

Sam Burnett

Curriculum Vita

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Research Interests

My research improves the security, freedom, and correctness of computer networks by forming connections to fields like information security and programming languages.

Education

2008–present **PhD in Computer Science**, *Georgia Institute of Technology*, Atlanta, GA.

Advisor: Nick Feamster

Passed written and oral qualifying exam

2004–2008 **BS in Computer Science**, *Carnegie Mellon University*, Pittsburgh, PA.

Thesis: *Combining Wireless Network Emulation and Simulation*

Advisor: Peter Steenkiste

GPA: 3.54

Refereed Publications

Sam Burnett, Nick Feamster, and Santosh Vempala. *Chipping Away at Censorship Firewalls with User-Generated Content*. USENIX Security Symposium, August 2010.

Medha Bhadkamkar, Jorge Guerra, Luis Useche, **Sam Burnett**, Jason Liptak, Raju Rangaswami, and Vagelis Hristidis. *BORG: Block-reORGanization for Self-Optimizing Storage Systems*. File and Storage Technologies (FAST), February 2009.

Research Projects

2010–present **Measuring Global Internet Censorship**, *Georgia Tech*.

Advisors Nick Feamster and Wenke Lee

- Designing a decentralized technique for measuring the extent of Internet censorship
- Informing users of censorship with a Google Chrome browser extension

2010–present **Communicating Around Extreme Censorship**, *Georgia Tech, Princeton and BBN*.

Advisors Nick Feamster, Jennifer Rexford and Josh Karlin

- Bootstrapping trust among groups of physically proximal peers
- Planning a prototype anonymous ad hoc network of smartphones

2008–2010 **Collage: Defeating Censorship with User-Generated Content**, *Georgia Tech*.

Advisors Nick Feamster and Santosh Vempala

- Designed a system that evades Internet censorship using user-generated media

- Implemented and deployed a prototype system on Flickr
 - Featured extensively in the press, including The Economist, New Scientist, and Slashdot
- 2010–present **Next-generation Network Configuration Languages**, *Georgia Tech*.
Advisors Nick Feamster, John Launchbury and Paul Hudak
 - Exploring how Functional Reactive Programming can express network policies
 - Specifying domain specific languages in Haskell for network policy specification
- 2009–2010 **Quantifying Personally Identifiable Information Exposures**, *Intel Labs Seattle*.
Advisors Ben Greenstein and David Wetherall
 - Designed a study for quantifying how networks leak users' personal information
 - Assisted measurement of information exposures to 80 popular Web sites
- 2007–2008 **Wireless Network Simulation and Emulation**, *Carnegie Mellon University*.
Advisor Peter Steenkiste
 - Researched techniques for combining wireless network simulation and emulation
 - Implemented and evaluated hybrid emulator and simulator using Emulab
- Summer 2006 **Self-optimizing File Systems**, *Florida International University*.
Advisor Raju Rangaswami
 - Implemented and evaluated a prototype self-optimizing file system
 - Funded by NSF Research Experience for Undergraduates grant #0552555
- Spring 2006 **Content-aware Optimizing Web Proxy**, *Carnegie Mellon University*.
Advisor Peter Steenkiste
 - Implemented a proxy server that minimized bandwidth using learned browsing habits

Teaching Experience

- 2006–2008 **Undergraduate Course Assistant**, *Carnegie Mellon University*, Pittsburgh, PA.
 - Assisted over 400 introductory Computer Science students in 8 semesters
 - Prepared and taught four semesters of recitations and several full lectures

Industrial Experience

- Summer 2011 **Software Engineering Intern**, *Google*, Chicago, IL.
Designing and launching a service for tracking website unavailability
- Summer 2009 **Summer Research Intern**, *Intel Labs Seattle*, Seattle, WA.
Designed a study for measuring Web privacy using a custom Firefox extension

Technical Reports

Andreas Voellmy, Ashish Agarwal, Paul Hudak, Nick Feamster, **Sam Burnett**, and John Launchbury. *Don't Configure the Network, Program It! Domain-Specific Programming Languages for Network Systems*. Yale University Technical Report RR-1432, July 10, 2010.

Medha Bhadkamkar, **Sam Burnett**, Jason Liptak, Raju Rangaswami, and Vagelis Hristidis. *A Case for Self-Optimizing File Systems*. Florida International University Technical Report TR-2006-09-03, September 2006.

Conference Posters and Demos

Sam Burnett, Nick Feamster and Santosh Vempala. *Circumventing Censorship with Collage*. SIGCOMM Demo Session, August 2010.

Sam Burnett, Nick Feamster and Santosh Vempala. *Defeating Online Censorship with Collage*. Networked Systems Design and Implementation (NSDI), April 2009.

Presentations

Sam Burnett, Nick Feamster and Santosh Vempala. *Chipping Away at Censorship Firewalls with User-Generated Content*. USENIX Security Symposium, Aug 13, 2010.

Sam Burnett, Nick Feamster and Santosh Vempala. *Using User-Generated Content to Defeat Censorship*. University of Washington, July 30, 2009.

Theses

Sam Burnett. *Combining Wireless Network Simulation and Emulation*. Undergraduate Thesis, Carnegie Mellon University, May 2008.

Class Projects

- Spring 2011 Simulated several fundamental **pipelined processor structures**
- Spring 2010 Motivated an **Internet-scale DNS-based botnet detection system**
- Spring 2008 Implemented a multi-stage, type-directed **ML compiler**
- Spring 2008 Wrote a full-featured **Web application** using Servlets and Scala
- Fall 2007 Implemented and tested a **BitTorrent client** with congestion control
- Fall 2007 Authored an **IRC client and server**
- Fall 2006 Wrote a UNIX-style preemptible **operating system kernel**

Selected Press Articles About My Work

Hidden Truths: A new way of beating the web's censors. The Economist. October 12, 2010.

Beat censorship by hiding secret messages in Flickr photos. Ars Technica. August 18, 2010.

Hiding files in Flickr pics will fool Web censors. NewScientist. August 9, 2010.

Internet Censorship Arms Race Gets New Weapon From Georgia Tech. Slashdot. July 9, 2010.

Computing Tools

OS	Linux, Mac OS X, Windows	libraries	POSIX, Django
languages	Python, C, Java, Haskell, JavaScript, ML	other	LaTeX, Firefox & Chrome extensions
platforms	PlanetLab, Emulab		