

James B. Worrell
Oxford University Computing Laboratory
Wolfson Building, Parks Road, Oxford OX1 3QD, UK
Tel: +44 1865 273843 Fax: +44 1865 273839 Email: jbw@comlab.ox.ac.uk
<http://web.comlab.ox.ac.uk/people/James.Worrell/home.html>

Personal Information

Date of Birth July 14, 1973
Citizenship British

Research Interests

Verification of infinite-state systems, including probabilistic and real-time systems.
Temporal logic and automata theory

Employment History

2007— University Lecturer, Computing Laboratory, Oxford University, UK
2005—2007 Career Development Fellow, Computing Laboratory, Oxford University, UK
2001—2005 Postdoctoral Researcher, Tulane University, New Orleans, USA

Education

1996—2001 Ph.D. Computer Science, Oxford University, UK
(Thesis nominated for BCS Distinguished Dissertation Award)
1995—1996 M.Sc. Computer Science (distinction), Oxford University, UK
1991—1994 B.A. Mathematics (first class honours), Oxford University, UK

Teaching

2005—2008 *Advanced Data Structures and Algorithms, Concurrency*
2001—2004 *Model Checking, Multivariable Calculus, Discrete Mathematics*

Graduate Students

2006—2008 Tao Zhang, Fan Yang, Yu Wang, Feng Wei (MSc)
2008— Mark Jenkins (D. Phil)

Academic Exchange

2006, 2008 One-month Visiting Professorship at École Normale Supérieure de Cachan

Program Committee Memberships

Foundations of Software Technology and Theoretical Computer Science (FSTTCS'09)
23rd Annual IEEE Symposium on Logic in Computer Science (LICS'08)
32nd International Symposium on Mathematical Foundations of Computer Science (MFCS'07)
International Symposium on Temporal Representation and Reasoning (TIME'07, TIME'09)
Mathematical Foundations of Programming Semantics (MFPS'05, MFPS'07)

Invited talks and tutorials

15th International Symposium on Temporal Representation and Reasoning (TIME'08)
20th Workshop on the Mathematical Foundations of Programming Semantics (MFPS'08)
5th International Conference on the Quantitative Evaluation of Systems (QEST'08)
5th International Workshop on Automated Verification of Critical Systems (AVOCS'05)

Publications (web.comlab.ox.ac.uk/people/James.Worrell/publications.html)

Journal Publications

1. F. van Breugel, B. Sharma and J. Worrell. Approximating a Behavioural Pseudometric without Discount for Probabilistic Systems. *Logical Methods in Computer Science*, 4(2:2), 2008.
2. P. A. Abdulla, J. Deneux, J. Ouaknine, K. Quaas and J. Worrell. Universality analysis for one-clock timed automata. Accepted to *Fundamenta Informaticae*, 2007.
3. R. Lazic, T. Newcomb, J. Ouaknine, A. W. Roscoe, and J. Worrell. Nets with tokens which carry data. Accepted to *Fundamenta Informaticae*, 2007.
4. J. Ouaknine and J. Worrell. On the decidability and complexity of Metric Temporal Logic over finite words. *Logical Methods in Computer Science*, 3(1-8), 2007.
5. F. van Breugel, C. Hermida, M. Makkai and J. Worrell. Recursively defined metric spaces without contraction. *Theoretical Computer Science*, 380(1-2):143-163, 2007.
6. F. Van Breugel and J. Worrell. Approximating and computing behavioural distances in probabilistic transition systems. *Theoretical Computer Science*, 360(1-3):373-385, 2006.
7. J. Worrell. A note on coalgebras and presheaves. *Mathematical Structures in Computer Science*, 15(3):475-483, Cambridge University Press, 2005.
8. J. Worrell. On the final sequence of a finitary set functor. *Theoretical Computer Science*, 338(1-3):184-199, 2005.
9. F. Van Breugel, M. Mislove, J. Ouaknine and J. Worrell. Domain theory, simulation and testing for labelled Markov processes. *Theoretical Computer Science*, 333(1-2):171-197, 2005.
10. F. Van Breugel and J. Worrell. A behavioural pseudometric for probabilistic transition systems. *Theoretical Computer Science*, 331(1):115-142, 2005.
11. K. Martin, M. Mislove and J. Worrell. Measuring the probabilistic powerdomain. *Theoretical Computer Science*, 312(1):99-119, 2004.
12. J. Ouaknine and J. Worrell. Timed CSP = closed timed ε -automata. *Nordic Journal of Computing*, 10(2):99-133, 2003.
13. P.T. Johnstone, A.J. Power, T. Tsujishita, H. Watanabe and J. Worrell. The structure of categories of coalgebras. *Theoretical Computer Science*, 260(1-2):87-117, Elsevier, 2001.

