

Joshua Reich

509 CSB
1214 Amsterdam Ave. MC 0401
New York, NY 10025

646.657.9327
reich@cs.columbia.edu
www.cs.columbia.edu/~reich

Education **School of Engineering and Applied Science / Graduate School of Arts and Science**

2002-present *Columbia University* *New York, NY*

- MS in Computer Science, May 2004 *GPA: 4.00*
- MPhil in Computer Science, February 2006
- PhD in Computer Science, expected Summer 2011

Columbia College

1998-2002 *Columbia University* *New York, NY*

- BA in Mathematics, *Magna cum Laude*, May 2002 *GPA: 3.92*

Experience **Research Summer Intern**

Summer 2009 *Microsoft Research* *Redmond, WA*

- Designed and implemented sleep-proxying system for conserving and measuring power usage in enterprise desktop machines.
- Built tools for administration and report generation using Silverlight
- Deployed proxies of six subnets, conducted extensive measurements logged via SQL.

Research Intern / Stagiare

Fall 2008, Spring 2009 *Technicolor Paris Research Lab* *Paris, France*

- Worked on content dissemination in opportunistic environments.
- Developed analytic model for assessing content dissemination mechanisms.
- Built simulator, verified performance using published real-world contact traces.

Research Summer Intern

Summer 2008 *Microsoft Research* *Bangalore, India*

- Worked on RFID privacy in mobile P2P networks
- Designed protocol for object detection w/ minimal information leakage.
- Implemented system prototype on Windows Mobile handsets.

Quantitative Trading: Summer Associate

Spring 2008 *Credit Suisse* *New York, NY*

- Worked on Life Finance Trading Desk
- Implemented mortality rate projection modeling
- Analyzed yield behavior of mortality contingent instruments

Quantitative Summer Internship Program: Summer Associate

Summer 2007 *Credit Suisse* *New York, NY*

- Implemented basic financial models including Binomial/Trinomial Grid, PDE, and Monte Carlo
- Exposed to wide variety of product types: Equity, FX, IRP, Credit
- Developed Haskell-based DSL for automated software testing

Center for Cyber Defenders, Summer Intern

Summers: 2005-06 *Sandia National Laboratories Albuquerque, NM / Livermore, CA*

- Built malware fingerprinting toolkit
- Coded recursive descent disassembler for Intel x86 platform
- Engineered network anomaly detection system

Programming Languages C++, Graduate Student Instructor

Fall-Spring 2005-06

Columbia University

New York, NY

- Created and taught a programming course for graduate students and upper level undergraduates
- Developed syllabus, course materials, lectures, and designed exams
- Gave weekly lectures and assisted students to master material during office hours

National Science Foundation, GK-12 Engineering Fellow

2002-2004

Columbia University

New York, NY

- Developed and taught engineering curricula in New York City public schools
- Mentored teams of students and advised teachers

Research

VMTorrent: Quick and Scalable Virtual Machine Distribution and Execution

Architected system for efficient and scalable P2P VM distribution, agnostic of VMM/hypervisor. Designed algorithms for P2P data exchange, pre-fetch optimization and execution correctness. Built prototype on FUSE & Libtorrent, tested on dozens of workstations using several test VMs.

Sleepless No Longer / Microsoft Research Sleep Proxy

Designed and coded economical networked sleep proxy system for enterprise desktop power savings. Deployed and measured system using multiple subnets w/ SQL-based logging system, distributed control scripts. Shown to produce substantial energy savings w/ low complexity and no client-side changes.

MADNET Mobile Network Testbed

Created an award-winning test-bed composed of Linksys wireless routers running OpenWRT Linux for embedded devices and Roomba Create mobile robotic bases. Implemented multi-threaded, distributed, socket-based algorithms, incorporating delay-tolerant communications.

Skills

Languages: C, C++, Perl, Java, Haskell, Matlab, PHP, Silverlight, SQL

Tools: Bash, Excel, VBA, LaTeX, Emacs, POSIX, GDB, TCP/IP Sockets, OpenWRT (embedded Linux), FUSE, Libtorrent, Windows Mobile

Operating Systems: Mac OS X, Linux, Unix, Windows

Honors

Invited Speaker, European Union NEM Summit, Green Networking Workshop

ARC Student Poster Finalist SIGCOMM '10

ACM MobiHoc/MobiCom Best Student Demo Award Recipient

Two-time Columbia School of Engineering Extraordinary Teaching Assistant Awardee

Member of Phi Beta Kappa: Columbia College, Columbia University

Charter Member of Golden Key Honor Society: CC, Columbia University

National Merit 2000 Scholarship Recipient