

Eddie Kohler

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Education

Massachusetts Institute of Technology

- 2000 PhD in Electrical Engineering and Computer Science (expected)
Thesis title: The Click modular router as a system and a programming language
Supervisors: M. Frans Kaashoek and Robert Morris
- 1997 SM in Electrical Engineering and Computer Science
Thesis title: Prolac: a language for protocol compilation
Supervisor: M. Frans Kaashoek
- 1995 SB in Mathematics with Computer Science
SB in Music

Research interests

Computer systems, with specific interests in networking, programming languages, and operating systems. Also, user interfaces and graphic design.

Experience

- 1995– **Research assistant** – *MIT LCS Parallel & Distributed Operating Systems Group*
Click modular router: Click is an architecture for building routers from modular software components. Modern routers are expected to implement a large, changing feature set, from interesting dropping policies and quality-of-service to firewalling and network address translation. With Click, a network administrator can implement novel routing features simply by rearranging components. I co-designed the Click system, created the language Click uses to describe router configurations, wrote much of the core code of the Click router, and designed and implemented tools that process Click language files. More information is available at <http://www.pdos.lcs.mit.edu/click/>.
Prolac protocol language: Prolac is an object-oriented language designed for writing readable, modular, extensible, and efficient network protocol implementations. I designed the Prolac language, implemented its compiler, and co-developed a prototype TCP specification in Prolac. I also informally co-supervised a Prolac-related M.Eng. thesis. More information is available at <http://www.pdos.lcs.mit.edu/~eddielwo/prolac/>.
Binary analysis: Developed a sandboxer (which enforces safety properties by rewriting machine code) for the MIPS architecture, and a live register analyzer for Alpha binaries.
- 1998 **Summer intern** – *Microsoft Research, Cambridge, England*
Co-designed and implemented Java prototype for an electronic book. Created a fast algorithm for text layout supporting arbitrary page designs and both document and user preferences.

- 1996–9 **Consultant** – *Bitstream, Inc., Cambridge, MA; SightPath, Waltham, MA*
Contract work in software implementation and information design.
- 1992–4 **Undergraduate research** – *MIT*
Programming Methodology Group, LCS: Developed a language-based foreign function interface for CLU, and implemented a driver that improved the CLU compiler’s performance by up to 40%.
Visible Language Workshop, Media Lab: Implemented graphical user interface objects for the VLW’s proprietary window system.
Information Services: Co-implemented GUI, network protocol, and back end for an electronic-forms system.
- 1991– **Free software**
Author and maintainer of several widely used free software packages, including PostScript font manipulators, a GIF animation manipulator, a program that reminds you to take wrist breaks, a game, a joke, and a graphical instant messaging client used by half to two-thirds of MIT undergraduates.

Teaching experience

- 1997 **Recitation instructor** – *MIT course 6.821: Programming languages*
Taught weekly recitation sections to about 25 students. Answered students’ questions, graded problem sets, led quiz reviews. Taught lecture when Prof. Gifford was absent. Developed course material, including problem sets, exams, and code (a reconstructor for side effect specifications).
- 1996 **Teaching assistant** – *MIT course 6.033: Computer system engineering*
Answered students’ questions, graded reports, led quiz reviews. Assisted students’ writing. Edited course lecture notes and all other course documents.
- 1994–5 **Laboratory assistant** – *MIT course 6.170: Laboratory in software engineering*
Answered students’ online questions.

Publications

Robert Morris, Eddie Kohler, John Jannotti and M. Frans Kaashoek. “The Click modular router.” *Proc. 17th ACM Symposium on Operating Systems Principles*, Kiawah Island, South Carolina, December 1999, pages 217–231.

This paper was selected as one of four best-in-conference papers at SOSP ’99 and has been selected for fast-track publication in ACM Transactions on Computer Systems.

Eddie Kohler, M. Frans Kaashoek and David R. Montgomery. “A readable TCP in the Prolac protocol language.” *Proc. ACM SIGCOMM ’99 Conference*, Cambridge, Massachusetts, August 1999, pages 3–13.

Eddie Kohler, Massimiliano Poletto and David R. Montgomery. “Evolving software with an application-specific language.” *Workshop Record of WCSSS ’99: 2nd ACM SIGPLAN Workshop on Compiler Support for Systems Software*, Atlanta, Georgia, May 1999, pages 94–102.

Service

- 1998–2000 **Graduate student representative** – *MIT Committee on Campus Race Relations*
Helped define areas for the committee to investigate, including minority graduate student admissions.
- 1991– *MIT Dramashop*
Served variously as Vice President, Publicity Director, and Publicity Designer for this campus arts organization. Responsibilities included co-producing shows and extensive graphic design work.

Graphic design

1993– **Print:** Poster and other design for arts organizations in the Boston area, including MIT Dramashop, Boston Musica Viva, the John Oliver Chorale, and Open City Theater. Much of this work is archived at <http://www.lcdf.org/~eddi2wo/design/>.

Web: Web site design and implementation for campus organizations and classes, including the Committee on Campus Race Relations (assistant designer), the LCS Parallel and Distributed Operating Systems group, Dramashop, the Gay, Lesbian and Bisexual Graduate Student Coffeehouse, and the 6.033 course (computer system engineering).

Other interests

Theater, music, writing, and visual arts. Wrote four one-act plays performed at MIT; acted in others. Wrote music to accompany a Shakespeare production.

Awards

- 1998 *Frederick C. Hennie III Award*
Recognizes excellence in teaching by an MIT EECS graduate student.
- 1997 *Kristen E. Finnegan Prize*
Recognizes contributions of a graduate student to MIT's effort to improve undergraduate writing skills.

1996 *National Science Foundation Graduate Research Fellowship*

1995 *Laya and Jerome B. Weisner Award*
Recognizes outstanding achievement in and contributions to the arts at MIT.

Member, Phi Beta Kappa academic honor society

Member, Sigma Xi engineering honor society

References

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