

JOËL OUAKNINE

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Year of birth: 1972
Citizenships: Canadian and French
Family: Married, two children

RESEARCH INTERESTS

Foundations of Algorithmic Verification and Theoretical Computer Science; in particular:

- Decision, control, and synthesis problems for continuous and discrete linear dynamical systems (using tools from number theory, Diophantine geometry, real algebraic geometry)
- Automated verification of real-time, probabilistic, and infinite-state systems (e.g. model-checking algorithms, synthesis problems, complexity)
- Logic and applications to verification
- Automated software analysis
- Concurrency

EDUCATION

Oxford University Oxford, UK	PhD, Computer Science	2001
McGill University Montréal, Canada	MSc, Mathematics BSc, Honours in Mathematics	1995 1993

EMPLOYMENT

Max Planck Institute for Software Systems Saarbrücken, Germany	Scientific Member & Director	2016 – present
Saarland University Saarbrücken, Germany	Adjunct Professor of Computer Science	2016 – present
Oxford University Oxford, UK	Professorial Research Fellow (part-time) Full Professor of Computer Science – Deputy Head of Department 2014 – 2016 Reader¹ in Computer Science University Lecturer² in Computer Science Fellow³ of St John’s College	2016 – present 2010 – 2016 2008 – 2010 2004 – 2008 2004 – present
Ecole Normale Supérieure Cachan, France	Invited Professor (1-month appointment, twice)	2006, 2008
Carnegie Mellon University Pittsburgh, USA	Postdoctoral Fellow (Computer Science Department)	2002 – 2004
Tulane University New Orleans, USA	Instructor (Department of Mathematics)	1999 – 2002

AWARDS & HONOURS

1. ERC Consolidator Grant, 2015 – 2020.
2. Best Paper Award, ICALP 2014.
3. Best Paper Award, CONCUR 2011.
4. Roger Needham Award, British Computer Society, 2010.
£5000 annual prize, given by the British Computer Society, for “a distinguished research contribution in computer science by a UK-based researcher within 10 years of their PhD.”
5. EPSRC Leadership Fellowship, 2009 – 2014.
5-year research grant, of total value over £1M, covering among others 100% of my salary and providing complete buy-out from teaching and administrative duties. (Only 17 Leadership Fellowships awarded in 2009 in the UK across all scientific areas covered by EPSRC (the Engineering and Physical Sciences Research Council), of which only 4 in Computer Science.)
6. Outstanding Teaching Award, Oxford University, 2008.
7. Outstanding Teaching Award, Oxford University, 2007.

RESEARCH GROUP

- **PhD students**

1. Joao Sousa Pinto, 2013 – present (*Co-supervised with Elias Koutsoupias and James Worrell.*)
2. Ventsi Chonev, PhD 2016. (*Co-supervised with James Worrell.*)
3. Hsi-Ming Ho, PhD 2015.
4. Vincent Nimal, PhD 2015. (*Co-supervised with Daniel Kroening.*)

¹Tenure awarded July 2009. ‘Reader’ is roughly equivalent to Associate Professor in North America.

²‘University Lecturer’ is roughly equivalent to tenure-track Assistant Professor in North America.

³Emeritus Fellow since 2016.

5. Daniel Bundala, PhD 2014.
6. Christoph Haase, PhD 2012.
7. Hristina Palikareva, PhD 2012. (*Co-supervised with Bill Roscoe.*)
8. Ed Blakey, PhD 2011. (*Co-supervised with Bob Coecke.*)

- **Visitors and postdocs**

1. Dmitry Chistikov, 2016 – present.
2. Nathanaël Fijalkow, 2015 – present.
3. Amaury Pouly, 2015 – present.
4. Rémi Bonnet, 2012 – 2014.
5. Timos Antonopoulos, 2012 – 2014.
6. Philippe Schnoebelen, 2011 – 2012.
7. Andreas Gaiser, 2011 (two-month visit).
8. Mark Timmer, 2010 (three-month visit).
9. Bjoern Wachter, 2010 – 2014.
10. Jade Alglave, 2009 – 2012.
11. Michael Tautschnig, 2009 – 2013.
12. Stefan Kiefer, 2009 – 2013.
13. Lijun Zhang, 2009 – 2010.
14. Alexander Rabinovich, 2009 – 2010.
15. Gilles Geeraerts, 2008 (three-month visit).
16. Phil Armstrong, 2007 – 2011.
17. Patricia Bouyer, 2006 – 2007.
18. Axel Legay, 2006 (three-month visit).

