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Research interests Type refinements, type-based verification, higher-order abstract syntax, typed language compilation, functional programming, programming environments, heterogeneous logic, modal logic.

Education Postdoctoral Fellow, School of Computer Science,
McGill University (Montréal, Canada), September 2007–2009.
Supervisor: Brigitte Pientka.

Ph.D. Computer Science, Carnegie Mellon University (Pittsburgh, Pennsylvania, USA), August 2007 (entered August 2000).

Dissertation title: *A Unified System of Type Refinements*.

Committee: Frank Pfenning (chair), Jonathan Aldrich, Robert Harper, Benjamin Pierce (Univ. of Pennsylvania).

B.S. (high honors) Computer Science, Portland State University (Portland, Oregon, USA), August 2000 (entered September 1997).

Fellowships US NSF Graduate Research Fellowship, 2000–2003.

Publications Brigitte Pientka and Joshua Dunfield.

Programming with proofs and explicit contexts.

In *Principles and Practice of Declarative Programming (PPDP '08)*,
July 2008 (to appear).

Joshua Dunfield and Brigitte Pientka.

Case analysis of higher-order data.

In *Int'l Workshop on Logical Frameworks and Meta-languages: Theory and Practice (LFMTP '08)*,

June 2008 (to appear).

Joshua Dunfield.

Refined typechecking with Stardust.

In *Programming Languages meets Program Verification (PLPV '07)*, pp. 21–32,
October 2007.

Joshua Dunfield and Frank Pfenning.

Tridirectional typechecking.

In *Principles of Programming Languages (POPL '04)*, pp. 281–292,
January 2004.

Joshua Dunfield and Frank Pfenning.

Type assignment for intersections and unions in call-by-value languages.

In *Found. Software Science and Computation Structures (FOSSACS '03)*, pp. 250–266,
April 2003. Springer LNCS 2620.

(over)

- Research experience** 2007– : Programming with higher-order abstract syntax.
Supervised by Brigitte Pientka (McGill University).
- 2001–2007: Type refinements.
Supervised by Frank Pfenning (Carnegie Mellon University).
- 2000–2001: Grid computing.
Supervised by Robert Harper (Carnegie Mellon University).
- 1998–1999: Compiling ML to Java; term rewriting for optimizations.
Supervised by Andrew Tolmach (Portland State University).
- Teaching experience** COMP 523 Language-Based Security, McGill University, Winter 2008.
Teaching assistant for Brigitte Pientka. Graded assignments and held office hours. (Ended early due to a teaching assistant strike.)
- 15–312 Foundations of Programming Languages, Carnegie Mellon University, Fall 2002. Teaching assistant for Frank Pfenning. Held weekly recitations, guest lectured, prepared and graded assignments, created exam questions, graded exams, and held office hours.
- 15–212 Principles of Programming, Carnegie Mellon University, Spring 2001.
Teaching assistant for Michael Erdmann and Jeannette Wing. Held weekly recitation, prepared and graded assignments, created exam questions, graded exams, and held office hours.
- Service** Sub-referee for CSL '02, POPL '04, LICS '05, SAC '06, POPL '08, ICFP '08.
- Personal** US citizen born July 1978. Married to a graduate student in Philadelphia.
- References** Provided upon request.

Joshua Dunfield
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