinatorics Seminar, Mathematics Department, FU Berlin, Berlin, Germany.
- Jun. 2016 “Improved approximation algorithms for hitting 3-vertex paths”, Combinatorics Seminar, Department of Theoretical Computer Science, Jagiellonian University, Kraków, Poland.
- Jan. 2016 “Dimension of planar posets”, Methods for Discrete Structures seminar, TU Berlin, Berlin, Germany.
- May 2014 “Probabilistic algorithms and the entropy compression method”, TRICS Seminar, Department of Computing and Information Systems, The University of Melbourne, Melbourne, Australia.
- Apr. 2014 “Tree-width and dimension”, Seminar on Discrete Structures and Algorithms, Department of Mathematics and Statistics, The University of Melbourne, Melbourne, Australia.

- Mar. 2014 “Tree-width and dimension”, Discrete mathematics seminar, Monash University, Melbourne, Australia.
- June 2013 “On Sheehan’s second hamiltonian cycle conjecture”, Algorithms, graphs, and combinatorics seminar, Université de Montpellier, Montpellier, France.
- May 2013 “On Sheehan’s second hamiltonian cycle conjecture”, Algebra & Combinatorics seminar, Université Libre de Bruxelles, Brussels, Belgium.
- Dec. 2012 “On Moser’s constructive proof of the local lemma”, Theoretical computer science seminar, Université de Montréal, Montreal, Canada
- Nov. 2012 “Nonrepetitive coloring via entropy compression”, Combinatorics and Optimization seminar, University of Ottawa, Ottawa, Canada
- Oct. 2012 “Nonrepetitive coloring via entropy compression”, Discrete Mathematics and Optimization seminar, McGill University, Montreal, Canada
- Apr. 2012 “Excluded forest minors and the Erdős-Pósa property”, Combinatorics Seminar, Department of Theoretical Computer Science, Jagiellonian University, Kraków, Poland.
- Apr. 2012 “Sorting under partial information (without the ellipsoid algorithm)”, Theoretical Computer Science Seminar, Department of Theoretical Computer Science, Jagiellonian University, Kraków, Poland.
- Oct. 2011 “First-Fit chain partitioning of partial orders”, Seminar on Discrete Structures and Algorithms, Department of Mathematics and Statistics, The University of Melbourne, Melbourne, Australia.
- Apr. 2011 “Sorting under partial information (without the ellipsoid algorithm)”, Combinatorial Optimization group of the G-SCOP Laboratory, Grenoble, France.
- Dec. 2010 “Small minors in dense graphs”, Department of Computer Sciences, Università degli studi di Roma “La Sapienza”, Rome, Italy.
- Oct. 2010 “Small minors in dense graphs”, Algorithms, graphs, and combinatorics seminar, Université de Montpellier, Montpellier, France.
- Oct. 2010 “Small minors in dense graphs”, Centrum for Wiskunde en Informatica (CWI), Amsterdam, Netherlands.
- May 2010 “Small minors in dense graphs”, Discrete Mathematics and Optimization seminar, McGill University, Montreal, Canada
- Mar. 2010 “Irreducible triangulations of surfaces”, Department of Applied Mathematics, Université Catholique de Louvain, Louvain-La-Neuve, Belgium.
- Dec. 2009 “Sorting under partial information (without the ellipsoid algorithm)”, Department of Computer Sciences, Università degli studi di Roma “La Sapienza”, Rome, Italy.
- Dec. 2009 “Sorting under partial information (without the ellipsoid algorithm)”, Operations Research Group, Università degli studi di Roma “Tor Vergata”, Rome, Italy.
- June 2009 “An efficient algorithm for partial order production”, Seminar on Discrete Structures and Algorithms, Department of Mathematics and Statistics, The University of Melbourne, Melbourne, Australia.
- Febr. 2009 “An efficient algorithm for partial order production”, Seminar of the research group on Large Graphs and Networks at Université Catholique de Louvain, Louvain-La-Neuve, Belgium.
- Apr. 2007 “Facets of the linear ordering polytope from a generalization of α -critical graphs”, Seminar of the Egerváry Research Group on Combinatorial Optimization (EGRES), Budapest, Hungary.
- Febr. 2005 “Graphs defining facets of the linear ordering polytope”, ULB-RUG Seminar on Buildings and Finite Geometry, Brussels, Belgium.

Other activities

- Lecturer at the “Brussels Summer School in Mathematics” held in Brussels, August 03 - 07, 2015. Topic: The probabilistic method. (Summer school aimed at a general audience.)
- Lecturer at the Summer School “Order and Geometry” held in Dölnsee (Germany), August 07 - 10, 2013. Topic: Entropy of partial orders.

Teaching (ULB)

- INFO-F-421 - Advanced complexity theory and approximation algorithms; *Fall 2014*
- INFO-F-206 - Informatique; *Fall 2014, Fall 2015, Fall 2016*
- Algorithmique; Charleroi campus; *Fall 2014, Spring 2016, Spring 2017*
- INFO-F-521 - Graphs and networks; *Fall 2010, Spring 2012, Spring 2013, Fall 2015, Fall 2016*
- INFO-F-106 - Projet d’informatique; *2012–2013, 2014–2015, 2015–2016, 2016–2017*

I also served as a teaching assistant for the following courses at ULB:

- Data Structures and Algorithms; *Fall 2008, Fall 2009*
- Networks; *Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008*