- **MSc students**

1. Felix Arends, MSc (Distinction) 2009.
2. Julia Erhard, MSc (Distinction) 2009. (*Co-supervised with James Worrell.*)
3. Rastislav Lenhardt, MSc 2009. (*Co-supervised with James Worrell.*)
4. Pornsook Kornkitichai, MSc 2007.
5. Guo Xi, MSc 2007.
6. Sara Adams, MSc (Distinction) 2006.
7. Tao Zhang, MSc 2006. (*Co-supervised with James Worrell.*)
8. Yiding Liu, MSc 2005.
9. Murray Stokely, MSc 2005.
10. Bo Wang, MSc 2005.
11. Xiaoming Zhong, MSc 2005.

PROFESSIONAL ACTIVITIES & SERVICE

- **Invited speaker**

1. 20th Int'l Conf. on Foundations of Software Science and Computation Structures (FoSSaCS 17).
2. Workshop on Entropy and Information in Computational Systems (EQINOCs 16).
3. Heilbronn Annual Conf., Bristol, 2015.
4. Conf. on Frontiers of Formal Methods (FFM 15).

5. Journées nationales du GDR IM, Bordeaux, 2015.
6. 11th Int'l Tbilisi Symp. on Language, Logic and Computation (TbiLLC 15).
7. London Mathematical Society BCS-FACS Annual Seminar, 2014.
8. Summer School on Verification Technology, Systems & Applications (VTSA 14).
9. 5th Int'l Symp. on Games, Automata, Logics and Formal Verification (GandALF 14).
10. Workshop on Algorithmics on Infinite State Systems (AISS 14).
11. 5th Int'l Symp. on Symbolic Computation in Software Science (SCSS 13).
12. 9th Int'l Symp. on Frontiers of Combining Systems (FroCoS 13).
13. 19th Int'l Symp. on Fundamentals of Computation Theory (FCT 13).
14. 7th Int'l Conf. on Language and Automata Theory and Applications (LATA 13).
15. 6th Int'l Workshop on Reachability Problems (RP 12).
16. ARTIST PhD School on Quantitative Model Checking (QMC 12).
17. Workshop on the 15th Anniversary of LSV, 2012.
18. Roger Needham Lecture, The Royal Society, London, 2010.
19. 37th Int'l Coll. on Automata, Languages and Programming (ICALP 10).
20. 26th Conf. on the Mathematical Foundations of Programming Semantics (MFPS 10).
21. Spring School on Automatic Verification and Analysis of Complex Systems (AVACS 10).
22. 3rd Int'l Workshop on Verification and Evaluation of Computer and Communication Systems (VECoS 09).
23. 6th Int'l Conf. on Formal Modelling and Analysis of Timed Systems (FORMATS 08).
24. 4th Workshop on Quantitative Aspects of Programming Languages (QAPL 06).

- **Conference program committee chair**

1. 32nd Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 17).
2. Bellairs Workshop on Infinite-State Systems, 2015.
3. 8th Int'l Workshop on Reachability Problems (RP 14). (*Jointly chaired with James Worrell.*)
4. Dagstuhl Seminar on Reachability Problems for Infinite-State Systems, 2014. (*Jointly chaired with Javier Esparza, Alain Finkel, and Pierre McKenzie.*)
5. 27th Conf. on the Mathematical Foundations of Programming Semantics (MFPS 11).
6. 7th Int'l Conf. on Formal Modelling and Analysis of Timed Systems (FORMATS 09). (*Jointly chaired with Frits Vaandrager.*)