Refereed Conference Publications

1. P. Bouyer, N. Markey, J. Ouaknine and J. Worrell. On expressiveness and complexity in real-time model checking. In *Proc. of the 35th International Colloquium on Automata, Languages and Programming (ICALP'08), Lecture Notes in Computer Science*, volume 5126, pages 124-135, Springer, 2008.
2. P. Bouyer, N. Markey, J. Ouaknine, Ph. Schnoebelen and J. Worrell. On termination for faulty channel machines. In *Proc. of the 25th International Symposium on Theoretical Aspects of Computer Science (STACS'08)*, 2008.
3. A. Legay, A. Murawski, J. Ouaknine and J. Worrell. On automated verification of probabilistic programs. In *Proc. of the 14th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'08), Lecture Notes in Computer Science*, volume 4963, pages 173-187, Springer, 2008.
4. P. Bouyer, N. Markey, J. Ouaknine and J. Worrell. The cost of punctuality. In *Proc. of the 22nd Annual IEEE Symposium of Logic in Computer Science (LICS'07)*, pages 109-120, IEEE Press, 2007.

5. S. Adams, J. Ouaknine and J. Worrell. Undecidability of universality for timed automata with minimal resources. In *Proc. of Formal Modeling and Analysis of Timed Systems, 5th International Conference (FORMATS'07), Lecture Notes in Computer Science*, volume 4763, pages 25-37, Springer, 2007.
6. P. Abdulla, J. Ouaknine, K. Quaas and J. Worrell. Zone-based universality analysis for single-clock timed automata. In *Proc. of the International Symposium on Fundamentals of Software Engineering, International Symposium (FSEN'07), Lecture Notes in Computer Science*, volume 4767, pages 98-112, Springer, 2007.
7. F. van Breugel, B. Sharma and J. Worrell. Approximating a behavioural pseudometric without discount for probabilistic systems. In *Proc. of the 10th International Conference in the Foundations of Software Science and Computation Structures (FoSSaCS'07), Lecture Notes in Computer Science*, volume 4423, pages 123-137, Springer, 2007.
8. R. Lazic, T. Newcomb, J. Ouaknine, A. W. Roscoe and J. Worrell. Nets with tokens which carry data. In *Proc. of the 28th International Conference on Applications and Theory of Petri Nets and Other Models of Concurrency (ICATPN'07), Lecture Notes in Computer Science*, volume 4546, pages 301-320, Springer, 2007.
9. M. Mislove, D. Pavlovic and J. Worrell. Labelled Markov processes as generalised stochastic relations. In *Computation, Meaning and Logic: Articles dedicated to Gordon Plotkin on his 60th birthday, Electronic Notes in Theoretical Computer Science*, volume 172, pages 459-478, Elsevier, 2007.
10. M. Mislove, D. Pavlovic and J. Worrell. Testing semantics: connecting processes and process logics. In *Proc. of Algebraic Methodology and Software Technology, 11th International Conference, (AMAST'06), Lecture Notes in Computer Science*, volume 4019, pages 308-322, Springer Verlag, 2006.
11. J. Ouaknine and J. Worrell. On metric temporal logic and faulty Turing machines. In *Proc. of the 9th International Conference in the Foundations of Software Science and Computation Structures (FoSSaCS'06), Lecture Notes in Computer Science*, volume 3921, pages 217-230, Springer, 2006.
12. J. Ouaknine and J. Worrell. Safety metric temporal logic is fully decidable. In *Proc. of the 12th International Conference in Tools and Algorithms for the Construction and Analysis of Systems (TACAS'06), Lecture Notes in Computer Science*, volume 3920, pages 411-425, Springer, 2006.
13. F. van Breugel, C. Hermida, M. Makkai and J. Worrell. An accessible approach to behavioural pseudometrics. In *Proc. of the 32nd International Colloquium on Automata, Languages and Programming (ICALP'05), Lecture Notes in Computer Science*, volume 3580, pages 1018-1030, Springer, 2005.
14. P. Abdulla, J. Deneux, J. Ouaknine and J. Worrell. Decidability and complexity results for timed automata via channel systems. In *Proc. of the 32nd International Colloquium on Automata, Languages and Programming (ICALP'05), Lecture Notes in Computer Science*, volume 3580, pages 1089-1101, Springer, 2005.
15. J. Ouaknine and J. Worrell. On the decidability of Metric Temporal Logic. In *Proc. of the 20th Annual IEEE Symposium of Logic in Computer Science (LICS'05)*, pages 188-197, IEEE Press, 2005.
16. J. Ouaknine and J. Worrell. On the language inclusion problem for timed automata: closing a decidability gap. In *Proc. of the 19th Annual IEEE Symposium of Logic in Computer Science (LICS'04)*, pages 54-63, IEEE Press, 2004.
17. M. Mislove, D. Pavlovic, J. Ouaknine and J. Worrell. Duality for labelled Markov processes. In *Proc. of the 7th International Conference in Foundations of Software Science and Computation Structures (FoSSaCS'04), Lecture Notes in Computer Science*, volume 2987, pages 393-407, Springer, 2004.

