

Christopher D. Richards

<http://mauka.net/cdrichards/>

Education

Princeton University, Princeton, NJ
Ph.D. in Computer Science, June 2010
Dissertation Title: *The Approximation Modality in Models of Higher-Order Types*
Advisor: Andrew W. Appel

Williams College, Williamstown, MA
B.A. *cum laude* in Computer Science, May 2000, GPA: 3.71

Experience

Princeton University
Doctoral Candidate 2006–2010
Developed system to encode safety invariants for machine code programs using principles from mathematical logic.

Research Assistant 2000–2005
Developed Foundational Proof-Carrying Code for certifying safety of machine-code programs. Maintained 140,000-line code base (Twelf—logic programming and theorem proving) and developed supporting tools (Awk). Proved theorems in machine-checked formal logic. Improved type systems for machine code.

Plaintiffs in *Gusciora v. Corzine* (N.J. Super. Ct. Law Div.) Summer 2008
Expert Study Group Member (pro bono)
Analyzed security and accuracy of Sequoia AVC Advantage voting machine with plaintiff's expert witness. Audited source code (C, Z80 assembly) and crafted exploits.

AT&T Labs—Research Summer 2000
Summer Manager Advisor: Richard W. Sproat
Upgraded the *lertools* software package for language analysis, with emphasis on modularity and maintainability.

Selected Publications

Semantic Foundations for Typed Assembly Languages. Amal Ahmed, Andrew W. Appel, Christopher D. Richards, Gang Tan, and Daniel C. Wang. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 32(3):1–67, March 2010.

A Very Modal Model of a Modern, Major, General Type System. Andrew W. Appel, Paul-André Melliès, Christopher D. Richards, and Jérôme Vouillon. In *POPL '07: Proceedings of the 34th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, January 2007.

Skills

Languages. ML, Java, C, Python, Unix shell, Awk, Lisp, Twelf, Coq, LaTeX
Systems. Linux/BSD/Solaris, Mac OS X, Windows

References

Available upon request.