

Curriculum Vitae

Peter Michael Sewell

May 8, 2017

Personal Details

Name: Peter Michael Sewell
Department: Computer Laboratory, University of Cambridge
Current Appointment: Professor of Computer Science

Professional History

(At the University of Cambridge Computer Laboratory unless otherwise noted.)

Oct. 2012 – Professor of Computer Science
Jan. 2010 – Dec. 2014 EPSRC Leadership Fellow
Oct. 2008 – Sept. 2012 Reader in Computer Science
Oct. 2005 – Sept. 2008 University Senior Lecturer
Oct. 2004 – Sept. 2005 University Lecturer
Oct. 1999 – Sept. 2007 Royal Society University Research Fellow
1998 – 2008 Director of Studies in Computer Science for Wolfson College
Oct. 1998 – Fellow of Wolfson College, Cambridge.
April 1995 – Sept. 1999 Research Associate. Supported by the EPSRC grants *Action Structures and the Pi Calculus* and *Calculi for Interactive Systems: Theory and Experiment*. Co-author of the latter.
April 1994 – March 1995 Research Associate, half time. Department of Computer Science, University of Edinburgh. Supported by the ESPRIT grant *Concurrency and Functions: Evaluation and Reduction*.
July – Sept. 1989 Software design and coding, Pelican Systems
Jan. – July 1986 Assistant Scientific Officer, UKAEA Culham laboratory
July – Nov. 1985 Validation Assistant, ICL Bracknell

The above University Lecturer, University Senior Lecturer, and Reader positions are analogous to USA Associate Professor positions; the Professor position is analogous to a USA Full Professor position.

Education/Qualifications

Oct. 1990 – March 1995 Ph.D. *The Algebra of Finite State Processes*, Department of Computer Science, University of Edinburgh. Supervised by Professor Robin Milner; examined by Professor Colin Stirling (University of Edinburgh) and Dr David Walker (Oxford University).
Oct. 1989 – Sept. 1990 M.Sc. in Computation, Oxford University.
Oct. 1986 – July 1989 M.A. Hons. (1st), University of Cambridge. Part 2: Electrical and Information Sciences. Part 1B: Natural Sciences (Advanced Physics, Mathematics). Part 1A: Natural Sciences (Physics, Mathematics, Biology of Cells, Crystalline Materials).

Publications

Journal Papers: Refereed (Plasma Physics)

- [1] G. F. Matthews, P. C. Stangeby, and P. M. Sewell. Investigation of the wake due to a large probe, using a spatially scanning Langmuir probe. *J. Nucl. Mater.*, 145–147:220–224, February 1987.
- [2] G. F. Matthews, G. M. McCracken, P. C. Stangeby, C. S. Pitcher, P. M. Sewell, and D. H. J. Goodall. The optimisation of limiter geometry to reduce impurity influx in Tokamaks. *Plasma Physics and Controlled Fusion*, 29(2):189–203, February 1987.
- [3] G. F. Matthews, G. M. McCracken, P. M. Sewell, M. E. Woods, and B. J. Hopkins. The determination of sheath potential from retarding field analyser measurements in Tokamak edge plasmas. *J. Nucl. Mater.*, 145–147:225–230, February 1987.
- [4] M. E. Woods, B. J. Hopkins, G. F. Matthews, G. M. McCracken, P. M. Sewell, and H. Fahrang. An investigation of the secondary-electron emission of carbon samples exposed to a hydrogen plasma. *J. Physics D: Applied Physics*, 20:1136–1142, 1987.

Journal Papers: Refereed (Computer Science)

- [5] Jaroslav Ševčík, Viktor Vafeiadis, Francesco Zappa Nardelli, Suresh Jagannathan, and Peter Sewell. CompCertTSO: A verified compiler for relaxed-memory concurrency. *J. ACM*, 60(3):22:1–22:50, June 2013.
- [6] Jade Alglave, Luc Maranget, Susmit Sarkar, and Peter Sewell. Fences in weak memory models (extended version). *Formal Methods in System Design*, 40(2):170–205, April 2012.
- [7] Peter Sewell, Paweł Wojciechowski, and Asis Unyapoth. Nomadic Pict: Programming languages, communication infrastructure overlays, and semantics for mobile computation. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 32(4):1–63 (and electronic appendix, 33pp), 2010.
- [8] Peter Sewell, Susmit Sarkar, Scott Owens, Francesco Zappa Nardelli, and Magnus O. Myreen. x86-TSO: A rigorous and usable programmer’s model for x86 multiprocessors. *Communications of the ACM*, 53(7):89–97, July 2010. (Research Highlights).
- [9] Peter Sewell, Francesco Zappa Nardelli, Scott Owens, Gilles Peskine, Thomas Ridge, Susmit Sarkar, and Rok Strniša. Ott: Effective tool support for the working semanticist. *Journal of Functional Programming*, 20(1):70–122, January 2010. Invited submission from ICFP 2007.
- [10] Peter Sewell, Gareth Stoye, Michael Hicks, Gavin Bierman, and Keith Wansbrough. Dynamic rebinding for marshalling and update, via redex-time and destruct-time reduction. *Journal of Functional Programming*, 18(4):437–502, 2008.
- [11] Peter Sewell, James J. Leifer, Keith Wansbrough, Francesco Zappa Nardelli, Mair Allen-Williams, Pierre Habouzit, and Viktor Vafeiadis. Acute: High-level programming language design for distributed computation. *Journal of Functional Programming*, 17(4–5):547–612, July 2007. Invited submission for an ICFP 2005 special issue.
- [12] Gareth Stoye, Michael Hicks, Gavin Bierman, Peter Sewell, and Iulian Neamtii. Mutatis mutandis: Safe and predictable dynamic software updating. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 29(4):70pp, 2007.
- [13] Andrei Serjantov and Peter Sewell. Passive-attack analysis for connection-based anonymity systems. *International Journal of Information Security*, 4(3):172–180, June 2005.
- [14] Gian Luca Cattani and Peter Sewell. Models for name-passing processes: Interleaving and causal. *Information and Computation*, 190(2):136–178, May 2004.

- [15] Peter Sewell and Jan Vitek. Secure composition of untrusted code: Box- π , wrappers and causality types. *Journal of Computer Security*, 11(2):135–188, 2003. Invited submission for a CSFW 00 special issue.
- [16] Paweł T. Wojciechowski and Peter Sewell. Nomadic Pict: Language and infrastructure design for mobile agents. *IEEE Concurrency*, 8(2):42–52, April–June 2000. Invited submission for ASA/MA 99.
- [17] Peter Sewell. From rewrite rules to bisimulation congruences. *Theoretical Computer Science*, 274(1–2):183–230, March 2002. Invited submission for a CONCUR 98 special issue.
- [18] Peter Sewell. Nonaxiomatisability of equivalences over finite state processes. *Annals of Pure and Applied Logic*, 90:163–191, December 1997. Invited submission from LICS '94.

