

# Bryan Chadwick

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## Education

Ph.D. in Computer Science, Northeastern University, January 2010

*Concentration:* Programming Languages & Software Eng.

*Dissertation:* Functional Adaptive Programming

*Advisor:* Karl Lieberherr

M.S. in Computer Science, Northeastern University, May 2005

*Concentration:* Programming Languages

B.S. in Computer Science, Massachusetts College of Liberal Arts, May 2002

*Minors:* Physics and Mathematics.

## Professional Experience

**Languages:** Java, C#, C++, C, PHP/MySQL, Scheme/Racket, Haskell, ML, JavaScript/jQuery, Python, Perl

**Software Engineer, Thompson Reuters - Hubbard One, Boston, MA** 12/2011

- Present

Development and maintenance of *Contact Networks* product. Using C#, Microsoft SQL, and NHibernate.

**Developer, Garfield Group Interactive, Newton, MA** 7/2011 - 12/2011

Frontend and backend website development and maintenance for Java/JSP, PHP, and Silverstripe based sites. Linux, MySQL, Tomcat, and Apache server configuration and maintenance.

**Lecturer, Northeastern University, Boston, MA** 9/2010 - 7/2011

Lecturing, running labs, managing the course website, creating assignments and exams, and managing grades in Northeastern's introductory undergraduate courses (Fundamentals of Computer Science 1 and 2), two courses per semester.

Developed Java libraries to support the development of complex, visual, interactive games using Java Swing and Android Platforms.

**Research Assistant, Northeastern University, Boston, MA** 5/2008 - 8/2010

Completed thesis research on generic, polytypic, and adaptive object-oriented programming and tools. Peer reviewed conference and journal submissions/publications and helped with my advisor's courses in Algorithms and Software Development.

Developed **DemeterF**, a class, traversal, and parser generator for Java and C#, including traversal, multiple-dispatch, and HTTP libraries for Java, C#, and PLT Scheme. Ported the JavaCC parser generator to generate C# parsers.

**Software Eng. Intern, Synopsys Inc., Marlborough, MA** 6/2005 – 9/2007  
 Worked on compiler implementation and analyses for hardware description languages (e.g., Verilog). Developed optimizations, in C and C++ focusing on activation-record elimination and basic-block fusion for hardware simulation.

Implemented a prototype multi-threaded event-based simulator for hardware simulation also in C and C++.

**Freelance Software Eng., Geolearning, Boston, MA** 4/2005 – 9/2005  
 Developed a component-based source-code management system in Python to support C#.

**Freelance Software Eng., Quinsoft, Quincy, MA** 3/2004 – 4/2005  
 Ported a Windows-based database application server to Linux and FreeBSD platforms in C++.

## Teaching Experience

### Northeastern University, Boston, MA

**Instructor** *Fundamentals of CS 2* Summer 2011 22 Students

**Instructor** *Fundamentals of CS 2* Spring 2011 68 Students

**Instructor** *Fundamentals of CS 1* Spring 2011 46 Students

**Instructor** *Fundamentals of CS 1* Fall 2010 53 Students

**Instructor** *Fundamentals of CS 1* Spring 2008 44 Students

Responsible for giving lectures, running lab sessions, creating assignments and exams, meeting with students, and managing grades.

**Teaching Assistant** *Fundamentals of CS 1* Fall 2008

**Teaching Assistant** *Fundamentals of CS 2* Fall 2007

**Teaching Assistant** *Object-Oriented Design* Fall 2005, 2006

Responsible for running lab sessions, creating lab exercises, meeting with students, and grading assignments.

## Publications

### Journal, Conference, and Workshop

B. Chadwick and K. Lieberherr. *A Functional Approach to Generic Programming using Adaptive Traversals*. Higher-Order and Symbolic Computation, Festschrift for Mitch Wand. To appear, 2011.

B. Chadwick and K. Lieberherr. *Algorithms for Traversal-Based Generic Programming*. In ICFP '10, WGP Workshop. ACM, 2010.

B. Chadwick and K. Lieberherr. *Weaving Generic Programming and Traversal Performance*. In AOSD '10. ACM, 2010.

B. Chadwick and K. Lieberherr. *A Type System for Functional Traversal-Based Aspects*. In AOSD '09, FOAL Workshop. ACM, 2009.

## Technical Reports

B. Chadwick and K. Lieberherr. *A Generative Approach to Traversal-based Generic Programming*. Technical Report NU-CCIS-09-04, Northeastern University, Boston, May 2009.

B. Chadwick and K. Lieberherr. *Functional Adaptive Programming with DemeterF*. Technical Report NU-CCIS-08-March19, Northeastern University, Boston, March 2008.

B. Chadwick, A. Abdelmeged, T. Skotiniotis, and K. Lieberherr. *Abstraction of Communication in Traversal-Related Concerns*. Technical Report NU-CCIS-07-75, Northeastern University, Boston, December 2007.

B. Chadwick, T. Skotiniotis, and K. Lieberherr. *Functions and Traversals in Combination*. Technical Report NU-CCIS-07-07, Northeastern University, Boston, October 2007.

B. Chadwick, T. Skotiniotis, and K. Lieberherr. *Functional Visitors Revisited*. Technical Report NU-CCIS-06-03, Northeastern University, Boston, May 2006.

## Presentations

Algorithms for Traversal-Based Generic Programming. At the *6th ACM SIGPLAN Workshop on Generic Programming (WGP'10)*, Baltimore MD, September 2010.

Weaving Generic Programming and Traversal Performance. At the *9th International Conference on Aspect-Oriented Software Development (AOSD'10)*, St. Malo, France, March 2010.

A Type System for Functional Traversal-Based Aspects. At the *2009 Workshop on Foundations of Aspect-Oriented Languages (FOAL'09)*, Charlottesville, VA, March 2009.

Removing Accidental Traversal Complexity from Programs. At the *Northeastern University Programming Language Seminar*, Boston, MA, April 2008.