Zhentao Li
Curriculum Vitae

Education

2017-2018	**McGill University**, visitor (on leave from ENS) in the Discrete Mathematics and Optimization group
2013-Present	**École Normale Supérieure** Assistant professor (*titularisé 09/2014*) at the Computer Science Department (DI) Topology, ALgorithms, Graphs, and Optimization team
2012-2013	**École Normale Supérieure de Lyon** Postdoc at Laboratoire de l'Informatique du Parallélisme *Supervisor :* Prof. Stéphan Thomassé
2007-2011	**McGill University** Ph.D. in Computer Science *Supervisor :* Prof. Bruce Reed and Prof. Adrian Vetta *Thesis title :* Tree decompositions and linear time algorithms
2006-2007	**University of Waterloo** M.Math in Combinatorics and Optimization *Supervisor :* Prof. Bertrand Guenin *Thesis title :* Algebraic methods for reducibility in nowhere zero flows.
2003-2006	**McGill University** B.Sc. Honours Mathematics and Computer Science GPA 3.90/4.0 with First Class Honours on the Dean's Honour List

Research Interests

My current focus is on **graph colouring** problems, especially of **planar graphs**. I use **computer-assisted** methods for **proof search** and would like to develop a **general framework** for doing so in mathematics, in particular discrete mathematics.

In general, I'm interested in **structural graph theory** and **graph algorithms**. Previously, I worked much on **graph minors** and **graphs excluding an induced subgraph** which are still of interest as potential applications. I am also interested in problems in the design and analysis of **algorithms, combinatorial optimization**, other branches of **combinatorics** and **theoretical computer science**.

Refereed Publications

1. Z. Li and B. Mohar. **Planar digraphs of digirth four are 2-colourable**, *SIAM Journal on Discrete Mathematics*, 31(3), 2201-2205
2. V. Cohen-Addad, M. Hebdige, D. Král, Z. Li and E. Salgado. **Steinberg's Conjecture is false**, *Journal of Combinatorial Theory, Series B*, 122, 452-456
3. J. Chalopin, L. Esperet, Z. Li and P. Ossona de Mendez **Restricted frame graphs and a conjecture of Scott**, *Electr. J. Comb.* 23(1), 1-30
4. N. Bousquet, A. Lagoutte, Z. Li, A. Parreau and S. Thomassé. **Identifying codes in hereditary classes of graphs and VC-dimension**, *SIAM Journal on Discrete Mathematics*, 29(4), 2047-2064
5. N. Bousquet, Z. Li and A. Vetta **Coalition Games on Interaction Graphs : A Horticultural Perspective**. *EC 2015*, 95-112
6. P. Aboulker, Z. Li and S. Thomassé. **Excluding clocks**. *LAGOS 2015*

7. C. Figueiredo, Z. Li, H. M. Filho, R. Machado and N. Trotignon. **Using SPQR-trees to speed up algorithms based on 2-cutset decompositions**. *LAGOS 2015*
8. H. Hu, Z. Li, A. Vetta **Randomized Experimental Design for Causal Graph Discovery**. *NIPS 2014*, 2339-2347
9. V. Cohen-Addad, Z. Li, C. Mathieu, I. Milis **Energy-Efficient Algorithms for Non-preemptive Speed-Scaling**. *WAOA 2014*, 107-118
10. N. Delfosse, Z. Li and S. Thomassé (2014) **A note on the minimum distance of quantum LDPC codes**, *MFCS 2014*, 239-250.
11. M. Narayanan, Z. Li and A. Vetta. **The complexity of the simultaneous cluster problem**, *JGAA*, 18(1) : 1–34
12. M. Baïou, L. Beaudou, Z. Li, and V. Limouzy. (2013) **Recognizing facility locations graphs is hard**, In *Proceedings of ISAAC 2013*, 196–206.
13. A. Gyárfás, Z. Li, R. Machado, A. Sebő, S. Thomassé and N. Trotignon. (2013) **Complements of nearly perfect graphs**, *Journal of Combinatorics*, 4(3) : 299–310
14. P. Keevash, Z. Li, B. Mohar, and B. A. Reed. (2012) **Digraph girth via chromatic number**, *SIAM Journal on Discrete Mathematics*, 27(2) : 693-696.
15. K. Kawarabayashi, Z. Li and B. Reed. (2010) **Recognizing a totally odd K_4-subdivision, parity 2-disjoint rooted paths and a parity cycle through specified elements**, *Proceedings of SODA 2010*, 318–328
16. Z. Li and A. Vetta. (2009) **Bounds on the cleaning times of robot vacuums**, *Operations Research Letters*, 38(1) : 69-71
17. Z. Li and I. Sau. (2009) **Graph Partitioning and Traffic Grooming with Bounded Degree Request Graph**, In *Proceedings of the 35th International Workshop on Graph-Theoretic Concepts in Computer Science (WG)*, 250–261
    Best student paper (full version of this paper appears in *SIAM Journal on Discrete Mathematics*)
18. B. Reed and Z. Li. (2008) **Optimization and recognition for K_5-minor free graphs in linear time**, In *Proceedings of LATIN 2008*, 206–215.
19. L. Addario-Berry, W. S. Kennedy, A. D. King, Z. Li, and B. A. Reed. (2008) **Finding maximum weighted induced k-partite graphs in i-triangulated graphs**, *Discrete Applied Mathematics*, 158 : 765—770
20. L. Chindelevitch, Z. Li, E. Blais, and M. Blanchette. (2006) **On the inference of parsimonious indel evolutionary scenarios**, *J. Bioinform. Comput. Biol.*, 4(3) :721-744
21. Z. Li and B. A. Reed. (2005) **Heap Building Bounds**, In *Proceedings of the 9th International Workshop on Algorithms and Data Structures*, 14 – 23