Conference Papers: Refereed

- [19] Shaked Flur, Susmit Sarkar, Christopher Pulte, Kyndylan Nienhuis, Luc Maranget, Kathryn E. Gray, Ali Sezgin, Mark Batty, and Peter Sewell. Mixed-size concurrency: ARM, POWER, C/C++11, and SC. In *POPL 2017: The 44th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, Paris, France, January 2017*.
- [20] Stephen Kell, Dominic P. Mulligan, and Peter Sewell. The missing link: explaining ELF static linking, semantically. In *OOPSLA 2016: Proceedings of the ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications, New York, NY, USA, November 2016*. ACM.
- [21] Kyndylan Nienhuis, Kayvan Memarian, and Peter Sewell. An operational semantics for C/C++11 concurrency. In *OOPSLA 2016: Proceedings of the ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications, New York, NY, USA, November 2016*. ACM.
- [22] Kayvan Memarian, Justus Matthiesen, James Lingard, Kyndylan Nienhuis, David Chisnall, Robert N.M. Watson, and Peter Sewell. Into the depths of C: elaborating the de facto standards. In *PLDI 2016: 37th annual ACM SIGPLAN conference on Programming Language Design and Implementation (Santa Barbara), June 2016*. PLDI 2016 Distinguished Paper award.
- [23] Shaked Flur, Kathryn E. Gray, Christopher Pulte, Susmit Sarkar, Ali Sezgin, Luc Maranget, Will Deacon, and Peter Sewell. Modelling the ARMv8 architecture, operationally: Concurrency and ISA. In *Proceedings of POPL: the 43rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, 2016*.
- [24] Jean Pichon-Pharabod and Peter Sewell. A concurrency semantics for relaxed atomics that permits optimisation and avoids thin-air executions. In *POPL 2016: Proceedings of the 43rd Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, St. Petersburg, FL, USA, January 20 - 22, 2016*, pages 622–633, January 2016.
- [25] Kathryn E. Gray, Gabriel Kerneis, Dominic Mulligan, Christopher Pulte, Susmit Sarkar, and Peter Sewell. An integrated concurrency and core-ISA architectural envelope definition, and test oracle, for IBM POWER multiprocessors. In *Proc. MICRO-48, the 48th Annual IEEE/ACM International Symposium on Microarchitecture*, December 2015.
- [26] Tom Ridge, David Sheets, Thomas Tuerk, Andrea Giugliano, Anil Madhavapeddy, and Peter Sewell. SibylFS: formal specification and oracle-based testing for POSIX and real-world file systems. In *SOSP 2015: Proceedings of the 25th Symposium on Operating Systems Principles, Monterey, CA, USA, pages 38–53, October 2015*.
- [27] Mark Batty, Kayvan Memarian, Kyndylan Nienhuis, Jean Pichon-Pharabod, and Peter Sewell. The problem of programming language concurrency semantics. In *ESOP 2015: Programming Languages and Systems - 24th European Symposium on Programming, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2015, London, UK, April 11-18, 2015.*, pages 283–307, April 2015.

- [28] David Kaloper-Mersinjak, Hannes Mehnert, Anil Madhavapeddy, and Peter Sewell. Not-quite-so-broken TLS: lessons in re-engineering a security protocol specification and implementation. In *USENIX Security 2015: 24th USENIX Security Symposium, Washington, D.C., USA*, pages 223–238, August 2015.
- [29] Dominic P. Mulligan, Scott Owens, Kathryn E. Gray, Tom Ridge, and Peter Sewell. Lem: reusable engineering of real-world semantics. In *Proceedings of ICFP 2014: the 19th ACM SIGPLAN International Conference on Functional Programming*, pages 175–188, 2014.
- [30] Sela Mador-Haim, Luc Maranget, Susmit Sarkar, Kayvan Memarian, Jade Alglave, Scott Owens, Rajeev Alur, Milo M. K. Martin, Peter Sewell, and Derek Williams. An axiomatic memory model for POWER multiprocessors. In *Proceedings of CAV 2012: the 24th International Conference on Computer Aided Verification*, pages 495–512, 2012.
- [31] Susmit Sarkar, Kayvan Memarian, Scott Owens, Mark Batty, Peter Sewell, Luc Maranget, Jade Alglave, and Derek Williams. Synchronising C/C++ and POWER. In *Proceedings of PLDI 2012, the 33rd ACM SIGPLAN conference on Programming Language Design and Implementation (Beijing)*, pages 311–322, 2012.
- [32] Mark Batty, Kayvan Memarian, Scott Owens, Susmit Sarkar, and Peter Sewell. Clarifying and Compiling C/C++ Concurrency: from C++11 to POWER. In *Proceedings of POPL 2012: The 39th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (Philadelphia)*, pages 509–520, 2012.
- [33] Scott Owens, Peter Böhm, Francesco Zappa Nardelli, and Peter Sewell. Lem: A lightweight tool for heavyweight semantics. In *Proceedings of ITP 2011: Interactive Theorem Proving – Second International Conference (previously TPHOLs) (Berg en Dal), LNCS 6898*, pages 363–369, 2011. (Rough Diamond) 7pp.
- [34] Susmit Sarkar, Peter Sewell, Jade Alglave, Luc Maranget, and Derek Williams. Understanding POWER multiprocessors. In *Proceedings of PLDI 2011: the 32nd ACM SIGPLAN conference on Programming Language Design and Implementation*, pages 175–186, 2011.
- [35] Jade Alglave, Luc Maranget, Susmit Sarkar, and Peter Sewell. Litmus: running tests against hardware. In *Proceedings of TACAS 2011: the 17th international conference on Tools and Algorithms for the Construction and Analysis of Systems*, pages 41–44, Berlin, Heidelberg, 2011. Springer-Verlag.
- [36] Jaroslav Ševčík, Viktor Vafeiadis, Francesco Zappa Nardelli, Suresh Jagannathan, and Peter Sewell. Relaxed-memory concurrency and verified compilation. In *Proceedings of POPL 2011: the 38th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, pages 43–54, 2011.
- [37] Mark Batty, Scott Owens, Susmit Sarkar, Peter Sewell, and Tjark Weber. Mathematizing C++ concurrency. In *Proceedings of POPL 2011: the 38th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, pages 55–66, 2011.
- [38] Jade Alglave, Luc Maranget, Susmit Sarkar, and Peter Sewell. Fences in weak memory models. In *Proceedings of CAV 2010: the 22nd International Conference on Computer Aided Verification, LNCS 6174*, pages 258–272, 2010.
- [39] Scott Owens, Susmit Sarkar, and Peter Sewell. A better x86 memory model: x86-TSO. In *Proceedings of TPHOLs 2009: Theorem Proving in Higher Order Logics, LNCS 5674*, pages 391–407, 2009.
- [40] Jade Alglave, Anthony Fox, Samin Ishtiaq, Magnus O. Myreen, Susmit Sarkar, Peter Sewell, and Francesco Zappa Nardelli. The semantics of Power and ARM multiprocessor machine code. In *Proceedings of DAMP 2009: the 4th Workshop on Declarative Aspects of Multicore Programming*, New York, NY, USA, January 2009. ACM. 553091.
- [41] Susmit Sarkar, Peter Sewell, Francesco Zappa Nardelli, Scott Owens, Tom Ridge, Thomas Braibant, Magnus Myreen, and Jade Alglave. The semantics of x86-CC multiprocessor machine code. In *Proceedings of POPL 2009: the 36th annual ACM SIGPLAN-SIGACT symposium on Principles of Programming Languages*, pages 379–391, January 2009.

