

Curriculum Vitae: Russell Martin

Work address

Department of Computer Science
University of Liverpool
Ashton Building
Liverpool, Merseyside
L69 3BX United Kingdom

Web: <http://csc.liv.ac.uk/~martin/>
Phone: (+44) 151 795 4256
FAX: (+44) 151 794 3715

Personal data

Place of birth Chattanooga, Tennessee, USA
Citizenship USA

Research interests

Randomized algorithms.
Markov Chain Monte Carlo techniques for sampling/counting.
Combinatorics. Lattice path enumeration.
Game theory.

Education

December 2001 Georgia Institute of Technology
Doctor of Philosophy, Applied Mathematics
Thesis title: *Paths, Sampling, and Markov Chain Decomposition*
Advisor: Dana Randall

August 1994 Clemson University
Master of Science, Applied Mathematics
Thesis title: *A Core of a Block Graph*
Advisor: Renu Laskar

May 1992 Syracuse University
Bachelor of Science, Mathematics

Relevant employment history

- 08/05 – present **Lecturer**
University of Liverpool, Department of Computer Science
- 01/04 – 08/05 **Postdoctoral Research Fellow**
10/01 – 10/03 University of Warwick, Department of Computer Science
- Supported by United Kingdom Engineering and Physical Sciences Research Council (EPSRC) grants GR/R44560/01 “Analysing Markov Chain-based Random Sampling Algorithms” and “Discontinuous Behaviour in the Complexity of Randomized Algorithms”.
- 10/03 – 12/03 **Visiting Researcher**
Simon Fraser University, School of Computing Science
- 4/98 – 12/00 **Graduate Research Assistant**
Georgia Institute of Technology, School of Mathematics (paid by College of Computing)
- Research under supervision of Dana Randall.
 - Supported in part by National Science Foundation grant CCR-9703206.
- 9/95 – 3/98 **Graduate Teaching Assistant**
1/01 – 9/01 Georgia Institute of Technology, School of Mathematics
- Instructor for Calculus I, II, Introduction to Difference and Differential Equations, Applied Combinatorics.
 - Recitation leader for Calculus II, III.
- 9/98 – 5/01 **Peer Tutor in Mathematics**
Office of Minority Education and Development, Georgia Tech
- Student tutor for calculus, combinatorics, modern algebra, probability, et. al.
- 9/94 – 6/95 **Mathematics Instructor**
Georgia College & State University, Department of Mathematics and Computer Science
- Instructor for undergraduate algebra and trigonometry.

Teaching experience

My teaching experience (encompassing time spent at Clemson University, Georgia College, the Georgia Institute of Technology, and Warwick University) includes a variety of subjects, primarily mathematical in nature.

I have taught courses in calculus, college algebra and trigonometry, elementary difference and differential equations, and combinatorics. At Warwick I was a seminar leader for an introductory level course on data structures and algorithms.

As a peer tutor at the Office of Minority Education and Development, I interacted with students on a one-to-one basis, and in small groups. A wide range of subjects were covered including probability, calculus, linear algebra, discrete mathematics, combinatorics, modern algebra, algorithms, and differential equations.

Reviewer

FST&TCS 2002. ICALP 2004. ICALP 2006. RANDOM 2004. SIAM Journal on Computing. Combinatorics, Probability and Computing. Random Structures and Algorithms.

Publications

Note: Copies of most papers are available at

<http://www.csc.liv.ac.uk/~martin/reprints.html>.

Conference papers

1. Distributed selfish load balancing, with Petra Berenbrink, Tom Friedetzky, Leslie Ann Goldberg, Paul Goldberg, and Zengjian Hu, *Proc. 17th ACM-SIAM Symposium on Discrete Algorithms (SODA 2006)*, pp. 354–363. Journal version submitted (May 2006).
2. Dynamic diffusion load balancing, with Petra Berenbrink and Tom Friedetzky, *Proc. 32nd International Colloquium on Automata, Languages, and Programming (ICALP 2005)*, Lecture Notes in Computer Science 3580, Springer-Verlag, 2005, pp. 1386–1398. Journal version submitted (August 2005).
3. On weighted balls-into-bins games, with Petra Berenbrink, Tom Friedetzky, and Zengjian Hu, *Proc. 22nd International Symposium on Theoretical Aspects of Computer Science (STACS 2005)*, pp. 231–243. Journal version submitted (August 2005).
4. Sampling adsorbing staircase walks using a new Markov chain decomposition method, with Dana Randall, *Proc. 41st Annual IEEE Symposium on Foundations of Computer Science (FOCS 2000)*, pp. 492–502.

5. Pfaffian algorithms for sampling tilings on regions with free boundary conditions, with Dana Randall, *3rd International Workshop on Randomization and Approximation Techniques in Lecture Notes in Computer Science* **1671** (1999), Springer, Berlin, pp. 257–268.
6. A core of a block graph, with Renu Laskar, *Congressus Numerantium* **101** (1994), pp. 171–185.