- **Conference program committee member**

1. Highlights of Logic, Games and Automata, 2016.
2. 41st Int'l Symp. on Mathematical Foundations of Computer Science (MFCS 16).
3. 32nd Conf. on the Mathematical Foundations of Programming Semantics (MFPS 16).
4. 1st CPSWeek Workshop on Declarative Cyber-Physical Systems (DCPS 16).
5. 15th Int'l Conf. on Runtime Verification (RV 15).
6. 42nd Int'l Coll. on Automata, Languages, and Programming (ICALP 15).
7. 31st Conf. on the Mathematical Foundations of Programming Semantics (MFPS 15).
8. 9th Int'l Conf. on Language and Automata Theory and Applications (LATA 15).
9. 6th Int'l Symp. on Symbolic Computation in Software Science (SCSS 14).
10. 30th Conf. on the Mathematical Foundations of Programming Semantics (MFPS 14).
11. Joint Meeting of the 23rd EACSL Annual Conf. on Computer Science Logic (CSL 14) and the 29th Annual ACM/IEEE Symp. on Logic in Computer Science (LICS 14).
12. 29th Conf. on the Mathematical Foundations of Programming Semantics (MFPS 13).

13. 20th Workshop on Logic, Language, Information and Computation (WoLLIC 13).
14. 25th Int'l Conf. on Computer Aided Verification (CAV 13).
15. 23rd European Symposium on Programming (ESOP 13).
16. 1st Workshop on Quantities in Formal Methods (QFM 12).
17. 24th Int'l Conf. on Computer Aided Verification (CAV 12).
18. 10th School on Modelling and Verifying Parallel processes (MOVEP 12).
19. 5th Int'l Workshop on Verification and Evaluation of Computer and Comm. Systems (VECoS 11).
20. 22nd Int'l Conf. on Concurrency Theory (CONCUR 11).
21. 1st Int'l Workshop on Rewriting Techniques for Real-Time Systems (RTRTS 10).
22. 1st Int'l Workshop on Games and Probabilistic Models in Formal Verification (GPMFV 10).
23. 4th Int'l Workshop on Verification and Evaluation of Computer and Comm. Systems (VECoS 10).
24. 8th Int'l Conf. on Formal Modelling and Analysis of Timed Systems (FORMATS 10).
25. 9th Summer School on Modelling and Verifying Parallel Processes (MOVEP 10).
26. 7th European Performance Engineering Workshop (EPEW 10).
27. 25th Conf. on the Mathematical Foundations of Programming Semantics (MFPS 09).
28. 6th Int'l Conf. on the Quantitative Evaluation of Systems (QEST 09).
29. 26th Int'l Symposium on Theoretical Aspects of Computer Science (STACS 09).
30. 6th Int'l Conf. on Formal Modelling and Analysis of Timed Systems (FORMATS 08).
31. 15th Int'l Workshop on Model Checking Software (SPIN 08).
32. 5th Int'l Conf. on the Quantitative Evaluation of Systems (QEST 08).
33. 5th Int'l Conf. on Formal Modelling and Analysis of Timed Systems (FORMATS 07).
34. 2nd Int'l Workshop on Probabilistic Automata and Logics (PAuL 07).
35. 16th EACSL Annual Conf. on Computer Science and Logic (CSL 07).
36. 5th Workshop on Quantitative Aspects of Programming Languages (QAPL 07).
37. 10th Int'l Workshop on Hybrid Systems: Computation and Control (HSCC 07).
38. 13th Int'l Workshop on Expressiveness in Concurrency (EXPRESS 06).
39. 4th Int'l Conf. on Formal Modelling and Analysis of Timed Systems (FORMATS 06).
40. 21st Annual IEEE Symposium on Logic in Computer Science (LICS 06).
41. 3rd Int'l Workshop on Automatic Verification of Infinite-State Systems (AVIS 04).

• **Journal editor**

1. Associate Editor, Journal of Computer and System Sciences, Elsevier (2014 – present).

• **External PhD examiner**

1. Michael Blondin, Université de Montréal & Université Paris-Saclay, 2016.
2. Radu Iosif (Habilitation), Université de Grenoble, 2016.
3. Amélie Stainer, Université de Rennes 1, 2013.
4. Laurent Doyen (Habilitation), Ecole Normale Supérieure de Cachan, 2012.
5. Pierre Chambart, Ecole Normale Supérieure de Cachan, 2011.
6. Mohamed Faouzi Atig, Université de Paris Diderot - Paris 7, 2010.
7. Ashutosh Trivedi, University of Warwick, 2009.
8. Pavel Krchal, Uppsala University, 2009.
9. Nathaniel Charlton, Imperial College, 2008.
10. Henri Hansen, Tampere University of Technology, 2007.