Program committee

— 10th International colloquium on graph theory and combinatorics

Articles refereed

— Journal of Combinatorial Theory, Series B
— Discrete Optimization
— Journal of Graph Theory
— SIAM Journal on Discrete Mathematics
— SIAM Journal on Computing

— Canadian Mathematical Bulletin
— Discrete Applied Mathematics
— Discrete Mathematics
— Integer Programming and Combinatorial Optimization (conference)
— ACM-SIAM Symposium on Discrete Algorithms (conference)

Supervision

— Vincent Cohen-Addad, PhD student, co-supervised with *Claire Mathieu*
— Esteban Salgado, year 1 masters student
— Enguerrand Prebet, year 3 undergraduate (licence) student
— Tutor of 9 undergraduate students at ENS

Scholarships

— FQRNT (Fonds de recherche du Québec - Nature et technologies) B3 (2012-2014)
— NSERC (Natural Science and Engineering Research Council of Canada) CGS D3 (2007-2010)
— FQRNT B2 (1st place out of 11) (2009) (Declined)
— Milton Leong Fellowship (2008)
— McGill Recruitment Excellence Fellowship (2007)
— NSERC CGS M (2006)

Administrative duties

2017	Hiring committee Computer Science Department (DI), ENS
2013-2017	"Secrétaire pédagogique" for the entry contest Computer Science Department (DI), ENS
2015-2017	Assisting with L3, M1 and maths-CS (maths-info) internships Computer Science Department (DI), ENS
2013-2015	International students selection committee Computer Science Department (DI), ENS
2013-2014	Organising first years master internships Computer Science Department (DI), ENS
2010-2011	Organizer for the student meeting and problem session McGill Discrete Mathematics Group
2009-2010	Coach for McGill's ACM ICPC team McGill School of Computer Science
Winter 2007	Co-founder and organizer for the open problem session Univ. of Waterloo Dept. of Combinatorics & Optimization

Teaching experience

Fall 2015-2016	Combinatorial and convex optimization, Course Lecturer Départment d'informatique, École Normale Supérieure
Fall 2013-2016	Algorithms and programming, "Chargé de TDs" Départment d'informatique, École Normale Supérieure
Winter 2014, 2016, 2017	Introduction to programming for non-computer scientists, Course Lecturer Départment d'informatique, École Normale Supérieure
Fall 2013	Algorithms for embedded graphs, Guest lecturer Départment d'informatique, École Normale Supérieure
Winter 2011	MATH 350 Graph Theory and Combinatorics, Teaching Assistant McGill Department of Mathematics
Winter 2010	MATH 363 Discrete Math for Engineers, Course Lecturer McGill Department of Mathematics
Fall 2009	COMP 251 Data Structures and Algorithms, Teaching Assistant McGill School of Computer Science
Fall 2006	CO 350 Linear Optimization, Teaching Assistant Univ. of Waterloo Dept. of Combinatorics & Optimization
Fall 2004 - Winter 2006	Math Helpdesk Tutor McGill Department of Mathematics