Paul William Hunter

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DATE OF BIRTH: 30 September 1978
NATIONALITY: Australian/British

EMPLOYMENT HISTORY

January 2013 – Present:
Currently employed as a postdoctoral researcher in the Département d'Informatique, Université Libre de Bruxelles (ULB) in the *inVEST* project under Jean-François Raskin.

November 2010 – December 2012:
Postdoctoral researcher at the Department of Computer Science, University of Oxford in the *Verification of Real-Time Systems* project under James Worrell.

October 2007 – October 2010:
EPSRC Postdoctoral Research Fellow at the Oxford University Computing Laboratory. My project title was *Notions of width for directed graphs and hypergraphs: Foundations and applications*.

May 2005 – March 2006:
Research Assistant in the Logic and Discrete Systems group at Humboldt-Universität zu Berlin.

December 2000 – February 2001:
Summer Research Scholar in the Research School of Information Sciences and Engineering at the Australian National University, Canberra.

EDUCATION

October 2002 – June 2007:
Completed a PhD in Computer Science at the University of Cambridge. My thesis title was *Complexity and Infinite Games on Finite Graphs*.

February 2001 – September 2002:
Commenced a PhD in Computational Algebra at the University of Sydney, focusing on Class Field Theory and its applications to abelian varieties. Not completed due to successful application to Cambridge in an alternative area.

February 2000 – December 2000:
Completed Bachelor of Science with honours (first class) in Mathematics at the University of Tasmania. The area of my thesis topic was applied algebraic logic. Other subjects studied include: Universal algebra; Languages, automata and intractability; Category theory; and Functional analysis.

February 1997 – December 1999:
Completed Bachelor of Science (majoring in Mathematics and Computer Science) at the University of Tasmania.

ACADEMIC AWARDS AND ACHIEVEMENTS

2007: Awarded an EPSRC Postdoctoral Research Fellowship.

2003: Awarded Elizabeth Cherry scholarship at Hughes Hall, Cambridge.

2002-06: Honourary Fellow of the Cambridge-Australia Trust.

2001: Awarded Australian Postgraduate Award for the University of Sydney.

2000: Awarded a University of Tasmania Medal for outstanding undergraduate results.

2000: Awarded the W J Gerlach Scholarship for Honours in Mathematics.

1997-99: Placed on the Dean's Roll of Excellence 1997,1998, and 1999 for outstanding results.

1997: Shared the Ida Williams Prize for the greatest proficiency in Calculus and Linear Algebra I.

1997: Awarded a Tasmanian National Undergraduate Scholarship (Mathematics).

1996: Placed on the Tom Lord (Chemistry), Lillian Sharp (Mathematics) and Bill Chambers (Physics) honour boards at The Friends' School for Year 12 examination results.

TEACHING EXPERIENCE

Michaelmas 2012 and 2010:
Course lecturer for Models of Computation course at the University of Oxford.

2011-12:
Class tutor for Foundations of Computer Science and Complexity courses at the University of Oxford.

2010 – Present:
Stipendiary lecturer in Computer Science at St John's College, Oxford.

Hilary 2010:
Stipendiary lecturer in Computer Science at Balliol College, Oxford, teaching Linear Algebra, Design and Analysis of Algorithms, Imperative Programming 1, Logic and Proof, and Concurrency.

Hilary 2009:
Non-stipendiary lecturer in Computer Science at St John's College, Oxford, teaching Design and Analysis of Algorithms, Imperative Programming 1, and Logic and Proof.

2008-10:
Non-stipendiary lecturer in Computer Science at Balliol College, teaching Discrete Mathematics, Linear Algebra, Concurrency, and Models of Computation.

Hilary 2008 and Michaelmas 2008:
Class tutor and marker for Randomised Algorithms course at the University of Oxford.

2005:
Stand-in lecturer and supervisor for Logik und Komplexität (Logic and Complexity) course at Humboldt-Universität zu Berlin.

