

Norman Ramsey

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Interests Programming languages and systems

Education Ph.D. (computer science) 1993, Princeton University.
M.A. (computer science) 1990, Princeton University.
M.S. (physics) 1986, Cornell University.
B.A. *summa cum laude* (physics) 1983, Princeton University.

Honors Alfred P. Sloan Research Fellow, 2001.
Joseph R. Levenson Memorial Teaching Prize Nominee, Harvard University, 2001.
National Science Foundation Faculty Early Career Development Award, 1998.
Fannie and John Hertz Fellow, 1983–86, 1989–91.

Experience *Associate Professor*, School of Engineering and Applied Sciences, Harvard University.
Assistant Prof. 1999–2003, *Associate Prof.* 2003–2007
Research Assistant Professor, Dept of Computer Science, University of Virginia. 1996–1999
Research Intern, Bell Laboratories, Murray Hill, NJ. summer 1996
Visiting Assistant Professor, Department of Computer Sciences, Purdue University. 1995–96
Member of Technical Staff, Computer Science Research, Bellcore, Morristown, NJ. 1992–95
Research Intern, Computer Science Laboratory, Xerox PARC, Palo Alto, CA. summer 1991
Research Intern, DEC Systems Research Center, Palo Alto, CA. summer 1990
Computer Scientist, Odyssey Research Associates, Ithaca, NY. 1986–88

Refereed Conference and Workshop Publications J. Dias and N. Ramsey. Converting intermediate code to assembly code using declarative machine descriptions. In *15th International Conference on Compiler Construction (CC 2006)*, LNCS 3923, pages 217–231, March 2006.

R. Olinsky, C. Lindig, and N. Ramsey. Staged allocation: A compositional technique for specifying and implementing procedure calling conventions. In *Proceedings of the 33rd ACM Symposium on the Principles of Programming Languages*, pages 409–421, January 2006.

N. Ramsey, K. Fisher, and P. Govereau. An expressive language of signatures. In *Proceedings of the Tenth ACM SIGPLAN International Conference on Functional Programming (ICFP'05)*, pages 27–40, September 2005.

N. Ramsey. ML module mania: A type-safe, separately compiled, extensible interpreter. In *ACM SIGPLAN Workshop on ML*, pages 172–202, September 2005.

N. Ramsey and J. Dias. An applicative control-flow graph based on Huet’s zipper. In *ACM SIGPLAN Workshop on ML*, pages 101–122, September 2005.

S. Ryu and N. Ramsey. Source-level debugging for multiple languages with modest programming effort. In *14th International Conference on Compiler Construction (CC 2005)*, pages 10–26, April 2005.

M. D. Smith, N. Ramsey, and G. Holloway. A generalized algorithm for graph-coloring register allocation. *ACM SIGPLAN '04 Conference on Programming Language Design and Implementation, in SIGPLAN Notices*, 39(6):277–288, June 2004.

C. Lindig and N. Ramsey. Declarative composition of stack frames. In *13th International Conference on Compiler Construction (CC 2004)*, LNCS 2985, pages 298–312, April 2004.

K. Redwine and N. Ramsey. Widening integer arithmetic. In *13th International Conference on Compiler Construction (CC 2004)*, LNCS 2985, pages 232–249, April 2004.

N. Ramsey and A. Pfeffer. Stochastic lambda calculus and monads of probability distributions. *Proceedings of the 29th ACM Symposium on the Principles of Programming Languages, in SIGPLAN Notices*, 37(1):154–165, January 2002.

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N. Ramsey and E. Csirmaz. An algebraic approach to file synchronization. In *Proceedings of the 8th European Software Engineering Conference (ESEC) and 9th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE-9)*, pages 175–185, September 2001.

N. Ramsey and S. L. Peyton Jones. A single intermediate language that supports multiple implementations of exceptions. *Proceedings of the ACM SIGPLAN '00 Conference on Programming Language Design and Implementation*, in *SIGPLAN Notices*, 35(5):285–298, May 2000.

C. Cifuentes, M. Van Emmerik, and N. Ramsey. The design of a resourceable and retargetable binary translator. In *Proceedings of the Sixth Working Conference on Reverse Engineering (WCRE'99)*, pages 280–291. IEEE CS Press, October 1999.

S. L. Peyton Jones, N. Ramsey, and F. Reig. C--: A portable assembly language that supports garbage collection. In *International Conference on Principles and Practice of Declarative Programming*, LNCS 1702, pages 1–28. Springer Verlag, September 1999. Invited paper.