- [42] Tom Ridge, Michael Norrish, and Peter Sewell. A rigorous approach to networking: TCP, from implementation to protocol to service. In *Proceedings of FM 2008: the 15th International Symposium on Formal Methods (Turku, Finland)*, LNCS 5014, pages 294–309, May 2008.
- [43] Peter Sewell, Francesco Zappa Nardelli, Scott Owens, Gilles Peskine, Thomas Ridge, Susmit Sarkar, and Rok Strniša. Ott: Effective tool support for the working semanticist. In *Proceedings of ICFP 2007: the 12th ACM SIGPLAN International Conference on Functional Programming (Freiburg)*, pages 1–12, October 2007.
- [44] Rok Strniša, Peter Sewell, and Matthew Parkinson. The Java Module System: core design and semantic definition. In *Proceedings of OOPSLA 2007, the 22nd ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages and Applications (Montreal)*, pages 499–514, October 2007.
- [45] Adam Biltcliffe, Michael Dales, Sam Jansen, Thomas Ridge, and Peter Sewell. Rigorous protocol design in practice: An optical packet-switch MAC in HOL. In *Proceedings of ICNP 2006: the 14th IEEE International Conference on Network Protocols (Santa Barbara)*, pages 117–126, November 2006.
- [46] John Billings, Peter Sewell, Mark Shinwell, and Rok Strniša. Type-safe distributed programming for OCaml. In *Proceedings of ML 2006: the 2006 ACM SIGPLAN Workshop on ML*, pages 20–31, September 2006.
- [47] Brian E. Aydemir, Aaron Bohannon, Matthew Fairbairn, J. Nathan Foster, Benjamin C. Pierce, Peter Sewell, Dimitrios Vytiniotis, Geoffrey Washburn, Stephanie Weirich, and Steve Zdancewic. Mechanized metatheory for the masses: The POPLmark Challenge. In *Proceedings of TPHOLs 2005: the 18th International Conference on Theorem Proving in Higher Order Logics (Oxford)*, LNCS 3603, pages 50–65, August 2005.
- [48] Steven Bishop, Matthew Fairbairn, Michael Norrish, Peter Sewell, Michael Smith, and Keith Wansbrough. Engineering with logic: HOL specification and symbolic-evaluation testing for TCP implementations. In *Proceedings of POPL 2006: The 33rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (Charleston)*, pages 55–66, January 2006.
- [49] Steven Bishop, Matthew Fairbairn, Michael Norrish, Peter Sewell, Michael Smith, and Keith Wansbrough. Rigorous specification and conformance testing techniques for network protocols, as applied to TCP, UDP, and Sockets. In *Proceedings of SIGCOMM 2005: the ACM Conference on Computer Communications (Philadelphia)*, published as Vol. 35, No. 4 of *Computer Communication Review*, pages 265–276, August 2005.
- [50] Gareth Stoye, Michael Hicks, Gavin Bierman, Peter Sewell, and Iulian Neamtiu. *Mutatis Mutandis*: Safe and predictable dynamic software updating. In *Proceedings of POPL 2005: The 32nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (Long Beach)*, pages 183–194, January 2005.
- [51] Peter Sewell, James J. Leifer, Keith Wansbrough, Francesco Zappa Nardelli, Mair Allen-Williams, Pierre Habouzit, and Viktor Vafeiadis. Acute: High-level programming language design for distributed computation. In *Proceedings of ICFP 2005: the 10th ACM SIGPLAN International Conference on Functional Programming (Tallinn)*, pages 15–26, September 2005.
- [52] Moritz Y. Becker and Peter Sewell. Cassandra: Distributed access control policies with tunable expressiveness. In *Proceedings of POLICY 2004: the 5th IEEE International Workshop on Policies for Distributed Systems and Networks (Yorktown Heights)*, June 2004.
- [53] Moritz Y. Becker and Peter Sewell. Cassandra: Flexible trust management, applied to electronic health records. In *Proceedings of CSFW 2004: the 17th IEEE Computer Security Foundations Workshop (Asilomar)*, pages 139–154, June 2004.
- [54] Andrei Serjantov and Peter Sewell. Passive attack analysis for connection-based anonymity systems. In *Proceedings of ESORICS 2003: the 8th European Symposium on Research in Computer Security (Gjøvik)*, LNCS 2808, pages 116–131, October 2003.

