

Curriculum Vitae

Derek Dreyer

Personal Information

Citizenship:	U.S.A.	Work Address:	MPI-SWS
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Academic Background

Carnegie Mellon University

Ph.D. in Computer Science, May 2005. 1997–2004

New York University

Graduate student in Computer Science. 1996–1997

B.A. in Mathematics and Computer Science, Summa Cum Laude. 1993–1996

Research Experience

Max Planck Institute for Software Systems (MPI-SWS)

Independent researcher (tenure-track faculty),
heading the Type Systems and Functional Programming group. 2008–present

Toyota Technological Institute at Chicago (TTI-C)

Research assistant professor (3-year independent postdoc). 2005–2007

Carnegie Mellon University, Department of Computer Science

Doctoral research. 2000–2004

Thesis: Understanding and Evolving the ML Module System.

Advisors: Robert Harper, Karl Crary.

Committee: Robert Harper, Karl Crary, Peter Lee, David MacQueen.

Bell Laboratories, Lucent Technologies (Murray Hill, NJ)

Summer internship. 1999

Project: Optimizing Power Usage for the TI C6x Chip.

Advisors: Nevin Heintze and Tor Jeremiassen.

New York University, Department of Computer Science

Undergraduate and graduate research. 1995–1996

Project: Developing Polynomial-Time Heuristics for the Steiner Tree Problem.

Advisor: Michael Overton.

Professional Activities

Invited speaker, 2008 Conference on the Mathematical Foundations of Programming Semantics (**MFPS XXIV**).

Program committee member, 2008 ACM SIGPLAN International Conference on Functional Programming (**ICFP '08**).

Steering committee member, ACM SIGPLAN Workshop on ML, 2007–present.

Program chair, 2007 ACM SIGPLAN Workshop on ML (**ML '07**).

Program committee member, 2007 ACM SIGPLAN Haskell Workshop (**Haskell '07**).

Invited participant, 2007 Meeting of IFIP Working Group 2.8 on Functional Programming.

Program committee member, 2007 ACM SIGPLAN International Workshop on Foundations and Developments of Object-Oriented Languages (**FOOL/WOOD '07**).

Program committee member, 2006 ACM SIGPLAN Workshop on ML (**ML '06**).

External reviewer for a number of major conferences and journals, including POPL, ICFP, PLDI, TOPLAS, JFP, HOSC, ESOP, ECOOP, TCS, CSL, PPDP, FLOPS, and APLAS.

Publications

Refereed Publications

Mixin' Up the ML Module System.

Derek Dreyer and Andreas Rossberg.

In 2008 ACM SIGPLAN International Conference on Functional Programming (ICFP '08).

(Since I was on the PC for this conference, this paper was held to a higher standard — its acceptance means that the PC judged it “significantly better than the average paper accepted to the conference.”)

A Type System for Recursive Modules.

Derek Dreyer.

In 2007 ACM SIGPLAN International Conference on Functional Programming (ICFP '07).

Principal Type Schemes for Modular Programs.

Derek Dreyer and Matthias Blume.

In 2007 European Symposium on Programming (ESOP '07).

Modular Type Classes.

Derek Dreyer, Robert Harper, and Manuel M.T. Chakravarty.

In 2007 ACM SIGPLAN Symposium on Principles of Programming Languages (POPL '07).

Recursive Type Generativity.

Derek Dreyer.

To appear in Journal of Functional Programming (JFP), special issue devoted to selected papers from ICFP '05.

Originally appeared in 2005 ACM SIGPLAN International Conference on Functional Programming (ICFP '05).

A Type System for Well-Founded Recursion.

Derek Dreyer.

In 2004 ACM SIGPLAN Symposium on Principles of Programming Languages (POPL '04).

A Type System for Higher-Order Modules.

Derek Dreyer, Karl Crary, and Robert Harper.

In 2003 ACM SIGPLAN Symposium on Principles of Programming Languages (POPL '03).

Typed Compilation of Recursive Datatypes.

Joseph C. Vanderwaart, Derek Dreyer, Leaf Petersen, Karl Crary, Robert Harper, and Perry Cheng.

In 2003 ACM SIGPLAN Workshop on Types in Language Design and Implementation (TLDI '03).

Two Heuristics for the Euclidean Steiner Tree Problem.

Derek R. Dreyer and Michael L. Overton.
Journal of Global Optimization. 13: 95-106, 1998.

Ph.D. Thesis

Understanding and Evolving the ML Module System.

Derek Dreyer.
Ph.D. Thesis, Carnegie Mellon University Technical Report CMU-CS-05-131, May 2005.

Technical Reports

Practical Type Theory for Recursive Modules.

Derek Dreyer.
University of Chicago Computer Science Department Technical Report TR-2006-07, August 2006.

Toward a Practical Type Theory for Recursive Modules.

Derek R. Dreyer, Robert Harper, and Karl Cray.
Carnegie Mellon University Technical Report CMU-CS-01-112, March 2001.

Electronic copies of all of the papers cited above are available online at
<http://tti-c.org/dreyer/research.html>.

Teaching Experience

University of Chicago

Guest instructor

Fall 2006

Graduate/undergraduate course: Programming Languages.
Lectured for two weeks on explicit and implicit varieties of the polymorphic λ -calculus, and created two homework assignments on the material covered.

Instructor and course designer

Winter 2006

Graduate course: Advanced Type Systems.
Course home page: <http://tti-c.org/dreyer/course/index.html>.
Designed an original seminar course, in which the students learned how to apply the fundamental technique of *logical relations* to prove a range of different theorems about program semantics (e.g., strong normalization, decidability of typechecking, parametricity properties, and program equivalence). Lectured twice a week, and created and graded homework assignments.

Carnegie Mellon University

Teaching assistant

Spring 1999

Undergraduate course: Programming Languages.
Instructor: Robert Harper.
Created and graded exams and homework assignments, and led weekly recitation sections.

Teaching assistant

Spring 1998

Undergraduate course: Compiler Design.
Instructor: Peter Lee.
Created and graded exams and homework assignments.

New York University

Teaching assistant

Spring 1997

Undergraduate course: Introduction to Computer Science II (Data Structures).

Instructor: Samuel Marateck.

Assisted students in the computing lab and via e-mail.

Instructor

Fall 1996

Undergraduate course: Mathematical Thinking (Basic Mathematics).

Lectured three times a week, and created and graded exams and homework assignments.

Awards, Fellowships and Scholarships

Carnegie Mellon University

National Defense Science and Engineering Graduate Fellowship 1997–2000

New York University

National Science Foundation Research Assistantship 1996

Morris Kline Award for Excellence in Mathematics 1996

University Honors Scholar – Founders Day Award 1996

Undergraduate Mathematics Tutoring Fellowship 1995–1996

Phi Beta Kappa 1995

University Scholar (Scholarship) 1993–1996

References

Robert Harper

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Carnegie Mellon University

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Peter Lee

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