

SHISHIR NAGARAJA

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EDUCATION

B.E. (Computer Science), First Class with distinction
Bangalore University, PES Institute of Technology, India, October 1999

Ph.D. (Computer Science),
University of Cambridge, St. John's College, UK, October 2008
Thesis: Robust Covert Networks
Supervisor: Prof. Ross J Anderson

RESEARCH INTERESTS

All security related problems in distributed computing are of interest to me:
Specifically: Privacy, Anonymity and Traffic analysis, Robust Decentralized Networks, and
Security issues in Complex Networks

AWARDS AND DISTINCTIONS

Research Fellowship Award, Institute for Information Infrastructure Protection (I3P), 2008
Best Paper Award, Fourth European Workshop on Security and Privacy in Ad-hoc networks, 2007
Best Paper Award, BCS (British Computing Society) thesis competition, 2006
Gates Cambridge Scholarship, 2003
Distinction Award for Excellence in Academic Work, PES Institute of Technology (PESIT), 1999
Best Undergraduate Project of the Year, Dept. of Computer Science, PESIT, 1999
Technical Excellence Awards 2002 and 2003, Novell, Bangalore
Team Award for Quality Software Engineering of Security Components on Unix for eDirectory,
Novell, Bangalore, 2000

PUBLICATIONS

1. S. Nagaraja and R. Anderson, *Snooping Dragon: Social malware surveillance of the Tibetan movement*, Technical Report 746, Computer Laboratory, University of Cambridge, 2009.
2. S. Nagaraja, *The Economics of Covert Community Detection and Hiding*, in the pre-proceedings of the Workshop on the Economics of Information Security (WEIS 2008), Hanover, New Hampshire, USA, 2008.
3. S. Nagaraja and R. Anderson, *Dynamic topologies for robust scale-free networks*, In LNCS Bio-Inspired Computing and Communication, P. Lio', J. Crowcroft, D. Verma and E. Yoneki (eds.), Springer-Verlag, December 2007.
4. S. Nagaraja, *Anonymity in the wild: Mixes on unstructured networks*, in the Proceedings of the Symposium on Privacy Enhancing Technologies (PET 2007), In LNCS 4776, pp. 254--271, 2007, N. Borisov, and P. Golle (editors), Springer-Verlag, Heidelberg, Germany.
5. Tyler Moore, Jolyon Clulow, Ross Anderson and Shishir Nagaraja. *New Strategies for Revocation in Ad-Hoc Networks*, at the Fourth European Workshop on Security and Privacy in Ad Hoc and Sensor Networks (ESAS). July 2-3, 2007: Cambridge, England. In LNCS 4572, pp. 232--246, 2007, Springer-Verlag, Heidelberg, Germany.
6. R. Anderson, T. Moore, S. Nagaraja, A. Ozment, *Incentives and Information Security*, in *Algorithmic Game Theory*, N. Nisan, T. Roughgarden, E. Tardos, and V. Vazirani (editors), ISBN-13: 9780521872829, Cambridge University Press, 2007.
7. S. Nagaraja and R. Anderson, *Privacy Amplification with Social Networks*, presented at Security Protocols Workshop (SPW 2007), Brno, April 2007. in LNCS (to appear): Springer-Verlag, Heidelberg, Germany.
8. F. L. Wong, M. Lin, S. Nagaraja, I. Wassel and F. Stajano, *Evaluation Framework of Location Privacy of Wireless Mobile Systems with Arbitrary Beam Pattern*, in Proceedings of the Fifth Annual Conference on Communication Networks and Services Research (CNSR 2007), ISBN 0-7695-2835-X, pp 157—165, New Brunswick, Canada, May 2007.
9. S. Nagaraja and R. Anderson, *the topology of covert conflict (revised and updated)*, presented at WEIS (Workshop on the Economics of Information Security), Cambridge, England, UK, 2006.
10. S. Nagaraja and R. Anderson, *the topology of covert conflict*, Technical Report 637, Computer Laboratory, University of Cambridge, 2005.

PATENTS

1. Ravi Kiran UVS and Shishir Nagaraja, *An Algorithm to cluster directory users into user communities based on similarity in access*, USPTO 6,996,577, June 2006.
2. Madhusudhana H S, Shishir Nagaraja and Aridaman Tripathi, *Security and Policy Integrity in multilateral authorization systems*, USPTO 7,136,489, November 2006.
3. Shishir Nagaraja and Madhusudhana H S, *Method and System for Amassed Authorization*, USPTO (submitted), 2003.
4. Shishir Nagaraj, Natraj Sirisilla and H S Madhusudhana, *An adaptive method and system for user empowered management based on Dynamic Quorums*, USPTO, November 2002.