- [55] James Leifer, Gilles Peskine, Peter Sewell, and Keith Wansbrough. Global abstraction-safe marshalling with hash types. In *Proceedings of ICFP 2003: the 8th ACM SIGPLAN International Conference on Functional Programming (Uppsala)*, pages 87–98, August 2003.
- [56] Gavin Bierman, Michael Hicks, Peter Sewell, Gareth Stoye, and Keith Wansbrough. Dynamic rebinding for marshalling and update, with destruct-time lambda. In *Proceedings of ICFP 2003: the 8th ACM SIGPLAN International Conference on Functional Programming (Uppsala)*, pages 99–110, August 2003.
- [57] Gavin Bierman, Michael Hicks, Peter Sewell, and Gareth Stoye. Formalizing dynamic software updating. In *Proceedings of USE 2003: the Second International Workshop on Unanticipated Software Evolution (Warsaw), in conjunction with ETAPS*, April 2003. 17pp.
- [58] Michael Norrish, Peter Sewell, and Keith Wansbrough. Rigour is good for you, and feasible: reflections on formal treatments of C and UDP sockets. In *Proceedings of the 10th ACM SIGOPS European Workshop (Saint-Emilion)*, pages 49–53, September 2002.
- [59] Keith Wansbrough, Michael Norrish, Peter Sewell, and Andrei Serjantov. Timing UDP: mechanized semantics for sockets, threads and failures. In *Proceedings of ESOP 2002: the 11th European Symposium on Programming (Grenoble)*, LNCS 2305, pages 278–294, April 2002.
- [60] Andrei Serjantov, Peter Sewell, and Keith Wansbrough. The UDP calculus: Rigorous semantics for real networking. In *Proceedings of TACS 2001: Theoretical Aspects of Computer Software (Sendai)*, LNCS 2215, pages 535–559, October 2001.
- [61] Peter Sewell. Modules, abstract types, and distributed versioning. In *Proceedings of POPL 2001: The 28th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (London)*, pages 236–247, January 2001.
- [62] Gian Luca Cattani and Peter Sewell. Models for name-passing processes: Interleaving and causal (extended abstract). In *Proceedings of LICS 2000: the 15th IEEE Symposium on Logic in Computer Science (Santa Barbara)*, pages 322–333, June 2000.
- [63] Peter Sewell and Jan Vitek. Secure composition of untrusted code: Wrappers and causality types. In *Proceedings of CSFW 2000: the 13th IEEE Computer Security Foundations Workshop (Cambridge)*, pages 269–284. IEEE Computer Society, July 2000.
- [64] Peter Sewell and Jan Vitek. Secure composition of insecure components. In *Proceedings of CSFW 1999: the 12th IEEE Computer Security Foundations Workshop (Mordano)*, pages 136–150. IEEE Computer Society, June 1999.
- [65] Asis Unyapoth and Peter Sewell. Nomadic Pict: Correct communication infrastructure for mobile computation. In *Proceedings of POPL 2001: The 28th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (London)*, pages 116–127, January 2001.
- [66] Paweł T. Wojciechowski and Peter Sewell. Nomadic Pict: Language and infrastructure design for mobile agents. In *Proceedings of ASA/MA 1999: Agent Systems and Applications/Mobile Agents (Palm Springs)*, pages 2–12, October 1999. Best paper award.
- [67] Peter Sewell, Paweł T. Wojciechowski, and Benjamin C. Pierce. Location independence for mobile agents. In *Proceedings of IFL 1998: the Workshop on Internet Programming Languages (Chicago), in conjunction with ICCL*, May 1998. 6pp.
- [68] Peter Sewell. From rewrite rules to bisimulation congruences. In *Proceedings of CONCUR 1998: Concurrency Theory (Nice)*. LNCS 1466, pages 269–284. Springer-Verlag, September 1998.
- [69] Peter Sewell. Global/local subtyping and capability inference for a distributed π -calculus. In *Proceedings of ICALP 1998: the 25th International Colloquium on Automata, Languages and Programming (Aalborg)*. LNCS 1443, pages 695–706. Springer-Verlag, July 1998.
- [70] Peter Sewell. On implementations and semantics of a concurrent programming language. In *Proceedings of CONCUR 1997: Concurrency Theory (Warsaw)*. LNCS 1243, pages 391–405. Springer-Verlag, July 1997.

- [71] Peter Sewell. Design rules and abstractions (from branching and real time). In S. Singh and M. Sheeran, editors, *Proceedings of DCC96: the 3rd Workshop on Designing Correct Circuits (Båstad, Sweden)*, Electronic Workshops in Computing. Springer-Verlag, September 1996. ISBN 3-540-76102-0.
- [72] Peter M. Sewell. Bisimulation is not finitely (first-order) equationally axiomatisable. In *Proceedings of LICS 1994: the 9th IEEE Symposium on Logic in Computer Science (Paris)*, pages 62-70. IEEE, July 1994.

Book Chapters

- [73] Peter Sewell. Chapter 9, Pi Calculus, in the book *Formal Methods for Distributed Processing, A Survey of Object Oriented Approaches*, edited by Howard Bowman and John Derrick, December 2001.
- [74] Peter Sewell, Paweł T. Wojciechowski, and Benjamin C. Pierce. Location-independent communication for mobile agents: a two-level architecture. In *Internet Programming Languages, LNCS 1686*, pages 1-31. Springer-Verlag, October 1999.

PhD Thesis

- [75] Peter Michael Sewell. *The Algebra of Finite State Processes*. PhD thesis, University of Edinburgh, October 1995. Dept. of Computer Science technical report CST-118-95, also published as LFCS-95-328.

ISO C/C++ Committee Papers

- [76] Kayvan Memarian and Peter Sewell. Clarifying trap representations (draft defect report or proposal for C2x). ISO SC22 WG14 N2091, September 2016.
- [77] Kayvan Memarian and Peter Sewell. Clarifying pointer provenance (draft defect report or proposal for C2x). ISO SC22 WG14 N2090, September 2016.
- [78] Kayvan Memarian and Peter Sewell. Clarifying unspecified values (draft defect report or proposal for C2x). ISO SC22 WG14 N2089, September 2016.
- [79] Kayvan Memarian and Peter Sewell. What is C in practice? (Cerberus survey v2): Analysis of responses – with comments. ISO SC22 WG14 N2015, <http://www.cl.cam.ac.uk/~pes20/cerberus/analysis-2016-02-05-anon.txt>, March 2016.
- [80] Kayvan Memarian and Peter Sewell. What is C in practice? (Cerberus survey v2): Analysis of responses. ISO SC22 WG14 N2014, <http://www.cl.cam.ac.uk/~pes20/cerberus/notes50-survey-discussion.html>, March 2016.
- [81] David Chisnall, Justus Matthiesen, Kayvan Memarian, Kyndylan Nienhuis, Peter Sewell, and Robert N. M. Watson. C memory object and value semantics: the space of de facto and ISO standards. ISO SC22 WG14 N2013, <http://www.cl.cam.ac.uk/~pes20/cerberus/notes30.pdf>, March 2016.
- [82] Kayvan Memarian and Peter Sewell. Clarifying the C memory object model. ISO SC22 WG14 N2012, <http://www.cl.cam.ac.uk/~pes20/cerberus/notes64-wg14.html>, March 2016.
- [83] P. McKenney, M. Batty, C. Nelson, H. Boehm, A. Williams, S. Owens, S. Sarkar, P. Sewell, T. Weber, M. Wong, L. Crowl, and B. Kosnik. N3196: Omnibus memory model and atomics paper. ISO JTC1/SC22/WG21 - The C++ Standards Committee. Working Paper, November 2010.
- [84] M. Batty, S. Owens, S. Sarkar, P. Sewell, and T. Weber. N3132: Mathematizing C++ Concurrency: The Post-Rapperswil Model. ISO JTC1/SC22/WG21 - The C++ Standards Committee. Working Paper, August 2010.

- [85] P. McKenney, M. Batty, C. Nelson, H. Boehm, A. Williams, S. Owens, S. Sarkar, P. Sewell, T. Weber, M. Wong, and L. Crowl. N3125: Omnibus memory model and atomics paper. ISO JTC1/SC22/WG21 - The C++ Standards Committee. Working Paper, August 2010.

