

Curriculum Vitae

David J. Pearce

Employment

- 2009 – Full-time Senior Lecturer in Computer Science, Victoria University of Wellington, NZ.
- 2004 – 2008 Full-time lecturer in Computer Science, Victoria University of Wellington, NZ.
- 2004 Three month internship at IBM Hursely, UK. David worked under Robert Berry on AspectJ.
- 2002 Three month internship at Bell Labs, New Jersey. David worked under Oscar Mencer on a compiler for Field-Programmable Gate Arrays.
- 1999 Six months at Philips Research Laboratories, Redhil, UK, working under Johnny Farrington on devices for wearable computing.

Education

- 2000 – 2005 PhD from Imperial College London, studying interprocedural pointer analysis for C. David's thesis was nominated by the external examiners — Mark Harman and Andy King — for the British Computer Society (BCS) doctoral dissertation prize.
- 1996 – 2000 MEng in Computing (1st class) from Imperial College London. David's final year project lead to a paper presented at the TOOLS 2002 conference.

Refereed Journal Articles

- Formalisation and Implementation of an Algorithm for Bytecode Verification of @NonNull Types. Chris Male, David J. Pearce, Alex Potanin and Constantine Dymnikov. In *Science of Computer Programming*, 2010 (to appear). Elsevier.
- Computing Tutte Polynomials. Gary Haggard, David J. Pearce and Gordon Royle. In *ACM Transactions on Mathematical Software (TOMS)*, 2010 (to appear). ACM Press.
- Edge-Selection Heuristics for Computing Tutte Polynomials. David J. Pearce, Gary Haggard and Gordon Royle. In *Chicago Journal of Theoretical Computer Science (CJRCS)*, 2010 (to appear).
- Efficient Field-Sensitive Pointer Analysis for C. David J. Pearce, Paul H.J. Kelly and Chris Hankin. In *ACM Transactions on Programming Languages and Systems (TOPLAS)*, volume 30(1), 2007. ACM Press.
- Profiling with AspectJ. David J. Pearce, Matthew Webster, Robert Berry and Paul H.J. Kelly. *Software: Practice and Experience*, Volume 37(7), pages 747–777, 2007. Wiley
- A Dynamic Topological Sort Algorithm for Directed Acyclic Graphs. David J. Pearce and Paul H.J. Kelly. *ACM Journal of Experimental Algorithmics (JEA)*, volume 11, pages 1.7, 2007. ACM Press.
- Online Cycle Detection and Difference Propagation: Applications to Pointer Analysis. David J. Pearce, Paul H.J. Kelly and Chris Hankin. In *Software Quality Journal*, volume 12(4), pages 309–335, 2004. Kluwer Academic Publishers.

Refereed Conference Papers

- Understanding the Impact of Collection Contracts on Design. Stephen F. Nelson, David J. Pearce and James Noble. In *Proceedings of the Conference on Objects, Models, Components, Patterns (TOOLS EUROPE)*, (to appear), 2010.
- A Batch Algorithm for Maintaining a Topological Order, David J. Pearce and Paul H.J. Kelly. In *Proceedings of the Australasian Computer Science Conference (ACSC)*, pages 79–88, 2010.
- Edge-Selection Heuristics for Computing Tutte Polynomials. David J. Pearce, Gary Haggard and Gordon Royle. In *Proceedings of the Computing: The Australasian Theory Symposium*, (to appear), 2009.

Patterns for Program Query Optimisation. David J. Pearce and James Noble. In *Proceedings of the conference on Pattern Languages of Programs (PLOP)*, article 26, 2008.

Caching and Incrementalisation for the Java Query Language. Darren Willis, David J. Pearce and James Noble. In *Proceedings of the ACM Conference on Object-Oriented Programming Systems, Languages & Applications*, pages 1–17, 2008. ACM Press.

Java Bytecode Verification for @NonNull Types. Chris Male, David J. Pearce, Alex Potanin and Constantine Dymnikov. In *Proceedings of the Conference on Compiler Construction (CC)*, volume 4959 of Lecture Notes in Computer Science, pages 229–244, 2008. Springer-Verlag.

Visualising the Tutte Polynomial Computation. Bennett Thompson, David J. Pearce, Craig Anslow and Gary Haggard. In *Proceedings of ACM symposium on Software Visualisation (SoftViz)*, pages 211–212, 2008.

Visualising the Tutte Polynomial Computation. Bennett Thompson, David J. Pearce and Gary Haggard. In *Proceedings of the New Zealand Conference on Software Engineering (SIENZ)*, 2007.

Patterns of Aspect-Oriented Design. James Noble, Arno Schmidmeier, David J. Pearce and Andrew Black. In *Proceedings of the European Conference on Pattern Languages of Programs (EuroPLOP)*, pages 769–796, 2007.