N. Ramsey and J. W. Davidson. Machine descriptions to build tools for embedded systems. In *ACM SIGPLAN Workshop on Languages, Compilers, and Tools for Embedded Systems (LCTES'98)*, LNCS 1474, pages 172–188. Springer Verlag, June 1998.

M. F. Fernández and N. Ramsey. Automatic checking of instruction specifications. In *Proceedings of the International Conference on Software Engineering*, pages 326–336, May 1997.

N. Ramsey. Relocating machine instructions by currying. *Proceedings of the ACM SIGPLAN '96 Conference on Programming Language Design and Implementation*, in *SIGPLAN Notices*, 31(5):226–236, May 1996.

N. Ramsey and M. F. Fernández. The New Jersey Machine-Code Toolkit. In *Proceedings of the 1995 USENIX Technical Conference*, pages 289–302, New Orleans, LA, January 1995.

N. Ramsey. Correctness of trap-based breakpoint implementations. In *Proceedings of the 21st ACM Symposium on the Principles of Programming Languages*, pages 15–24, Portland, OR, January 1994.

N. Ramsey and D. R. Hanson. A retargetable debugger. *ACM SIGPLAN '92 Conference on Programming Language Design and Implementation*, in *SIGPLAN Notices*, 27(7):22–31, July 1992.

N. Ramsey. Developing formally verified Ada programs. In *Proceedings of the 5th International Workshop on Software Specification and Design*, pages 257–265, Pittsburgh, PA, May 1989.

Refereed Journal Publications

N. Ramsey. Embedding an interpreted language using higher-order functions and types. *Journal of Functional Programming*, 2007. To appear. A preliminary version of this paper appeared in *Proceedings of the ACM Workshop on Interpreters, Virtual Machines, and Emulators*, June 2003.

N. Ramsey. Pragmatic aspects of reusable program generators. *Journal of Functional Programming*, 13(3):601–646, May 2003. A preliminary version of this paper appeared in *Semantics, Application, and Implementation of Program Generation*, LNCS 1924, pages 149–171.

N. Ramsey and C. Cifuentes. A transformational approach to binary translation of delayed branches. *ACM Transactions on Programming Languages and Systems*, 25(2):210–224, March 2003.

N. Ramsey. Eliminating spurious error messages using exceptions, polymorphism, and higher-order functions. *Computer Journal*, 42(5):360–372, 1999.

N. Ramsey. Unparsing expressions with prefix and postfix operators. *Software—Practice & Experience*, 28(12):1327–1356, October 1998.

N. Ramsey and M. F. Fernández. Specifying representations of machine instructions. *ACM Transactions on Programming Languages and Systems*, 19(3):492–524, May 1997.

N. Ramsey. A simple solver for linear equations containing nonlinear operators. *Software—Practice & Experience*, 26(4):467–487, April 1996.

N. Ramsey. Literate programming simplified. *IEEE Software*, 11(5):97–105, September 1994.

N. Ramsey and C. Marceau. Literate programming on a team project. *Software—Practice & Experience*, 21(7):677–683, July 1991.

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N. Ramsey. Literate programming: Weaving a language-independent WEB. *Communications of the ACM*, 32(9):1051–1055, September 1989.

N. Ramsey, E. Miron, X. Zeng, and W. Happer. Formation and breakup rates of RbXe van der Waals molecules in He and N₂ gas. *Chemical Physics Letters*, 102:340, 1983.

Unrefereed Publications N. Ramsey. SIGPLAN EC activities: L^AT_EX support for proceedings. *SIGPLAN Notices*, 37(4):1–3, April 2002.

N. Ramsey and J. K. Scott. The 1999 ICFP programming contest. *SIGPLAN Notices*, 35(3):73–83, March 2000.

Program Committees and Review Committees Program chair, International Conference on Functional Programming (ICFP). 2007
Program committee, ACM SIGPLAN Workshop on Types in Language Design and Implementation (TLDI). 2007

Program committee, International Conference on Functional Programming (ICFP). 2002 and 2005
Program committee, ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). 1998 and 2002

Program committee, Compiler Construction. 2002

Review panel, National Science Foundation. 1999, 2001, and 2002

Program committee, Workshop on Binary Translation. 2001

Program committee, ACM Workshop on Partial Evaluation and Program Manipulation (PEPM). 2000

Other Professional Service Steering committee, International Conference on Functional Programming (ICFP). since Sep 2006
Editorial board, Journal of Functional Programming. since 2004
Member at large, SIGPLAN Executive Committee. 2001–03