Invited Talk Abstracts and Position Papers

- [86] Peter Sewell. POPL 2014 program chair's report. *SIGPLAN Notices*, 49(4):10–26, July 2014.
- [87] Derek Dreyer, John Field, Roberto Giacobazzi, Michael Hicks, Suresh Jagannathan, Mooly Sagiv, Peter Sewell, and Phil Wadler. Principles of POPL. *SIGPLAN Notices*, 48(4S):12–16, July 2013.
- [88] Peter Sewell. False concurrency and strange-but-true machines. In *Proceedings of CONCUR 2012: the 23rd International Conference on Concurrency Theory*, pages 37–38, Berlin, Heidelberg, 2012. Springer-Verlag.
- [89] Peter Sewell. Tales from the jungle. In *Proceedings of ICFP 2012: the 17th ACM SIGPLAN International Conference on Functional Programming*, pages 271–272, New York, NY, USA, 2012. ACM.
- [90] Hans-Juergen Boehm, Ursula Goltz, Holger Hermanns, and Peter Sewell. Multi-core memory models and concurrency theory (Dagstuhl seminar 11011). *Dagstuhl Reports*, 1(1):1–26, 2011.
- [91] Andrew D. Gordon, Robert Harper, John Harrison, Alan Jeffrey, and Peter Sewell. Robin Milner 1934–2010: verification, languages, and concurrency. In *Proceedings of POPL 2011: the 38th annual ACM SIGPLAN-SIGACT symposium on Principles of Programming Languages*, pages 473–474, 2011.
- [92] Peter Sewell. Memory, an elusive abstraction. In *Proceedings of ISMM 2010: the International Symposium on Memory Management*, pages 51–52, New York, NY, USA, 2010. ACM.
- [93] Stephanie Weirich, Scott Owens, Peter Sewell, and Francesco Zappa Nardelli. Ott or Nott. In *Proceedings of the 5th ACM SIGPLAN Workshop on Mechanizing Metatheory*, September 2010. 2pp.
- [94] Peter Sewell. Multiprocessor architectures don't really exist (but they should). In *Proceedings of MTV 2010: the 10th International Workshop on Microprocessor Test and Verification (MTV)*, Austin, Texas, page 2, 2009. Invited session on Verification issues for multi-core systems.
- [95] Peter Sewell and Paweł Wojciechowski. Verifying overlay networks for relocatable computations (or: Nomadic Pict, relocated). In *Proceedings of the workshop on The Rise and Rise of the Declarative Datacentre, Microsoft Research Technical Report MSR-TR-2008-61*, pages 43–46, May 2008.
- [96] Francesco Zappa Nardelli, Peter Sewell, Jaroslav Ševčík, Susmit Sarkar, Scott Owens, Luc Maranget, Mark Batty, and Jade Alglave. Relaxed memory models must be rigorous. In *Proceedings of EC2: Exploiting Concurrency Efficiently and Correctly (CAV 2009 Workshop) (Grenoble, France)*, page 4pp, June 2009. <http://www.cs.utah.edu/ec2/>.
- [97] Susmit Sarkar, Peter Sewell, and Francesco Zappa Nardelli. Specifying real-world binding structures. In *Proceedings of the 2nd Informal ACM SIGPLAN Workshop on Mechanizing Metatheory (Freiburg), in conjunction with ICFP*, October 2007. 1pp.
- [98] Peter Sewell. Process calculi: The end of the beginning? (from thought experiments to experimental semantics). *Electr. Notes Theor. Comput. Sci.*, 162:317–321, 2006.
- [99] Benjamin C. Pierce, Peter Sewell, Stephanie Weirich, and Steve Zdancewic. It is time to mechanize programming language metatheory. In *Verified Software: Theories, Tools, Experiments (Zürich)*, October 2005. 5pp.
- [100] James Leifer, Michael Norrish, Peter Sewell, and Keith Wansbrough. Acute and TCP: specifying and developing abstractions for global computation. In *Proceedings of the APPSEM II Workshop (Tallinn)*, April 2004. 2pp.
- [101] Peter Sewell and Keith Wansbrough. Applied semantics: Specifying and developing abstractions for distributed computation (grand challenge discussion paper – GC2, GC4, and GC6). Position paper for Grand Challenge meeting (Newcastle). 5pp, 2004.

Technical Reports

- [102] Scott Owens, Susmit Sarkar, and Peter Sewell. A better x86 memory model: x86-TSO (extended version). Technical Report UCAM-CL-TR-745, University of Cambridge, Computer Laboratory, March 2009. 52pp.
- [103] Thomas Ridge, Michael Norrish, and Peter Sewell. TCP, UDP, and Sockets: Volume 3: The Service-level Specification. Technical Report UCAM-CL-TR-742, University of Cambridge, Computer Laboratory, February 2009. 305pp.
- [104] Steven Bishop, Matthew Fairbairn, Michael Norrish, Peter Sewell, Michael Smith, and Keith Wansbrough. TCP, UDP, and Sockets: rigorous and experimentally-validated behavioural specification. Volume 1: Overview. Technical Report UCAM-CL-TR-624, Computer Laboratory, University of Cambridge, March 2005. 88pp.
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- [107] Gavin Bierman, Michael Hicks, Peter Sewell, Gareth Stoye, and Keith Wansbrough. Dynamic rebinding for marshalling and update, with destruct-time λ . Technical Report UCAM-CL-TR-568, University of Cambridge Computer Laboratory, February 2004. 85pp.
- [108] James Leifer, Gilles Peskine, Peter Sewell, and Keith Wansbrough. Global abstraction-safe marshalling with hash types. Technical Report UCAM-CL-TR-569, University of Cambridge Computer Laboratory, June 2003. Also published as INRIA Rocquencourt report RR-4851. 86pp.
- [109] G. M. Bierman and P. Sewell. Iota: A concurrent XML scripting language with applications to home area networking. Technical Report UCAM-CL-TR-557, Computer Laboratory, University of Cambridge, January 2003. 32pp.
- [110] Andrei Serjantov, Peter Sewell, and Keith Wansbrough. The UDP calculus: Rigorous semantics for real networking. Technical Report UCAM-CL-TR-515, Computer Laboratory, University of Cambridge, July 2001. iv+70pp.
- [111] Peter Sewell. Modules, abstract types, and distributed versioning. Technical Report UCAM-CL-TR-506, University of Cambridge, September 2000. 46pp.
- [112] Gian Luca Cattani and Peter Sewell. Models for name-passing processes: Interleaving and causal. Technical Report UCAM-CL-TR-505, Computer Laboratory, University of Cambridge, September 2000. 42pp.
- [113] Peter Sewell. Applied π – a brief tutorial. Technical Report UCAM-CL-TR-498, Computer Laboratory, University of Cambridge, August 2000. 65pp.
- [114] Peter Sewell and Jan Vitek. Secure composition of untrusted code: Wrappers and causality types. Technical Report UCAM-CL-TR-478, Computer Laboratory, University of Cambridge, November 1999. 36pp.
- [115] Peter Sewell and Jan Vitek. Secure composition of insecure components. Technical Report UCAM-CL-TR-463, Computer Laboratory, University of Cambridge, April 1999. 44pp.
- [116] Peter Sewell, Paweł T. Wojciechowski, and Benjamin C. Pierce. Location-independent communication for mobile agents: a two-level architecture. Technical Report UCAM-CL-TR-462, Computer Laboratory, University of Cambridge, April 1999. 31pp.