2002-07:
Supervisor for Complexity Theory, Semantics of Programming Languages, and Discrete Mathematics courses at the University of Cambridge.

2001-02:
Supervisor for Linear Algebra and Discrete Mathematics courses at the University of Sydney.

PUBLICATIONS

Paul Hunter, Guillermo A. Pérez and Jean-François Raskin. Mean Payoff Games with Incomplete Information. Submitted to LICS 2014.

Paul Hunter. When is Metric Temporal Logic Expressively Complete?. In *Proceedings of Computer Science Logic (CSL 2013)* pages 380-394, 2013.

Paul Hunter, Joël Ouaknine and James Worrell. Expressive Completeness of Metric Temporal Logic. In *Proceedings of 28th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 2013)*, pages 349-357, 2013.

Dietmar Berwanger, Anuj Dawar, Paul Hunter, Stephan Kreutzer and Jan Obdržalek. The DAG-Width of Directed Graphs. *Journal of Combinatorial Theory, Series B*, 102(4), pages 900-923, 2012.

Archontia Giannopoulou, Paul Hunter and Dimitrios Thilikos. LIFO-search: A min-max theorem and a searching game for cycle-rank and tree-depth. *Discrete Applied Mathematics* 160(15), pages 2089-2097, 2012.

Paul Hunter. LIFO-search on digraphs: A searching game for cycle-rank. In *Proceedings of the 18th International Symposium on Fundamentals of Computation Theory (FCT 2011)*, pages 217-228, 2011.

Anuj Dawar, Florian Horn and Paul Hunter. Complexity Bounds for Muller Games. *Theoretical Computer Science*, 2010. Submitted.

Paul Hunter, Patricia Bouyer, Nicholas Markey, Joël Ouaknine and James Worrell. Computing rational radical sums in uniform TC^0. In *Proceedings of the IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS2010)*, pages 308-316, 2010.

Paul Hunter and Stephan Kreutzer. Digraph Measures: Kelly Decompositions, Games and Orderings. *Theoretical Computer Science*, Vol 399, pages 206–219, 2008.

Paul Hunter. *Complexity and Infinite Games on Finite Graphs*. PhD Thesis, Computer Laboratory, University of Cambridge, 2007.

Paul Hunter and Stephan Kreutzer. Digraph Measures: Kelly Decompositions, Games and Orderings. In *Proceedings of the 18th ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 637-644, 2007.

Dietmar Berwanger, Anuj Dawar, Paul Hunter and Stephan Kreutzer. DAG-Width and Parity Games. In *Proceedings of the 23rd International Symposium on Theoretical Aspects of Computer Science (STACS)*, pages 524-536, 2006.

Paul Hunter and Anuj Dawar. Complexity Bounds for Regular Games. In *Proceedings of the 30th International Symposium on Mathematical Foundations of Computer Science (MFCS)*, pages 495-506, 2005.

INTERESTS

My research interests are primarily centred on the use of mathematical games in theoretical computer science. I am particularly interested in the algorithmic aspects of games that arise naturally in the field of formal verification, and the use of games for investigating the structural and algorithmic properties of graphs.

Outside academia my interests include bushwalking, bridge, badminton and ultimate frisbee. Whilst I enjoy all these activities socially, I also take on bridge and ultimate frisbee competitively. Highlights of my competitive bridge playing include playing for both Oxford and Cambridge Universities, as well as for both the Tasmanian and New South Wales' youth teams. I captained the Tasmanian team in 2000 and reached the Portland Bowl semi-final with Cambridge in 2007. Ultimate frisbee is a friendly yet competitive game, which I have played for several years. Highlights include leading the Cambridge second team to victory in the indoor varsity match in 2007, and winning the outdoor regionals with the first team later that year.

REFERENCES

Professor Anuj Dawar

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Professor James Worrell

Department of Computer Science
University of Oxford
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