11. Fabrice Chevalier, Ecole Normale Supérieure de Cachan, 2007.
12. Gilles Geeraerts, Université Libre de Bruxelles, 2007.

UNIVERSITY ACTIVITIES

• Teaching

1. Randomised Algorithms, Oxford University, 2008 (twice).
2. Logic and Proof, Oxford University, 2006, 2007, 2008.
3. Complexity, Oxford University, 2005.
4. Formal Program Design II, Oxford University, 2005.
5. Introduction to Concurrency, Tulane University, 2000.
6. Discrete Mathematics, Tulane University, 1999 – 2002 (four times).

• Undergraduate project supervisor

1. Chris Butler, 2014 – 2015.
2. Gabriel Asman, 2014 – 2015.
3. Ventsislav Chonev, 2010 – 2011.
4. Yuri Gulla, 2008 – 2009.
5. Kon-Chao Kwek, 2008 – 2009.
6. Martin Smith, 2008 – 2009.
7. Konrad Krawczyk, 2007 – 2008.
8. Mike Lewis, 2007 – 2008.
9. Emily Middleton, 2007 – 2008.
10. Mike Lewis, 2006 – 2007.
11. Viet Nguyen, 2006 – 2007.
12. Alan Dowling, 2005 – 2006.

• Administration

1. University Lecturership Appointment Committee, 2015.
2. Deputy Head of Department, 2014 – 2016.
3. Athena Swan Committee, 2013 – 2016.
4. University Lecturership Appointment Committee, 2011.
5. Informatics Chair Appointment Panel, 2011.
6. Domestic Bursar (St John's College), 2009 – 2016.
7. Decanal Policy Committee (St John's College), 2009 – 2016.
8. Domestic Committee (St John's College), 2009 – 2016.
9. Entertainments Committee (St John's College), 2009 – 2016.
10. Fellows' Housing Committee (St John's College), 2008 – 2016.
11. Departmental Management Committee, 2007 – 2015.
12. MSc Examiner, 2007 – 2009.
13. Research Assistantship Appointment Committee (four posts), 2007.
14. University Lecturership Appointment Committee, 2007.
15. Joint Consultative Committee for Undergraduates, 2007 – 2008.
16. University Lecturership Appointment Committee (two posts), 2006.
17. Educational Policy Committee (St John's College), 2006 – 2009.

18. First-Year Curriculum Review, 2005 – 2006.
19. Career Development Fellowship Appointment Committee, 2005.
20. Kendrew Quadrangle Development Committee (St John's College), 2005 – 2010.
21. Risk Management Committee (St John's College), 2005 – 2008; 2009 – 2016.
22. Software Engineering Programme and Continuing Education Committee, 2004 – 2005.
23. Governing Body (St John's College), 2004 – 2016.
24. Admissions Committee (St John's College), 2004 – 2016.

• **Internal PhD examiner**

1. Chris Chilton, 2013.
2. Evgenij Thorstensen, 2013.
3. Chris Broadbent, 2012.
4. Peter Boehm, 2012.
5. Clemens Ley, 2011.
6. Mark Kattenbelt, 2011.
7. Jian Huang, 2010.
8. Jolie de Miranda, 2006.
9. Gordon Rohrmair, 2005.