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- [118] Peter Sewell. Global/local subtyping for a distributed π -calculus. Technical Report UCAM-CL-TR-435, Computer Laboratory, University of Cambridge, August 1997. 57pp.

Software

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Grants

I am currently PI for three research grants:

Mar. 2013 – Feb. 2019 *REMS: Rigorous Engineering for Mainstream Systems*, EPSRC Programme Grant (EP/K008528/1), with Imperial College and Edinburgh, 6 years, £ 5 575 635.

Oct. 2014 – Mar. 2018 ARM Architectural Semantics, EPSRC/ARM Industrial CASE PhD studentship, 3.5 years, ARM funding £30 000 + EPSRC student maintenance.

Apr. 2017 IBM Faculty Award, \$40 000

Previous funding:

Mar. 2016 – Feb. 2017 ARM Architectural Semantics Engineering, EPSRC IAA KTF (Impact Acceleration Account Knowledge Transfer Fellowship, partially supporting Kathryn E. Gray and Shaked Flur). £51 276

Jan. 2010 – Dec. 2014 *Semantic Foundations for Real-World Systems*. EPSRC Leadership Fellowship (EP/H005633/1), 5 years, £1 522 106.

Oct. 1999 – Sept. 2007 *Foundations of Distributed Programming: Wide-Area Systems and Semantics*. Royal Society University Research Fellowship. £264 515.

2008 – 2012 *Reasoning with Relaxed Memory Models* (PI). EPSRC responsive-mode grant EP/F036345/1. Co-Investigators Dr Kier Fraser and Dr Matthew Parkinson. £813 748.

- Oct. 2007 – Sept. 2010 *Applied Metarouting Project*. Tim Griffin (PI), Peter Sewell (CI). EPSRC responsive-mode grant EP/F002718. £404 009.
- May 2005 – Nov. 2008 *NETSEM: Rigorous Semantics for Real Systems*. Peter Sewell (PI), Keith Wansbrough (CI), Richard Gibbens (CI). EPSRC responsive-mode grant EP/C510712. £282 163.
- Jan. 2005 – June 2008 *Naming, Distribution, and Versioning: Programming Language Design and Implementation*. Peter Sewell (PI), Andrew Pitts (CI), Keith Wansbrough. EPSRC responsive-mode grant GR/T11715. £290 010.
- Jan. 2002 – April 2005 *PEPITO: Peer-to-peer implementation and theory*. IST-2001-33234. This was a 6-site EC project, for which I was Cambridge site leader and Workpackage 1 manager. €1 771 000 EC contribution (£180 060 at the Cambridge site).
- Oct. 2000 – Sept. 2003 *Wide-area programming: Language, Semantics and Infrastructure Design*. EPSRC responsive-mode grant GR/N24872. Peter Sewell (PI), Robin Milner (CI), James Leifer (co-author). £190 814.
- July 1998 – June 2001 *Calculi for Interactive Systems: Theory and Experiment*. Philippa Gardner (CI), Robin Milner (PI), Peter Sewell (co-author). EPSRC responsive-mode grant GR/L62290. £279 899.

In addition, I was Cambridge site leader for:

Jan. 2003 – Dec. 2005 *APPSEM II: Applied Semantics II working group*. IST-2001-38957.

and I was the Cambridge technical contact for the ESPRIT CONFER-2 working group.

Research Staff

The following have been funded as Senior Research Associates, Research Associates or Research Assistants from the grants that I have held as Principal Investigator:

- Thomas Bauereiss (2017–)
- Alasdair Armstrong (2017–)
- Jon French (2016–)
- Robert Norton-Wright (2015–)
- Victor Gomes (2016–)
- Hannes Mehnert (2015–)
- Anthony Fox (2014–)
- Mike Roe (2015–)
- Ali Sezgin (2013–2016)
- Stephen Kell (2013–)
- Ohad Kammar (Jul. 2013–Feb. 2014)
- Thomas Tuerk (2013)
- Dominic Mulligan (2012–)
- Kathryn Gray (2012–2017)
- Gabriel Kerneis (2012–2014)
- Peter Boehm (2011)
- Mike Dodds (2011–2012)
- Jaroslav Ševčík (2009–2011)
- Viktor Vafeiadis (2009–2010)
- Rok Strniša (Oct.–Nov. 2008)
- Susmit Sarkar (2007–2010)
- Gilles Peskine (2007–2008)
- Scott Owens (2006–)
- Tom Ridge (2005–2008)
- Mark Shinwell (2005–2006)

- Gareth Stoyale (Oct. 2004–Feb. 2005)
- Matthew Parkinson (Oct. 2004–Feb. 2005)
- Matthew Fairbairn (2003–04)
- Mair Allen-Williams (2003–04)
- Michael Norrish (Oct–Nov 2002)
- Steven Bishop (2002–04)
- Keith Wansbrough (2000–03)
- Paweł Wojciechowski (2000–01)

PhD Student Supervision

- Conrad Watt, 2016–
- Mark Wassell, 2016–
- David Kaloper-Mersinjak, 2015–. (Jointly supervised with Anil Madhavapeddy)
- Christopher Pulte. 2014–.
- Shaked Flur. 2013–.
- Kyndylan Nienhuis. 2013–
- Jean Pichon-Pharabod. 2013–
- Justus Matthiesen. 2012–. Now principally supervised by Prof. Andrew Pitts
- Kayvan Memarian. 2011–.
- Mark Batty. 2009–2014. *The C11 and C++11 Concurrency Model*. Winner of the 2015 SIGPLAN John C. Reynolds Doctoral Dissertation award and the 2015 CPHC/BCS Distinguished Dissertation Competition.
- Rok Strniša. 2006–2010. *Formalising, improving, and reusing the Java Module System*. Jointly supervised with Matthew Parkinson.
- John Billings. 2006–2009. Switched supervisor to work with Dr Tim Griffin, on *Specifying and compiling Internet routing protocols*.
- Moritz Becker. 2001–2005. *Distributed trust management, applied to electronic health records*.
- Gareth Stoyale. 2001–2006. *Dynamic Software Updating*. Jointly supervised with Dr Gavin Bierman.
- Andrei Serjantov. 2000–2004. *On the Anonymity of Anonymity Systems*.
- Asis Unyapoth. 1996–2001. *Nomadic Pi Calculi: Expressing and Verifying Infrastructure for Mobile Computation*.
- Paweł Wojciechowski. 1995–2000. *Nomadic Pict: Language and Infrastructure Design for Mobile Computation*. Jointly supervised with Dr Ken Moody.

