

## Mailing Address

5A Durham St. Apt 3  
Somerville, MA 02143

## Office Address

309 Maxwell Dworkin  
Harvard University  
Cambridge, MA

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## Education

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### Harvard University

Cambridge, MA

*Fall 2013–Present*

*Computer Science Ph.D. Student*

- ∠ Working with Stephen Chong in Harvard's Programming Languages group
- ∠ Relevant coursework: CS221 Computational Complexity, CS260r Cloud Big Data Systems, CS281 Advanced Machine Learning, CS252r Advanced Topics in Programming Languages

### The Inter-University Program for Chinese Language Study, Tsinghua University

Beijing, China

*Summer 2013*

*Chinese Language Student*

- ∠ Studied Chinese at an intermediate level
- ∠ Acquired conversational Chinese language ability

### Northeastern University

Boston, MA

*Fall 2008–Spring 2013*

*B.S. summa cum laude in Computer Science and Physics, 2013*

- ∠ 3.770/4.000 GPA
- ∠ Relevant coursework: Software Development, Algorithms, Programming Languages, Electricity and Magnetism, Quantum Mechanics

## Research Experience

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### Pushdown Flow Analysis Applied to Parser Generators

Boston, MA

*July 2011–June 2012, January 2013–June 2013*

*Research Assistant* — Northeastern University

- ∠ Implemented a compiler from a push down automata (PDA) description-language to Racket
- ∠ Designed a flow analysis which leverages the computational weakness of PDAs to achieve precise static guarantees
- ∠ Learned an immense amount about type theory, abstract interpretation, lattice theory, and parsing
- ∠ Source code is available at <http://github.com/danking/pda-to-pda-risc>, and <http://github.com/danking/pda-flow-analysis>

### ME1/1 Electronics Upgrade to the Cathode Strip Chambers

Geneva, Switzerland

*July 2012–December 2012*

*Research Assistant* — Compact Muon Solenoid (CMS) at the European Organization for Nuclear Research (CERN)

- ∠ Collaborated with research scientists and engineers to facilitate the testing and integration of new electronic components for the ME1/1 cathode strip chambers
- ∠ Updated, maintained, fixed, and wrote software written in a combination of C, C++, Fortran, ROOT, and PAW
- ∠ Communicated to broader audiences and documented for future users my knowledge of the test stand and tools
- ∠ Used knowledge of particle physics and circuit theory to understand the operation of the cathode strip chamber

### Scheme to JavaScript Compiler

Boston, MA

*Spring 2009, Summer 2009, and Summer 2010*

*Research Assistant* — Northeastern University

- ∠ Implemented a compiler to provide a browser-based runtime environment for students' Scheme programs
- ∠ Created a trampolining interpreter to achieve tail call optimization in JavaScript
- ∠ Examples available at <http://www.ccs.neu.edu/home/danking/progs/>

## Awards and Fellowships

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∠ NSF Graduate Research Fellowship 2014 Honorable Mention

## Engineering Experience

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### Intuit, Inc.

July 2010–December 2010

San Diego, CA

*Software Engineer* — TurboTax Developer Operations Team

- ∠ Took initiative to clean up and document regression tests
- ∠ Automated the building of an Eclipse Rich Client Platform product
- ∠ Investigated the source of seg faults in the build system
- ∠ Evaluated alternatives to deprecated Ruby libraries based on implementation constraints

### TeaScript

Fall 2010

San Diego, CA

*Sole Imagineer* — A Personal Foray into Language and Compiler Design

- ∠ Wrote a compiler for a Scheme-like language that targets JavaScript and attempts to produce readable JavaScript
- ∠ Source code is available at <http://github.com/danking/tea-script>

## Tutoring Experience

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### Bootstrap

Fall 2009, Spring 2014

Boston, MA

*After School Teacher* — Citizen Schools

- ∠ Teaching middle school students algebra by teaching them how to program their own video games.
- ∠ More info about the Bootstrap project is available at <http://www.bootstrapworld.org/>

### General Computer Science Tutor

January 2012–June 2012

Boston, MA

*Tutor* — Northeastern University

- ∠ Tutoring students in an array of undergraduate classes including: Fundamentals of Computer Science I and II, Object Oriented Design, and Logic and Computation
- ∠ Received tutor training from the CLRA certified, head of peer tutoring at Northeastern University

### Fundamentals of Computer Science I

Fall 2011

Boston, MA

*Teaching Assistant* — Northeastern University

- ∠ Taught two lab sections; assistant TA for the honors section and lead TA for a regular section
- ∠ Helped numerous students overcome idiosyncratic misunderstandings of the course material during weekly office hours

## Activities

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- ∠ Playing soccer
- ∠ Studying Mandarin; I have an intermediate proficiency
- ∠ Boardgaming. Among the games I enjoy: Power Grid, Dominion, Settlers of Catan, Puerto Rico.