RESEARCH GRANTS

1. Principal Investigator, Consolidator Grant: European Research Council (ERC), *Analysis, Verification, and Synthesis of Infinite-State Systems*, 2015–2020. **EUR 1,835,000.**
2. Co-Investigator: Engineering and Physical Sciences Research Council, UK (PI James Worrell), *Counter Automata: Verification and Synthesis*, 2014 – 2017. **GBP 242,000.**
3. Principal Investigator: Engineering and Physical Sciences Research Council, UK, *Graph-Theoretic Algorithms for Separation Logic*, 2012 – 2014. **GBP 196,000.**
4. Principal Investigator: The Leverhulme Trust, UK (Visiting Professor Philippe Schnoebelen), *Algorithmic Theory of Well-Structured Systems: Applications to Verification*, 2011 – 2012. **GBP 18,000.**
5. Co-Investigator: Engineering and Physical Sciences Research Council, UK (PI Daniel Kroening), *Verification of Shared-Memory Concurrent Software*, 2009 – 2013. **GBP 560,000.**
6. Principal Investigator, Leadership Fellowship: Engineering and Physical Sciences Research Council, UK, *Quantitative Verification: From Model Checking to Model Measuring*, 2009 – 2014. **GBP 1,019,000.**
7. Principal Investigator: Engineering and Physical Sciences Research Council, UK (Co-I's Andrzej Murawski and James Worrell), *Automated Verification of Probabilistic Programs*, 2009 – 2011. **GBP 360,000.**
8. Co-Investigator: Engineering and Physical Sciences Research Council, UK (PI Bob Coecke), *Complexity and Decidability in Unconventional Computational Models*, 2008 – 2011. **GBP 180,000.**
9. Principal Investigator: Engineering and Physical Sciences Research Council, UK, *Model-Checking Algorithms for Timed Systems*, 2007 – 2011. **GBP 135,000.**
10. Co-Investigator: Engineering and Physical Sciences Research Council, UK (PI Bill Roscoe, Co-I Gavin Lowe), *CSP Model Checking: New Technology and Techniques*, 2007 – 2011. **GBP 715,000.**
11. Supervisor, FP6 Marie Curie Intra-European Fellowship: European Commission (Fellow Patricia Bouyer), *Logical Languages for Embedded Systems*, 2006 – 2007. **EUR 47,000.**

SOFTWARE

1. APEX: A verification tool for probabilistic programs.
2. SLAP: A static livelock analyzer for CSP processes, now incorporated into FDR.
3. MAGIC: A model checker for sequential and concurrent C programs. (Implemented by S. Chaki.)

I have also contributed to:

4. UCLID: A verification tool for infinite-state systems. (Implemented by S. K. Lahiri and S. A. Seshia.)

PUBLICATIONS

• Refereed conference papers

1. V. Chonev, J. Ouaknine, and J. Worrell. On the Skolem Problem for continuous linear dynamical systems. *Proceedings of the 43rd International Colloquium on Automata, Languages and Programming (ICALP 16)*. 14 pages. Leibniz International Proceedings in Informatics ????, 2016.
2. M. Bruna, R. Grigore, S. Kiefer, J. Ouaknine, and J. Worrell. Proving the Herman-Protocol Conjecture. *Proceedings of the 43rd International Colloquium on Automata, Languages and Programming (ICALP 16)*. 14 pages. Leibniz International Proceedings in Informatics ????, 2016.
3. V. Chonev, J. Ouaknine, and J. Worrell. On recurrent reachability for continuous linear dynamical systems. *Proceedings of the 31st Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 16)*. 10 pages. IEEE Press, 2016.
4. J. Ouaknine, A. Pouly, J. Sousa Pinto, and J. Worrell. Solvability of matrix-exponential equations. *Proceedings of the 31st Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 16)*. 10 pages. IEEE Press, 2016.
5. A. Lechner, J. Ouaknine, and J. Worrell. On the complexity of linear arithmetic with divisibility. *Proceedings of the 30th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 15)*. 10 pages. IEEE Press, 2015.
6. H.-M. Ho and J. Ouaknine. The Cyclic-Routing UAV Problem is PSPACE-complete. *Proceedings of the 18th International Conference on Foundations of Software Science and Computation Structures (FOSSACS 15)*. 15 pages. Lecture Notes in Computer Science 9034, Springer-Verlag, 2015.
7. E. Galby, J. Ouaknine, and J. Worrell. On matrix powering in low dimensions. *Proceedings of the 32nd International Symposium on Theoretical Aspects of Computer Science (STACS 15)*. 12 pages. 2015.
8. J. Sousa Pinto, J. Ouaknine, and J. Worrell. On termination of integer linear loops. *Proceedings of the 26th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 15)*. 13 pages. SIAM, 2015.
9. V. Chonev, J. Ouaknine, and J. Worrell. The Polyhedron-Hitting Problem. *Proceedings of the 26th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 15)*. 17 pages. SIAM, 2015.
10. H.-M. Ho and J. Ouaknine. Online monitoring of Metric Temporal Logic. *5th International Conference on Runtime Verification (RV 14)*. 15 pages. Lecture Notes in Computer Science 8734, Springer-Verlag, 2014.
11. D. Bundala and J. Ouaknine. Advances in parametric real-time reasoning. *Proceedings of the 39th International Symposium on Mathematical Foundations of Computer Science (MFCS 14)*. 12 pages. Lecture Notes in Computer Science 8634, Springer-Verlag, 2014.
12. J. Ouaknine and J. Worrell. Ultimate Positivity is decidable for simple linear recurrence sequences. *Proceedings of the 41st International Colloquium on Automata, Languages and Programming (ICALP 14)*. 12 pages. Lecture Notes in Computer Science 8573, Springer-Verlag, 2014. **Winner of Best Paper Award.**