MPhil Student Supervision and Student Interns

- James Lingard, 2013–2014, MPhil ACS. *Certifying translation validation for a real-world C compiler front-end*. Joint winner of best dissertation prize.
- Thomas Williams (summer 2013), MPRI
- Patrick Lambein (summer 2014), MPRI
- Julien Verlaguet (March – July 2005), MPRI
- Viktor Vafeiadis (summer, 2004)
- Michael Smith (summer, 2004)
- Christian Steinrücken (summer, 2003)
- Vilhelm Sjöberg (summer, 2003)

Invited Talks

Invited Conference and Workshop talks, and PhD School Lectures

- ARM Research Summit September 15–16, 2016
- First DeepSpec Workshop, Princeton, June 6–8th, 2016
- Verified Trustworthy Software Systems, Royal Society and Imperial, April 11–14, 2016

- FMATS4, the fourth workshop on Formal Methods and Tools for Security, Microsoft Research Cambridge June 11-12, 2015
- 31st Chaos Communication Congress (31C3), December 30, 2014. Outreach talk, to an audience of around 2000 people.
- Electromagnetic Field (EMF), August 29-31, 2014. Outreach talk.
- ITP 2014: Conference on Interactive Theorem Proving, 14-17 July 2014, Vienna, Austria.
- CHLLP 2014: Workshop on Certification of high-level and low-level programs (in the Institut Henri Poincaré thematic trimester on Semantics of proofs and certified mathematics, 7-11 July 2014, Paris, France)
- PLMW 2014: SIGPLAN Programming Languages Mentoring Workshop (co-located with POPL 2014), 21 January 2014, San Diego, USA
- SLS 2013: Microsoft Research Workshop on Scalable Language Specification, June 25-27, 2013, Cambridge, UK
- VCP 2013: Microsoft Research Workshop on Verified Concurrent Programmes: Theory, Tools and Experiments, 11-13 June 2013, Cambridge, UK
- Linux Collaboration Summit, 15-17 April 2013, San Francisco, USA
- Departmental Colloquium, ETH Zurich, Department of Computer Science, 18 March 2013, Zurich, Switzerland
- Distinguished Lecture, Max Planck Institute for Software Systems, 18 February 2013, Saarbruecken, Germany
- PLMW 2013: SIGPLAN Programming Languages Mentoring Workshop (co-located with POPL 2013), 23 January 2013, Rome, Italy
- Workshop on Convergence of Software Assurance Methodologies and Trustworthy Semiconductor Design and Manufacture (SA+TS), co-sponsored by the Semiconductor Research Corporation (SRC), the National Science Foundation (NSF), and the Computing Community Consortium (CCC), 15-16 January 2013 Arlington, USA
- ICFP 2012: The 17th ACM SIGPLAN International Conference on Functional Programming, 10-12 September 2012, Copenhagen, Denmark
- CONCUR 2012: The 23rd International Conference on Concurrency Theory, 3-8 September 2012, Newcastle, UK
- Microsoft Research Cambridge PhD Summer School, 2-6 July 2012, Cambridge, UK
- The Milner Symposium, in honour of Prof. Robin Milner FRS, 16 - 18 April 2012, Edinburgh
- SSV 2011: the 6th International Workshop on Systems Software Verification. Nijmegen, The Netherlands, August 26, 2011
- Invited tutorial at ACM/IEEE Ninth International Conference on Formal Methods and Models for Codesign (MEMOCODE), Cambridge, UK. July 11-13, 2011
- Invited speaker at the ARM Global Engineering Conference, Loughborough, May 2011
- Co-organiser of and speaker at the POPL 2011 Invited Session *Robin Milner: Verification, Languages, and Concurrency*. Austin, January 2011.
- UPMARC Summer School on Multicore Computing, Fagerudd, Sweden, June 21-24, 2010
- ISMM 2010: International Symposium on Memory Management, Toronto, 2010.
- TIC 2010: Third International School on Trends in Concurrency, Bangalore, 2010
- MTV: 10th International Workshop on Microprocessor Test and Verification, Austin, December 2009. Talk given by Susmit Sarkar.
- TIC 2008: Second International School on Trends in Concurrency, Prague, June 2008
- TTVSI 2008: Tools and Techniques for Verification of System Infrastructure, a meeting in honour of Prof. Michael Gordon FRS, 25-26 March 2008, Royal Society, London
- Workshop on Industrial-scale software verification, Microsoft Research Cambridge, March 2008
- TYPES 2007 conference, Cividale del Friuli (Udine), Italy, May 2007.
- Colloquium *Emerging Trends in Concurrency Theory*, Paris, France, November 2006.
- First International Summer School on Emerging Trends in Concurrency (TiC'06), Bertinoro, Italy, 2006.
- Summer School on Language-Based Techniques for Concurrent and Distributed Software, University of Oregon, USA, July 2006.

- MATHFIT meeting on Recent Advances in Semantics and Types for Concurrency: Theory & Practice, Imperial College, London, 1998.

Research Seminars

- BRICS, Aarhus
- Carnegie Mellon University
- Dagstuhl
- DePaul University
- Imperial College, London
- Indiana University
- INRIA, Rocquencourt
- IT University, Copenhagen
- Purdue University
- University of Birmingham
- University of Edinburgh
- University of Geneva
- University of Kent
- University of Leicester
- University of Oxford
- University of Pennsylvania
- University of Sussex
- University of Wales Swansea

Peer Review Activities

Research Grant Reviewing

- EPSRC ICT Responsive Mode panel member
- Member of EPSRC Peer Review College, from 2006 to date
- Research grant reviewing for the EPSRC and the Swiss National Science Foundation.