18. M. Mislove, J. Ouaknine and J. Worrell. Axioms for probability and nondeterminism. In *Proc. of the 10th International Workshop on Expressiveness in Concurrency (EXPRESS'03)*, *Electronic Notes in Theoretical Computer Science*, volume 91(3), pages 7-28, Elsevier, 2003.
19. J. Ouaknine and J. Worrell. Revisiting digitization, robustness and decidability for timed automata. In *Proc. of the 18th Annual IEEE Symposium of Logic in Computer Science (LICS 03)*, pages 198-207, IEEE Press, 2003.
20. F. van Breugel, M. Mislove, J. Ouaknine and J. Worrell. An intrinsic characterization of approximate probabilistic bisimilarity. In *Proc. of Foundations of Software Science and Computation Structures, 6th International Conference, (FoSSaCS 03)*, *Lecture Notes in Computer Science*, volume 2620, pages 200-215, Springer, 2003.
21. J. Ouaknine and J. Worrell. Universality and language inclusion for open and closed timed automata. In *Proc. of the 6th International Workshop on Hybrid Systems: Computation and Control (HSCC 03)*, *Lecture Notes in Computer Science*, volume 2623, pages 375-388, Springer, 2003.
22. J. Ouaknine and J. Worrell. Timed CSP = closed timed automata. In *Proc. of the 9th International Workshop on Expressiveness of Concurrency (EXPRESS 02)*, *Electronic Notes in Theoretical Computer Science*, volume 68(2), Elsevier, 2002.
23. K. Martin, M. Mislove and J. Worrell. Measuring the probabilistic powerdomain. In *Proc. of the 29th International Colloquium on Automata, Languages and Programming (ICALP 02)*, *Lecture Notes in Computer Science*, volume 2380, pages 463-475, Springer, 2002.
24. F. Van Breugel, S. Shalit and J. Worrell. Testing labelled Markov processes. In *Proc. of the 29th International Colloquium on Automata, Languages and Programming (ICALP 02)*, *Lecture Notes in Computer Science*, volume 2380, pages 537-548, Springer, 2002.
25. J. Worrell. On presheaves and coalgebras. In *Proc. of the 5th International Workshop on Coalgebraic Methods in Computer Science (CMCS 02)*, *Electronic Notes in Theoretical Computer Science*, volume 65(1), Elsevier, 2002.
26. F. Van Breugel and J. Worrell. An algorithm for quantitative verification of probabilistic transition systems. In *Proc. of the 12th International Conference on Concurrency Theory (CONCUR 01)*, *Lecture Notes in Computer Science* 2154, pages 336-350, Springer, 2001.
27. F. Van Breugel and J. Worrell. Towards quantitative verification of probabilistic transition systems. In *Proc. of the 28th International Colloquium on Automata, Languages and Programming (ICALP 01)*, *Lecture Notes in Computer Science*, volume 2076, pages 421-432, Springer, 2001.
28. J. Worrell. Coinduction for recursive data types: partial orders, metric spaces and Ω -categories. In *Proc. of the 3rd International Workshop on Coalgebraic Methods in Computer Science (CMCS 00)*, *Electronic Notes in Theoretical Computer Science*, volume 33, Elsevier, 2000.
29. J. Worrell. Terminal sequences for accessible endofunctors. In *Proc. of the 2nd International Workshop on Coalgebraic Methods in Computer Science (CMCS 99)*, *Electronic Notes in Theoretical Computer Science*, volume 19, Elsevier, 1999.
30. P.T. Johnstone, A.J. Power, T. Tsujishita, H. Watanabe and J. Worrell. An axiomatics for categories of transition systems as coalgebras. In *Proc. of the 13th Annual Symposium on Logic in Computer Science (LICS 98)*, pages 207-213, IEEE Press, 1998.
31. J. Worrell. Toposes of coalgebras and hidden algebras. In *Proc. of the 1st International Workshop on Coalgebraic Methods in Computer Science (CMCS 98)*, *Electronic Notes in Theoretical Computer Science*, volume 11, Elsevier, 1998.