13. J. Ouaknine and J. Worrell. On the Positivity Problem for simple linear recurrence sequences. *Proceedings of the 41st International Colloquium on Automata, Languages and Programming (ICALP 14)*. 12 pages. Lecture Notes in Computer Science 8573, Springer-Verlag, 2014.
14. D. Bundala and J. Ouaknine. On the complexity of temporal-logic path checking. *Proceedings of the 41st International Colloquium on Automata, Languages and Programming (ICALP 14)*. 12 pages. Lecture Notes in Computer Science 8573, Springer-Verlag, 2014.
15. T. Antonopoulos, N. Gorogiannis, C. Haase, M. Kanovich, and J. Ouaknine. Foundations for decision problems in Separation Logic with general inductive predicates. *Proceedings of the 17th International Conference on Foundations of Software Science and Computation Structures (FOSSACS 14)*. 15 pages. Lecture Notes in Computer Science 8412, Springer-Verlag, 2014.
16. J. Ouaknine and J. Worrell. Positivity problems for low-order linear recurrence sequences. *Proceedings of the 25th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 14)*. 14 pages. SIAM, 2014.
17. T. Brihaye, L. Doyen, G. Geeraerts, J. Ouaknine, J.-F. Raskin, and J. Worrell. Time-bounded reachability for monotonic hybrid automata: Complexity and fixed points. *Proceedings of the 11th International Symposium on Automated Technology for Verification and Analysis (ATVA 13)*. 16 pages. Lecture Notes in Computer Science 8172, Springer-Verlag, 2013.
18. R. Lazic, J. Ouaknine, and J. Worrell. Zeno, Hercules and the Hydra: Downward rational termination is Ackermannian. *Proceedings of the 38th International Symposium on Mathematical Foundations of Computer Science (MFCS 13)*. 12 pages. Lecture Notes in Computer Science 8087, Springer-Verlag, 2013.
19. C. Haase, S. Ishtiaq, J. Ouaknine, and M. J. Parkinson. SELOGER: A tool for graph-based reasoning in Separation Logic. *Proceedings of the 25th International Conference on Computer-Aided Verification (CAV 13)*. 6 pages. Lecture Notes in Computer Science 8044, Springer-Verlag, 2013.
20. B. Wachter, D. Kroening, and J. Ouaknine. Verifying multithreaded software with Impact. *Proceedings of Formal Methods in Computer-Aided Design (FMCAD 13)*. 8 pages. IEEE Press, 2013.
21. P. Hunter, J. Ouaknine, and J. Worrell. Expressive completeness for Metric Temporal Logic. *Proceedings of the 28th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 13)*. 9 pages. IEEE Press, 2013.
22. V. Chonev, J. Ouaknine, and J. Worrell. The Orbit Problem in higher dimensions. *Proceedings of the 45th ACM Symposium on Theory of Computing (STOC 13)*. 10 pages. ACM, 2013.
23. C. Haase, J. Ouaknine, and J. Worrell. On the relationship between reachability problems in timed and counter automata. *Proceedings of the 6th International Workshop on Reachability Problems (RP 12)*. 12 pages. Lecture Notes in Computer Science 7550, Springer-Verlag, 2012.
24. S. Kiefer, A. S. Murawski, J. Ouaknine, B. Wachter, and J. Worrell. APEX: An analyzer for open probabilistic programs. *Proceedings of the 24th International Conference on Computer-Aided Verification (CAV 12)*. 6 pages. Lecture Notes in Computer Science 7358, Springer-Verlag, 2012.
25. P. Armstrong, M. Goldsmith, G. Lowe, J. Ouaknine, H. Palikareva, A. W. Roscoe, and J. Worrell. Recent developments in FDR. *Proceedings of the 24th International Conference on Computer-Aided Verification (CAV 12)*. 6 pages. Lecture Notes in Computer Science 7358, Springer-Verlag, 2012.
26. D. Bundala, J. Ouaknine, and J. Worrell. On the magnitude of completeness thresholds in bounded model checking. *Proceedings of the 27th Annual IEEE Symposium on Logic in Computer Science (LICS 12)*. 10 pages. IEEE Press, 2012.
27. S. Kiefer, A. S. Murawski, J. Ouaknine, B. Wachter, and J. Worrell. On the complexity of the equivalence problem for probabilistic automata. *Proceedings of the 15th International Conference on Foundations of Software Science and Computational Structures (FOSSACS 12)*. 15 pages. Lecture Notes in Computer Science 7213, Springer-Verlag, 2012.

