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Research domains

- Approximation algorithms
- Randomized algorithms
- Random Structures
- Complex systems
- Example of applications: wireless telecommunications, Satellite Internet access, Interaction networks

Publications

2006

[Customized Newspaper Problem: Data Broadcast with dependancies](#), with Sandeep Dey.
In Proc. of Latin American Theoretical Informatics conference ([LATIN 2006](#)), Valdivia, march 2006.

[Asynchronous behavior of double-quiescent elementary cellular automata](#), with Nazim Fatès,
Damien Regnault and Éric Thierry.
In Proc. of Latin American Theoretical Informatics conference ([LATIN 2006](#)), Valdivia, march 2006.

Could any graph be turn into a smallworld?
with Philippe Duchon, Nicolas Hanusse and Emmanuelle Lebhar.
Accepted for publication in [TCS special edition on complex networks](#), 2006.

Towards small world emergence, with Philippe Duchon, Nicolas Hanusse and Emmanuelle Lebhar.
SPAA 2006.

2005

[Close to optimal decentralized routing in long-range contact networks](#), with Emmanuelle Lebhar.
Invited and accepted for publication in *TCS special series on ICALP 2004*, 348:294-310, 2005.

[Could any graph be turn into a smallworld?](#)
with Philippe Duchon, Nicolas Hanusse and, Emmanuelle Lebhar.
In LNCS Proc. of the 19th Distributed Computing International Conference ([DISC2005](#)), 3724:512-513,
Cracow, september 2005.

[Fully asynchronous behavior of double-quiescent elementary cellular automata](#), with Nazim Fatès,
Michel Morvan and Éric Thierry.

In LNCS Proc. of the 30th Mathematical Foundations of Computer Science symposium ([MFCS2005](#)), 3618:316-327, Gdansk, september 2005.

2004

[Almost optimal decentralized routing in long-range contact networks](#), with Emmanuelle Lebhar.
In Proc. of the 31st International Colloquium on Automata, Languages and Programming ([ICALP 2004](#)), Turku, Finland, july 2004.

[An Internet Graph Model based on trade-off optimization](#), with José-Ignacio Alvarez-Hamelin.
In European Physical Journal B (EPJB), 38(2):231-238, 2004.
A preliminary version of the paper was presented at the Conference on Growing Networks and Graphs in Statistical Physics, Finance, Biology and Social Systems, Rome, 1-5 Sep. 2003.
Also Optimisation et modélisation du graphe des systèmes autonomes d'Internet (AS graph)
In in Proc. of [Algotel 2003](#), May 2003.

2003

The data broadcast problem with non-uniform transmission times, with Claire Kenyon.
In *Algorithmica* (2003) 35:146-175, February 2003.
A preliminary version of this paper was published in *Proc. of the 10th ACM-SIAM Symp. on Discrete Algorithms* ([SODA 1999](#)), pages 547-556. ACM-SIAM, January 1999.

[Optimisation et modélisation du graphe des systèmes autonomes d'Internet \(AS graph\)](#),
with J. I. Alvarez Hamelin. In *Actes d'Algotel 2003*, pp. 75-82, Banyuls, mai 2003.

[Thèse idiote: le hasard fabrique des certitudes](#) (in French)
In [Le minotaure](#) (trimestrial journal, 20 000ex), 1:66-69, april-june 2003.

2000

[Polynomial-Time Approximation Scheme for Data Broadcast](#), with Claire Kenyon and Neal E. Young.
In Proc. of the 32nd ACM Symposium on Theory of Computing ([STOC 2000](#)), pages 659-666, May 2000.
Currently working on the full version of the paper.

The databroadcast problem with preemption
In [LNCS 1770](#) Proc. of the 17th International Symposium on Theoretical Aspects of Computer Science ([STACS 2000](#)), page 181-192, Lille, February 2000.
Currently working on the full version of the paper.

A state of the art in Data Dissemination
Invited talk to the international seminar « [Linear, semidefinite programming and randomization methods for combinatorial optimization problems](#) » at [Dagstuhl](#), January 2000.

1999

[The data broadcast problem with non-uniform transmission times](#), with Claire Kenyon.
In Proc. of the 10th ACM-SIAM Symp. on Discrete Algorithms SODA'99, pages 547-556. SIAM, Jan. 1999.

A randomized BSP algorithm for the maximal independent set problem, with Afonso Ferreira.
In *Parallel Processing Letters*, Vol. 9 No. 3, pages 411-422, 1999.