TEACHING EXPERIENCE

Fall (August-November) 2009	Instructor for Distributed Systems course at University of Illinois at Urbana-Champaign(UIUC)
Summer of 2008 and 2009	Supervised three interns at the UIUC and at Cambridge University
October 2007	Lectures on Anonymity and Privacy (final year undergraduates) at Cambridge
October 2003 – January 2006	Undergraduate Supervisor, Security – II (2003, 2004, 2005), Distributed Systems (2005) at Cambridge
April 1997 – October 1998	Teaching Assistant, PES Institute of Technology, C and System Software for a class of 30 students
May 1996 – February 1997	Tutored four ICSE students in Mathematics and Physics

TEACHING INTERESTS

All core undergraduate and graduate computer science courses, and advanced courses in my research specialities.

Courses of special interest are the following: Complex Networks, Anonymity and Privacy, Advanced Traffic Analysis, Introduction to Security, Advanced Computer Security, Distributed Systems, Advanced Statistics, Distributed Databases, Operating Systems, Communications and Networking, Political Censorship and Cyber Law, Unix Tools, Graph Theory and Research Skills.

EMPLOYMENT

I3P Research Fellow and Visiting Assistant Professor, Nov 2008 – May 2010
Information Trust Institute, Electrical and Communication Engineering department
University of Illinois at Urbana-Champaign

Chief Technical Officer

OpenNet Initiative, August 2007 – August 2008,
Overall technical responsibility of censorship monitoring and analysis

Senior Software Engineer

Novell Research, India, February 2000 – August 2003,
Research and software development in secure distributed databases and identity management

Software Engineer

Zillion Software Systems Ltd, India, November 1997 – October 1999,
Software development in authentication protocols

SYNERGISTIC ACTIVITY

1. Program committee participation

- Privacy Enhancing Technologies Symposium (PETS) 2010
- Workshop on Simplifying Complex Networks for Practitioners, SIMPLEX 2009,2010
- International Conference on Bio-Inspired Models of Network, Information, and Computing Systems, (BIONETICS) 2007, 2008
- IEEE Workshop on Security and QoS in Communication Networks, 2006
- The European Conference on Information Warfare and Security (ECIW) 2004, 2005

2. External reviewer

- IEEE S&P 2010, Usenix Security 2010, PET 2004

3. Invited talks (representative out of 27 talks)

- Dragon wars – a case study of surveillance botnets, IBM T J Watson (2009)
- Design Principles of Subversive Networks, University of Calgary (2008)
- Anonymity and Privacy, undergraduate guest lectures, University of Cambridge (2007,2008)
- Topological attack and defence in large-scale networks, University of Ottawa, Ottawa (2007)
- Anonymity in the wild, University of Toronto, Toronto (2007)
- Anonymity on self-organized networks, BioWire, Cambridge (2007)
- *Conflict and The New Science of Networks*, Gates Colloquia, Cambridge (2005)
- *Anonymity in complex networks*, European Conference on Complex Systems, Oxford (2006)
- Integrating Kerberos into directory services, Novell Brainshare, Salt Lake City (2002)

4. Outreach programs:

- As the Researcher-in-Residence representative at the University of Cambridge, I represented the University at various school outreach programs to attract more high school students to read Computer Science.
- As a Cambridge Commonwealth Trust school outreach program participant, I spent time with Cambridge undergraduates, to encourage them to apply for doctoral programs in Computer Science.

LANGUAGES

English, Hindi, Kannada and Telugu

OTHER SKILLS

Music – As a beginner Hindustani classical sitarist of the Maihar school, I collaborate and perform with amateur musicians of various folk genres. Sports - I play tennis, enjoy multi-day high-altitude mountaineering expeditions, and occasionally participate in long distance bicycle trips. I also maintain a strong interest in photography.

COLLABORATORS AND OTHER AFFILIATIONS

Current collaborators

- Jon Crowcroft and Ross Anderson at the University of Cambridge, UK
- Matt Caesar, Nikita Borisov and Negar Kiyavash at the University of Illinois at Urbana-Champaign, USA
- Payman Mohassel at the University of Calgary, Canada
- Peter Ryan at the University of Luxembourg, Luxembourg

Thesis Advisor

Ross Anderson at the University of Cambridge