28. S. Göller, C. Haase, J. Ouaknine, and J. Worrell. Branching-time model checking of parametric one-counter automata. *Proceedings of the 15th International Conference on Foundations of Software Science and Computational Structures (FOSSACS 12)*. 15 pages. Lecture Notes in Computer Science 7213, Springer-Verlag, 2012.
29. M. Jenkins, J. Ouaknine, A. Rabinovich, and J. Worrell. The Church Synthesis Problem with metric. *Proceedings of the 20th Annual Conference on Computer Science Logic (CSL 11)*. 15 pages. Leibniz International Proceedings in Informatics 12, 2011.
30. F. Arends, J. Ouaknine, and C. W. Wampler. On searching for small Kochev-Specker vector systems. *Proceedings of the 37th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 11)*. 12 pages. Lecture Notes in Computer Science 6986, Springer-Verlag, 2011.
31. J. Ouaknine, H. Palikareva, A. W. Roscoe, and J. Worrell. Static livelock analysis in CSP. *Proceedings of the 22nd International Conference on Concurrency Theory (CONCUR 11)*. 15 pages. Lecture Notes in Computer Science 6901, Springer-Verlag, 2011. **Winner of Best Paper Award.**
32. B. Cook, C. Haase, J. Ouaknine, M. Parkinson, and J. Worrell. Tractable reasoning in a fragment of Separation Logic. *Proceedings of the 22nd International Conference on Concurrency Theory (CONCUR 11)*. 15 pages. Lecture Notes in Computer Science 6901, Springer-Verlag, 2011.
33. S. Kiefer, A. Murawski, J. Ouaknine, B. Wachter, and J. Worrell. Language equivalence for probabilistic automata. *Proceedings of the 23rd International Conference on Computer-Aided Verification (CAV 11)*. 16 pages. Lecture Notes in Computer Science 6806, Springer-Verlag, 2011.
34. D. Kroening, J. Ouaknine, O. Strichman, Thomas Wahl, and J. Worrell. Linear completeness thresholds for bounded model checking. *Proceedings of the 23rd International Conference on Computer-Aided Verification (CAV 11)*. 16 pages. Lecture Notes in Computer Science 6806, Springer-Verlag, 2011.
35. S. Kiefer, J. Ouaknine, J. Worrell, and L. Zhang. On stabilization in Herman’s algorithm. *Proceedings of the 38th International Colloquium on Automata, Languages and Programming (ICALP 11)*. 12 pages. Lecture Notes in Computer Science 6756, Springer-Verlag, 2011.
36. T. Brihaye, L. Doyen, G. Geeraerts, J. Ouaknine, J.-F. Raskin, and J. Worrell. On reachability for hybrid automata over bounded time. *Proceedings of the 38th International Colloquium on Automata, Languages and Programming (ICALP 11)*. 12 pages. Lecture Notes in Computer Science 6756, Springer-Verlag, 2011.
37. P. Hunter, P. Bouyer, N. Markey, J. Ouaknine, and J. Worrell. Computing rational radical sums in uniform TC^0 . *Proceedings of the 30th Annual Conference of Foundations of Software Technology and Theoretical Computer Science (FSTTCS 10)*. 9 pages. Leibniz International Proceedings in Informatics 8, 2010.
38. M. Jenkins, J. Ouaknine, A. Rabinovich, and J. Worrell. Alternating timed automata over bounded time. *Proceedings of the 25th Annual IEEE Symposium on Logic in Computer Science (LICS 10)*. 10 pages. IEEE Press, 2010.
39. S. Göller, C. Haase, J. Ouaknine, and J. Worrell. Model checking succinct and parametric one-counter automata. *Proceedings of the 37th International Colloquium on Automata, Languages and Programming (ICALP 10)*. 12 pages. Lecture Notes in Computer Science 6199, Springer-Verlag, 2010.
40. H. Palikareva, J. Ouaknine, and A. W. Roscoe. Faster FDR counterexample generation using SAT-solving. *Proceedings of the 9th International Workshop on Automated Verification of Critical Systems (AVOCS 09)*. 15 pages. Electronic Communications of the EASST, 2009.
41. J. Ouaknine, A. Rabinovich, and J. Worrell. Time-bounded verification. *Proceedings of the 20th International Conference on Concurrency Theory (CONCUR 09)*. 15 pages. Lecture Notes in Computer Science 5710, Springer-Verlag, 2009.
42. C. Haase, S. Kreutzer, J. Ouaknine, and J. Worrell. Reachability in succinct and parametric one-counter automata. *Proceedings of the 20th International Conference on Concurrency Theory (CONCUR 09)*. 15 pages. Lecture Notes in Computer Science 5710, Springer-Verlag, 2009.