Relationship Aspect Patterns. David J. Pearce and James Noble. In *Proceedings of the European Conference on Pattern Languages of Programs (EuroPLOP)*, pages 531–546, 2006.

Towards a Semiotics of Object- and Aspect-Oriented Design. James Noble, Robert Biddle, Ewan Tempero and David J. Pearce. In *Proceedings of the European Conference on Computing and Philosophy (ECAP)*, 2006.

Efficient Object Querying for Java. Darren Willis, David J. Pearce and James Noble. In *Proceedings of the European Conference on Object-Oriented Programming (ECOOP)*, pages 28–49, 2006. Springer-Verlag.

Relationship Aspects. David J. Pearce and James Noble. In *Proceedings of the ACM conference on Aspect-Oriented Software Development (AOSD)*, pages 75–86, March 2006. ACM Press.

Automating Optimized Table-with-Polynomial Function Evaluation for FPGAs. Dong-U Lee, Oskar Mencer, David J. Pearce and Wayne Luk. In *Proceedings of the fourteenth international conference on Field-Programmable Logic and its Applications (FPL)*, volume 3203 of Lecture Notes in Computer Science, pages 364–373, August 2004. Springer-Verlag.

Design Space Exploration with A Stream Compiler. Oskar Mencer, David J. Pearce, Lee W. Howes and Wayne Luk. In *Proceedings of the IEEE Conference on Field-Programmable Technology (FPT)*, pages 270–277, Tokyo, December 2003. IEEE Computer Society Press.

GILK: A Dynamic Instrumentation Tool for the Linux Kernel. David J. Pearce, Paul H.J. Kelly, Tony Field and Uli Harder. In *Proceedings of the 12th international conference on Modelling Techniques and Tools for Computer Performance Evaluation (TOOLS)*, volume 2324 of Lecture Notes in Computer Science, pages 220–226, 2002. Springer-Verlag.

Refereed Workshop Papers

Implementing relationships using Affinity. Stephen F. Nelson, David J. Pearce and James Noble. In *Proceedings of the Workshop on Relationships and Associations in Object-Oriented Languages (RAOOL)*, pages 58, 2009.

Introducing Software Modelling with Alloy at VUW. James Noble, David J. Pearce and Lindsay Groves. In *Proceedings of the Workshop on Formal Methods in Computer Science Education (FORMED)*, pages 81–90, 2008.

Implementing First-Class Relationships in Java. Stephen F. Nelson, David J. Pearce and James Noble. In *Proceedings of Workshop on Relationships and Associations in Object-Oriented Languages (RAOOL)*, 2008

AspectJ for Multilevel Security. Roshan Ramachandran, David J. Pearce and Ian Welch. In *Proceedings of the Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS)*, pages 13–17, March 2006 (University of Virginia, Technical Report CS-2006-01).

Efficient Field-Sensitive Pointer Analysis for C. David J. Pearce, Paul H. J. Kelly and Chris Hankin. In *Proceedings of the ACM workshop on Program Analysis for Software Tools and Engineering (PASTE'04)*, pages 37–42, June 2004. ACM Press.

A Dynamic Algorithm for Topologically Sorting Directed Acyclic Graphs. David J. Pearce and Paul H. J. Kelly. In *Proceedings of the 3rd international Workshop on Efficient and experimental Algorithms (WEA'04)*, volume 3059 of Lecture Notes in Computer Science, pages 383–398, 2004. Springer-Verlag.

Online Cycle Detection and Difference Propagation for Pointer Analysis. David J. Pearce, Paul H. J. Kelly and Chris Hankin. In *Proceedings of the third international IEEE Workshop on Source Code Analysis and Manipulation (SCAM'03)*, pages 3–12, Amsterdam, 2003. IEEE Computer Society Press.

Program Committee Service

- 2010 Australian Software Engineering Conference, Auckland, NZ
- 2010 ACM Symposium Applied Computing, Switzerland
- 2009 Testing: Academic and Industrial Conference - Practice and Research Techniques, Windsor UK.
- 2009 ACM Symposium Applied Computing, Hawaii
- 2009 Workshop on Relationships and Associations in Object-Oriented Languages, Genova.
- 2008 Workshop on Relationships and Associations in Object-Oriented Languages, Nashville.
- 2008 ACM Symposium Applied Computing, Brazil
- 2007 Computing: Australasian Theory Symposium (CATS), Ballarat, Australia
- 2006 Computing: Australasian Theory Symposium (CATS), Tasmania, Australia

Organising Committee Membership

- 2010 Dagstuhl Seminar Organiser, Relationships, Objects Roles and Queries in Modern Programming Languages, Dagstuhl, Germany.
- 2010 Australasian Computing Doctoral Consortium, Brisbane, Australia.
- 2009 Australasian Computing Doctoral Consortium, Wellington, NZ.

Other

- 2009 Early Career Researcher Award, Victoria University of Wellington.