

# Anirudh V. Ramachandran

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<b>Education</b>	GEORGIA INSTITUTE OF TECHNOLOGY	<i>Atlanta, GA</i>
	Ph. D. student in Computer Science. <i>Emphasis: Network Security and Network Monitoring Applications</i> <i>Advisor: Prof. Nick Feamster</i>	August 2005 onwards
	INDIAN INSTITUTE OF TECHNOLOGY MADRAS	<i>Chennai, India</i>
	B. Tech in Computer Science and Engineering. <i>Thesis: A Tool for Implementing Globally Asynchronous Locally Synchronous (GALS) Circuits</i>	2001–2005

## Research Interests

Network Security, Network Monitoring and Measurement, Mitigation of Unwanted Traffic on the Internet (Spam, Phishing, etc.), Distributed Systems, Operating Systems.

## Research Experience

January 2006–	<b>Research Assistant</b>	Georgia Tech, <i>Atlanta, GA</i>
	Graduate Research Assistant at the College of Computing, Georgia Institute of Technology with Prof. Nick Feamster. Selected projects:  <i>Enterprise Traffic Classification.</i> Developed new techniques for traffic classification with applications in authentication, exfiltration prevention, and traffic provisioning, using support from end-hosts. <i>Network-level Spam Filtering.</i> Developed and evaluated algorithms identifying novel network-level properties of spammers and developing algorithms and systems to filter spam based on network-level properties, and built and deployed a real-time system that implements these algorithms. <i>Network Monitoring.</i> Developed a system that can selectively monitor desired subpopulations on high-speed links.	
Summer 2007	<b>Internet and Network Systems Research Group Intern</b>	AT&T Research, <i>Florham Park, NJ</i>
	Worked on a new in-network phishing detection framework and algorithms that attempt to proactively detect and mitigate phishing at the scale of backbone networks.	
Summer 2006	<b>Networks Group Intern</b>	International Computer Science Institute (ICSI), <i>Berkeley, CA</i>
	Internship with Prof. Scott Shenker. Research included design of, and measurements for, a new Internet Addressing Scheme: Atomic IP (AIP), which is part of the NSF GENI initiative.	
2004–2005	<b>Undergraduate Research Assistant</b>	Indian Institute of Technology Madras, <i>Chennai, India</i>
	Research included Computer Architecture projects such as Region Constrained Routing for FPGAs, and design of a tool to implement Delay-Insensitive Globally Asynchronous Locally Synchronous Circuits.	

- Summer 2004      **Software Development Intern**      Intel Corporation, *Bangalore, India*  
 Worked in the Design Technology group on designing and implementing algorithms to identify equivalent components in circuits, to optimize Intel's production Automatic Test Pattern Generation (ATPG) tool.
- Summer 2003      **Software Development Intern**      Intel Corporation, *Bangalore, India*  
 Worked in the Design Technology group on designing graph-theoretic algorithms to improve circuit-learning in Intel's production tool for Automatic Test Pattern Generation (ATPG).

## Teaching Experience

- Spring 2009      Teaching Assistant, Georgia Tech Course CS 6262–Network Security  
 Developed assignments and project ideas for this graduate-level course on Network Security and Applied Cryptography.
- Fall 2005      Teaching Assistant, Georgia Tech Course CS 3210–Operating System Design.  
 Developed and evaluated advanced programming assignments involving modifying the Linux kernel on handheld PCs; conducted information sessions on Linux kernel programming and evaluated quizzes and homeworks.
- Fall/Spring 2004      Teaching Assistant, IIT Madras Course CS 110–Fundamentals of Programming.  
 Taught scientific programming fundamentals using C and Unix to class of freshmen.

## Peer-Reviewed Publications

### *Network Security*

- [1] Anirudh Ramachandran, Nick Feamster, and Santosh Vempala. Filtering Spam With Behavioral Blacklisting. In *Proc. Fourteenth ACM Conference on Computer and Communications Security*, Alexandria, VA, November 2007.
- [2] Anirudh Ramachandran and Nick Feamster. Understanding the network-level behavior of spammers. In *Proc. ACM SIGCOMM*, Pisa, Italy, August 2006.  
**Best Student Paper Award.**
- [3] Anirudh Ramachandran, Nick Feamster, and David Dagon. Revealing Botnet Membership with DNSBL Counter-Intelligence. In *2nd USENIX Workshop on Steps to Reducing Unwanted Traffic on the Internet (SRUTI)*, San Jose, CA, July 2006.
- [4] Anirudh Ramachandran, David Dagon, and Nick Feamster. Can DNSBLs Keep Up with Bots? In *3rd Conference on Email and Anti-Spam (CEAS)*, Mountain View, CA, July 2006.

### *Network Monitoring and Design*

- [5] Anirudh Ramachandran, Srinivasan Seetharaman, Nick Feamster, and Vijay Vazirani. Fast Monitoring For Traffic Subpopulations. In *ACM SIGCOMM/USENIX Internet Measurement Conference*, Vouliagmeni, Greece, October 2008.

### *Social Networking*

- [6] Anirudh Ramachandran and Nick Feamster. Authenticated out-of-band communication over social links. In *1st Workshop on Online Social Networks*, Seattle, WA, August 2008.

### *Peer-to-Peer Systems*

- [7] Anirudh Ramachandran, Atish Das Sarma, and Nick Feamster. BitStore: An Incentive-Compatible Solution for Blocked Downloads in BitTorrent. In *2nd Joint Workshop on Economics of Networked Systems and Incentive-Based Computing*, San Diego, CA, June 2007.

## Unrefereed Papers, Technical Reports, and Works in Progress

### *Network Security*

- [8] Anirudh Ramachandran, Shuang Hao, Hitesh Khandelwal, Nick Feamster, and Santosh Vempala. A Dynamic Reputation Service for Spotting Spammers, 2008. In Submission; draft available on request.
- [9] Anirudh Ramachandran, Nick Feamster, Balachander Krishnamurthy, Oliver Spatscheck, and Jacobus van der Merwe. Fishing for Phishing From the Network Stream. Technical Report GT-CS-08-08, Georgia Tech, October 2008. In preparation.

### *Traffic Classification*

- [10] Anirudh Ramachandran, Kaushik Bhandankar, Mukarram bin Tariq, and Nick Feamster. Packets With Provenance. Technical Report GT-CS-08-02, Georgia Tech, January 2008. In preparation.

### *Network Monitoring and Design*

- [11] Anirudh Ramachandran, Srinivasan Seetharaman, Nick Feamster, and Vijay Vazirani. Building A Better Mousetrap. Technical Report GIT-CSS-07-01, Georgia Tech, January 2007.

## Awards and Honors

2006 Best Student Paper Award, *ACM SIGCOMM 2006*, Pisa, Italy

## Professional Service

Reviewer for ACM Computer Communications Review (October 2008 issue).

External reviewer for *IEEE Symposium on Security and Privacy*, 2006, *WWW*, 2007, *Usenix Technical 2007*.

Summarized proceedings for *2nd Steps to Reducing Unwanted Traffic on the Internet Workshop*, *USENIX ;login*, October 2006.

## References

*Available on Request*