43. P. Bouyer, N. Markey, J. Ouaknine, and J. Worrell. On expressiveness and complexity in real-time model checking. *Proceedings of the 35th International Colloquium on Automata, Languages and Programming (ICALP 08)*. 12 pages. Lecture Notes in Computer Science 5126, Springer-Verlag, 2008.
44. A. Legay, A. S. Murawski, J. Ouaknine, and J. Worrell. On automated verification of probabilistic programs. *Proceedings of the 14th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 08)*. 15 pages. Lecture Notes in Computer Science 4963, Springer-Verlag, 2008.
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• **Refereed journal papers**

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2. R. Lazic, J. Ouaknine, and J. Worrell. Zeno, Hercules and the Hydra: Safety Metric Temporal Logic is ACKERMANN-complete. 27 pages. *To appear in ACM Transactions on Computational Logic*, 2016.
3. C. Haase, J. Ouaknine, and J. Worrell. Relating reachability problems in timed and counter automata. 22 pages. *Fundamenta Informaticae* 143, 2016.
4. T. Antonopoulos, J. Ouaknine, and J. Worrell. Reachability problems for Markov chains. 4 pages. *Information Processing Letters* 115(2), 2015.
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• Other publications

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2. J. Ouaknine, I. Potapov, and J. Worrell, editors. *Proceedings of the 8th International Workshop on Reachability Problems* (RP 14). Lecture Notes in Computer Science 8762, Springer-Verlag, 2014.
3. J. Esparza, A. Finkel, P. McKenzie, and J. Ouaknine, editors. *Proceedings of the Dagstuhl Seminar on Reachability Problems for Infinite-State Systems*. Dagstuhl Reports 4(3), 2014.
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8. J. Ouaknine and F. W. Vaandrager, editors. *Proceedings of the 7th International Conference on Formal Modelling and Analysis of Timed Systems* (FORMATS 09). Lecture Notes in Computer Science 5813, Springer-Verlag, 2009.
9. J. Ouaknine and J. Worrell. Some recent results in Metric Temporal Logic. *Invited paper, proceedings of the 6th International Conference on Formal Modelling and Analysis of Timed Systems* (FORMATS 08). 13 pages. Lecture Notes in Computer Science 5215, Springer-Verlag, 2008.
10. J. Ouaknine. Book review of **Verification of Reactive Systems: Formal Methods and Algorithms** by Klaus Schneider. 2 pages. *Software Testing, Verification and Reliability* 15, 2005.
11. J. Ouaknine. Discrete analysis of continuous behaviour in real-time concurrent systems. 178 pages. PhD Thesis, Oxford University, 2001. Technical Report PRG-RR-01-06, Oxford University Computing Laboratory.

EXTRA-CURRICULAR ACTIVITIES

United States Chess Federation ranking among top 500 American players	1992 – 1995
Oxford University Varsity Chess Team Member	1995 – 1999
Represented Oxford in annual match vs. Cambridge University (Games published in <i>The Times</i> , <i>The Daily Telegraph</i> , <i>The Independent</i>).	
McGill University Chess Team Member	1994
Represented McGill at the Pan-American Inter-University Chess Championship.	
Québec Under-20 Open Chess Championship, winner	1988, 1989