Conference committee (programming contest), International Conference on Functional Programming (ICFP). 1999

Sponsored Research *Multicore Support in Programming-Language Infrastructure*, Intel, \$50,000. 2006–07

A Reusable, Extensible, Optimizing Back End, National Science Foundation, Information Technology Research, \$598,039. 2003–2007

Using Declarative Machine Descriptions in a Retargetable Optimizing Compiler, National Science Foundation, Compilers, \$350,000. 2003–2006

Active Debugging Information for Multi-Platform, Multi-Language Debugging, National Science Foundation, Next Generation Software, \$499,082. 1999–2002

Reusable Specifications for Retargetability, National Science Foundation, Faculty Early Career Development (CAREER), \$200,000. 1998–2002

C-- Development (renewal), Microsoft Research, \$100,000. 2001–2002

C-- Development, Microsoft Research, \$100,000. 1999–2000

Migration of Legacy Software by Binary Translation, Australian Research Council, \$126,000 (with Cristina Cifuentes). 1997–99

Object-code Instrumentation for Test-Coverage Analysis, Software Engineering Research Center, \$51,341. 1996

Other Grants *Teach Technical Writing in Two Hours Per Week*, Gordon Gray Faculty Grant for Writing Pedagogy, Harvard University, \$5,000. 2003–2004

Inter-Document Cross-Reference for Texts of Large Programs, Clark fund, Harvard University, \$3,997. 2001–2002

Interpreters for Teaching Programming Languages, Dean for Undergraduate Education, Harvard University, \$8,550. 2000

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- Selected Invited Presentations**
- “Seeking the Best Simple Interpreter”
IFIP Working Group 2.8 (Functional Programming), Dedham, MA. *July 17, 2006*
 - “Building the World from First Principles: Declarative Machine Descriptions and Compiler Construction”
Plenary invited talk, Seventh International Symposium on Practical Aspects of Declarative Languages *January 12-14, 2005*
 - “The C-- Compiler Infrastructure” (with Simon L. Peyton Jones)
Tutorial, ACM SIGPLAN Conference on Programming Language Design and Implementation *June 8, 2004*
Tutorial, Ninth ACM SIGPLAN International Conference on Functional Programming *September 19, 2004*
 - “Embedding an Interpreted Language Using Higher-Order Functions and Types”
MIT Workshop on Lightweight Languages (LL3), Cambridge, MA *November 8, 2003*
 - “Engineering Calling Conventions in the Quick C-- Compiler Infrastructure”
New England Programming Languages Symposium, Brandeis University, Waltham, MA *October 21, 2003*
 - “A Single Intermediate Language That Supports Multiple Implementations of Exceptions”
Dagstuhl Seminar 0045.1 (Effective Implementation of Object-Oriented Languages) *November 5–8, 2000*
 - “Literate Programming Should be a Model for Software Engineering and Programming Languages.”
ICSE-17 Workshop on Software Engineering and Programming Languages *April 24–25, 1995*
- Courses Taught**
- Programming languages (graduate and undergraduate), concurrent programming (graduate), advanced functional programming (graduate), compilers (graduate), advanced systems programming (graduate), operating systems and networks (undergraduate), technical writing (mixed undergraduate and graduate).
- References**
- Craig Chambers, Department of Computer Science and Engineering, University of Washington, Seattle, WA 98195. Telephone: (206) 685-2094. chambers@cs.washington.edu
- Olivier Danvy, Department of Computer Science, University of Aarhus, Denmark. Telephone: +45 89 42 93 39. danvy@brics.dk
- Jack W. Davidson, Department of Computer Science, University of Virginia, Charlottesville, VA, 22903. Telephone: (804) 982-2209. jwd@cs.virginia.edu
- Greg Morrisett, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02148. Telephone: (617) 495-9526. greg@eecs.harvard.edu
- Jens Palsberg, UCLA Computer Science Department, 4531K Boelter Hall, Los Angeles, CA 90095. Telephone: (310) 825-6320. palsberg@ucla.edu
- Simon L. Peyton Jones, Microsoft Research Ltd, 7 JJ Thomson Avenue, Cambridge CB3 0FB, England. Telephone: +44 1223 479 848. simonpj@microsoft.com
- Benjamin C. Pierce, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA, 19104. Telephone: (215) 898-6222. bcpierce@cis.upenn.edu
- Michael D. Smith, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02148. Telephone: (617) 496-5661. smith@eecs.harvard.edu
- Citizenship** United States.