Program Committee Membership and Conference Organisation

- ESOP 2018, PC member
- POPL 2018, PC member
- Chair for PiP 2017: the second workshop on Principles in Practice, Paris
- PLDI 2017, External Program Committee (EPC) member
- Member of the POPL Steering Committee, from 2014 to date
- Program Committee Chair for POPL 2014, the 41st annual ACM SIGPLAN-SIGACT symposium on Principles of Programming Languages, San Diego
- Co-chair for PiP 2014: the first workshop on Principles in Practice, San Diego.
- CPP 2013: the 3rd international conference on Certified Programs and Proofs, Melbourne
- POPL 2013: the 40th annual ACM SIGPLAN-SIGACT symposium on Principles of Programming Languages, Rome
- HotPar 2012: the 4th USENIX Workshop on Hot Topics in Parallelism (HotPar '12), June 7-8, 2012, Berkeley, CA
- POPL 2012: the 39th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, Philadelphia, USA, January 25-27, 2012 (External Review Committee)
- Co-organiser of the Dagstuhl seminar on *Multi-Core Memory Models and Concurrency Theory*, January 2011
- MFPS XXVII: the 27th conference on the Mathematical Foundations of Programming Semantics, May 2011, Carnegie Mellon University, Pittsburgh, PA
- ESOP'11: the 20th European Symposium on Programming, Saarbrücken, Germany
- ITP 2010: Interactive Theorem Proving

- HotSWUp 2009 (workshop on Hot Topics in Software Upgrades)
- POPL 2010: the 37th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, Madrid
- ECOOP 2009: European Conference on Object-Oriented Programming, Genova
- ICALP 2009: 36th International Colloquium on Automata, Languages and Programming, Rhodes
- ESOP '09: the 18th European Symposium on Programming, York
- First ACM Workshop on Hot Topics in Software Upgrades (HotSWUp), Nashville
- LFMTTP 2008: International Workshop on Logical Frameworks and Meta-Languages: Theory and Practice, Pittsburgh
- ML 2007: the 2007 ACM SIGPLAN Workshop on ML
- INM 2007: the ACM SIGCOMM Workshop on Internet Network Management (The Five-Nines Workshop)
- WMM 2006: the 4rd Informal ACM SIGPLAN Workshop on Mechanizing Metatheory, Edinburgh
- TLDI 2005: the ACM SIGPLAN Workshop on Types in Language Design and Implementation (formerly TIC)
- ICFP 2004: the International Conference on Functional Programming, Snowbird, Utah, September 19-22, 2004.
- POPL 2004: the 31st Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, January 14-16, 2004. Venice, Italy.
- EXPRESS'03: 10th Intl. Workshop on Expressiveness in Concurrency, September 2, 2003. With CONCUR 2003.
- EXPRESS'02: the 9th Intl. Workshop on Expressiveness in Concurrency, August 19, 2002. With CONCUR 2002.
- F-WAN: Foundations of Wide Area Network Computing, with ICALP 2002, July 2002.
- HLCL00 (co-chair), the 4th International Workshop on High-Level Concurrent Languages, Montreal, with PLI 2000, September 2000.
- MOS'00: the 6th ECOOP workshop on Mobile Object Systems: Operating System Support, Security and Programming Languages, with ECOOP 2000, June 2000, Cannes.
- MOS'99 (co-chair): the 5th Mobile Object Systems Workshop: Programming Languages for Wide Area Networks, with ECOOP 99, June 1999, Lisbon.

I have also reviewed papers submitted to AISB, ASAMA, CONCUR, CTCS, DBPL, ECOOP, ESOP, EXPRESS, FMOODS, FOSSACS, FSTTCS, FWAN, ICALP, ICFP, LICS, MFCS, MOS, PLDI, PLIP, POPL, PPDP, SAS, S&P, STACS, TACAS, TACS, TLDI.

Journal Reviewing

Since 2007 I have served on the editorial board of the Journal of Formalized Reasoning. I have reviewed for *Acta Informatica*, *Information and Computation*, *Journal of the ACM*, *Journal of Automated Reasoning*, *Journal of Computer Security*, *Journal of Functional Programming*, *Journal of Logic and Algebraic Programming*, *Logical Methods in Computer Science*, *Theoretical Computer Science*, *ACM Transactions on Programming Languages and Systems (TOPLAS)*, *ACM Transactions on Software Engineering and Methodology (TOSEM)*.

Award Committee Service

- Award committee for the most influential POPL 2005 paper, 2014.
- Award committee for the ACM SIGPLAN Outstanding Doctoral Dissertation Award, 2009–10.
- Award committee for the Royal Society Rosalind Franklin Medal, 2002–3, 2003–4, 2004–5, and 2005–6.

Undergraduate and Masters Teaching

Undergraduate Lecturing

- *Semantics of Programming Languages* (12 lectures, Part 1B), 2002–3, 2003–4, 2004–5, 2005–6, 2006–7, 2007–8, 2008–9, 2013–14, 2014–15, 2015–16, 2016–17

- *Discrete Mathematics 1* (8 lectures, Part 1A) 2008–9 and 2009–10.
- *Types* (Part II, 8 lectures), 1998–9
- Guest lectures in *Communicating Automata and Pi-Calculus* (Part II, Prof. Robin Milner, two lectures), 1996–7, 1997–8, and 1998–9.
- *Programming Methodology* (16 Lectures, University of Edinburgh), 1994.

MPhil Lecturing

- *Multicore Semantics and Programming* (8 two-hour sessions, jointly with Tim Harris, MPhil), 2010–11, 2011–12, 2012–13, 2013–14, 2014–15, 2015–16, 2016–17
- *Advanced Topics in Programming Languages* (8 two-hour sessions, MPhil), 2009–10

College Teaching

From 1998 to 2008 I was Director of Studies in Computer Science for Wolfson College, University of Cambridge, responsible for students on the Computer Science Diploma course and for mature undergraduate students. I assisted in the coordination of supervisions for a group of colleges including Wolfson, Jesus, and Kings.

PhD Examination

- Lihao Liang (University of Oxford, external examiner)
- David Greenaway (UNSW, external examiner)
- Chi-kin (Sid) Chau (University of Cambridge, internal examiner)
- David Scott (University of Cambridge, internal examiner)
- Anil Sorathiya (University of Cambridge, internal examiner)
- Magnus Myreen (University of Cambridge, internal examiner)
- Sebastian Nanz (Imperial College, external examiner),
- Álvaro Moreira (University of Edinburgh, external examiner)
- Dilsun Kirli (University of Edinburgh, external examiner)
- Jaroslav Ševčík (University of Edinburgh, external examiner)
- Mark New (University of Wales, Swansea, external examiner)
- Fabrice le Fessant (École Polytechnique, examinateur)
- Sylvain Conchon (Université Paris 7, examinateur)
- Tom Hirschowitz (Université Paris 7, rapporteur)
- Jade Alglave (Université Paris 7, examinateur)
- Gilles Peskine (Université Paris 7, examinateur)
- Tom Murphy (Carnegie Mellon University, external on thesis committee),

Departmental Research Organisation

- organiser of the *REMS Lunch* meeting, 2014–
- organiser of the internal *Semantics Lunch* meeting from 1996–2013
- various *Programming, Logic, and Semantics* group coordination