Journal Publications and Others

7. Disjoint decomposition of Markov chains and sampling circuits in Cayley graphs, with Dana Randall, *Combinatorics, Probability, and Computing* **15** (2006), pp. 411–448.
8. Markov chain comparison, with Martin Dyer, Leslie Ann Goldberg, and Mark Jerrum, Research Report CS-RR-406, Department of Computer Science, University of Warwick, October 2004. Journal version appears in *Probability Surveys* **3** (2006), pp. 89–111 (electronic).
9. Improved mixing bounds for the anti-ferromagnetic Potts model on \mathbb{Z}^2 , with Leslie Ann Goldberg, Markus Jalsenius, and Mike Paterson, *LMS J. of Computation and Mathematics* **9** (2006), pp. 1–20.
10. Rapidly mixing Markov chains for sampling contingency tables with a constant number of rows, with Mary Cryan, Martin Dyer, Leslie Ann Goldberg, and Mark Jerrum, *SIAM J. Computing* **36** (2006), pp. 247–278. Conference version appears in *Proc. 43rd Annual IEEE Symposium on Foundations of Computer Science (FOCS 2002)*, pp. 711–720.
11. Strong spatial mixing with fewer colors for lattice graphs, with Leslie Ann Goldberg and Mike Paterson, *SIAM J. Computing* **35** (2005), pp. 486–517. Conference version appears in *Proc. 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS 2004)*, pp. 562–571.
12. Utilitarian resource assignment, with Petra Berenbrink, Leslie Ann Goldberg, and Paul Goldberg, to appear in *J. Discrete Algorithms*.
13. Random sampling of 3-colorings in \mathbb{Z}^2 , with Leslie Ann Goldberg and Mike Paterson, *Random Structures & Algorithms* **24** (2004), pp. 279–302.
14. Paths, Sampling, and Markov Chain Decomposition. PhD thesis, Georgia Institute of Technology (2001).

15. Exploring self-duality in graphs, with Concetta Depaolo, *Pi Mu Epsilon Journal* **9** (1992), pp. 422–429.

Conferences and Presentations

1. 17th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2006), contributed talk, Miami, FL, January 22–24, 2006.
2. Mathematical Sciences Research Institute, Markov Chains in Algorithms and Statistical Physics, contributed talk, Berkeley, CA, January 31–February 4, 2005.
3. University of Durham, Theory Group Seminar, Department of Computer Science, invited talk, Durham, United Kingdom, November 26, 2004.
4. 45th Annual IEEE Symposium on Foundations of Computer Science, contributed talk, Rome, Italy, October 17–19, 2004.
5. University of Edinburgh, LFCS Seminar Series, School of Informatics, invited talk, Edinburgh, United Kingdom, April 20, 2004.
6. London School of Economics, Seminar on Discrete and Applicable Mathematics, Department of Mathematics, invited talk, London, United Kingdom, March 4, 2004.
7. Liverpool Algorithms Day (LAD'03), contributed talk, Liverpool, United Kingdom, May 30, 2003.
8. RAND-APX workshop, Randomized and Approximate Computation, contributed talk, Lund, Sweden, April 25–26, 2003.
9. American Mathematical Society/Mathematical Association of America Joint Meeting, Special Session on Discrete Models, invited talk, Baltimore, MD, January 15–18, 2003.
10. 43rd Annual IEEE Symposium on Foundations of Computer Science, contributed talk, Vancouver, Canada, November 16–19, 2002.
11. Oxford University Combinatorial Theory Seminar, invited talk, Mathematical Institute, Oxford, United Kingdom, June 11, 2002.
12. RAND-APX workshop, Randomized and Approximation Algorithms, contributed talk, Paris, France, April 3–5, 2002.

13. 41st Annual IEEE Symposium on Foundations of Computer Science, contributed talk, Redondo Beach, CA, November 2000.
14. 17th International Symposium on Mathematical Programming, contributed talk, Georgia Institute of Technology, Atlanta, GA, August 10, 2000.
15. 3rd International Workshop on Randomization and Approximation Techniques, contributed talk, University of California, Berkeley, CA, August 6, 1999.
16. Universidad Autónoma de San Luis Potosí, invited talk, San Luis Potosí, México, March 1998.
17. 25th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, contributed talk, Florida Atlantic University, Boca Raton, FL, March 8, 1994.

June 30, 2006

References

Dr. Petra Berenbrink
School of Computing Science
Simon Fraser University
8888 University Dr.
Burnaby, B.C. V5A 1S6, Canada
Web address: <http://www.cs.sfu.ca/~petra>
Phone: +1-604-268-6605

Dr. Leslie Goldberg
Department of Computer Science
University of Warwick
Coventry CV4 7AL, United Kingdom
Web address: <http://www.dcs.warwick.ac.uk/~leslie>
Phone: +44-(0)24-7652-3363

Dr. Mark Jerrum
School of Informatics
University of Edinburgh
The King's Buildings
Edinburgh EH9 3JZ, United Kingdom
Web address: <http://homepages.inf.ed.ac.uk/mrj/>
Phone: +44-(0)13-1650-5134

Dr. Mona Meddin (for teaching-related references)
School of Mathematics
Georgia Institute of Technology
Atlanta, GA 30332-0160, USA
Email: meddin@math.gatech.edu
Phone: +1-404-894-4409

Dr. Dana Randall
College of Computing
Georgia Institute of Technology
Atlanta, GA 30332-0280, USA
Web address: <http://www.math.gatech.edu/~randall>
Phone: +1-404-894-3156

Dr. Prasad Tetali
College of Computing and School of Mathematics
Georgia Institute of Technology
Atlanta, GA 30332-0160, USA
Web address: <http://www.math.gatech.edu/~tetali>
Phone: +1-404-894-9238

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