A preliminary version was published in Proc. of the 4th Int. Symp. on Parallel Architectures, Algorithms, and Networks (I-SPAN'99) , pages 284-289, Juin 1999.

A note on upper bounds for the span of the frequency planning in cellular networks, with Stéphane Ubéda and Janez Zerovnik.
Preprint, 1999.

1998 and beyond

Parallel algorithm for the optimization of the span of an hexagonal frequency planning graph, with Stéphane Ubéda and Janez Zerovnik.
In Proc. of High Performance Computing'98 - Telepar'98, pages 237-241, Boston, Avril 1998. SCS.

Height-relaxed AVL rebalancing: A unified, fine-grained approach to concurrent dictionaries, with Luc Bougé, J. Gabarro, and X. Messeguer
LIP Research Report [RR98-18](#), LIP, March 1998. Full version of the paper above.

Concurrent rebalancing of AVL trees: a fine-grained approach, with Luc Bougé, J. Gabarro, and X. Messeguer.
In [LNCS Europar'97](#), volume 1300, pages 421-429, Août 1997.

Basic linear algebra operations in SLI arithmetic, with M. A. Anuta, D. W. Lozier, and Peter R. Turner.
In [LNCS Europar'96](#), volume 1124, pages 193-202, Août 1996.

Teaching Experience

- **2004-2006:** Teacher of a 64h lecture (32h lecture + 32h practice) on [Efficient algorithms](#) to third and fourth year university at [Magistère d'Informatique et Modélisation](#) of [ÉNS Lyon](#). Teaching assistant: none (2004-2005), [Sylvain Périfel](#) (2005-2006).
- **2003-2005:** Teacher of a 64h lecture (32h lecture + 32h practice) on [Approximation algorithms](#) to fourth year university at [Magistère d'Informatique et Modélisation](#) of [ÉNS Lyon](#). Teaching assistant: [Emmanuelle Lebhar](#) (2003), [Guillaume Theyssier](#) (2004), [Laurent Lyaudet](#) (2005).
- **2003, 2004, 2005:** Local organizer of the programming and algorithmic contest for the competitive entrance to the écoles normales supérieures (including conception and correction of a 3 over 9 of the exams) and re-conception of the contest (2005). see [EPAP](#).
- **1997-1998/1999-2000:** Teaching assistant in courses addressed to first to fourth year university at [Magistère d'Informatique et Modélisation](#) of [ÉNS Lyon](#) and at the [Université Claude Bernard](#), Lyon I:
 - Calculability and Rewriting
 - Functional programming
 - Object Oriented Languages and Software Engineering
 - Automata and Formal Languages
- **Summer 1999:** Supply Professor J. Aslam, (3 courses and 3 extra-hours) teacher of the undergraduate algorithm course [CS25](#) at [Dartmouth College](#), New Hampshire, USA. I presented the chapters:
 - End of "[Greedy Algorithms](#)",
 - The complete lecture on "[Amortized Analysis](#)".
- **1994-1996:** Teaching « *Initiation to computer science and programming* » to first year university at the lycée du Parc.

Research Administration & Grants

- **2005-2006:** Recipient of the CNRS Locoglobo Grant
- **2004-:** Member (as invited expert) of the Management Committee of the [DYNAMO COST 295](#) european action - Co-chair of the Small World working group with Moni Noar.
- **1997-98 / 1999-2000 / 2002- :** Elected member of the conseil de laboratoire du LIP.
- **2002-2003:** Head of the chapter "Internet graph modelling" of the [AS Dynamo](#) (directed by [Pierre Fraigniaud](#)).
- **December 2002:** Organization of the [Winter School on Complex Systems](#) (1st edition).
- **2000-2003 :** In charge of the bimonthly [LIP Seminar](#).

PhD Thesis

[Algorithmes d'approximation pour les télécommunications sans fil:
Ordonnement pour la dissémination de données et
Allocation statique de fréquences](#)

English title: « Approximation algorithms for wireless networks: Scheduling data dissemination and Static frequency assignment »

Advisors: [Claire Kenyon](#) & [Stéphane Ubéda](#) (local advisor)

Current and past students

- [Damien Regnault](#), PhD advisor with [Éric Thierry](#) (since february 2005)
- [Julien Robert](#), Master thesis advisor (february- 2006)
- [Emmanuelle Lebhar](#), PhD advisor with Michel Morvan (PhD obtained in december 2005)
- [Sandeep Dey](#), Master thesis advisor (february-july 2005)

Fuente: <http://www.dim.uchile.cl/%7Eeschabanel/>