

VIJAY ARVIND BALASUBRAMANIYAN

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RESEARCH INTERESTS: Voice Over IP (VoIP), Identity management, Reputation Systems, Network security.

EDUCATIONAL BACKGROUND:

Georgia Institute of Technology, Atlanta, GA, Aug 2006 – present **GPA 4.0**
PhD Candidate, College of Computing

Georgia Institute of Technology, Atlanta, GA, Aug 2006 – Dec 2007 **GPA 4.0**
Masters in Information Security, College of Computing

Rashtreeya Vidhyalaya College of Engineering, Bangalore, India, 1998 – 2002 **First Class Distinction Award**
Bachelor of Engineering, Computer Science

RESEARCH EXPERIENCE:

Graduate Research Assistant, Georgia Tech Information Security Lab, Aug 2005 – Present
VoIP Spam

Advisor: Prof. Mustaque Ahamad

Used call duration and the directionality of calling patterns to distinguish between regular users and spammers. Call duration is cryptographically encapsulated to create call credentials that are combined with social network theory and the Eigentrust system to create user reputations, used in distinguishing regular users from spammers.

Research Intern, IBM Research T.J Watson, May 2007 – Aug 2007

Presence Reputation

Mentor: Dr. Arup Acharya

Used watcher information and watcher usage characteristics to create a reputation system, based on the Beta Reputation System, to assign reputation scores for presentities in a single or a federated presence system.

Research Intern, IBM Research T.J Watson, May 2006 – Aug 2006

Analyzing SIP server scalability and improving it through dynamic state distribution

Mentor: Dr. Arup Acharya

Devised an autonomous algorithm to dynamically distribute state in a proxy server network to maximize call throughput of the entire system. This can be extended for other server functionality including authentication and forking.

WORK EXPERIENCE:

Google, May 2008 – Aug 2008

Engineering Intern

Worked with the Google Talk team in Seattle on a new feature (confidential).

Siemens Communications Systems, Jul 2003 – Jul 2005

Senior Software Engineer

Analyzed, designed and implemented the mediator layer of the network management system (NMS). Part of team that developed the award winning Geo-redundant EM for Deutsche Telecom.

Intel Technology India Pvt. Ltd., Aug 2002 – Jul 2003

Software Engineer

Designed search algorithm for commodity schema hierarchy, employed on all Intel inventory sites.

ACCEPTED AND PENDING PUBLICATIONS:

- Lei Kong, Vijay Arvind Balasubramaniyan, and Mustaque Ahamad. A Lightweight Scheme for Securely and Reliably Locating SIP Users. In *Proc. IEEE/IFIP Network Operations & Management Symposium*, Vancouver, Canada, April 2006.

- Vijay A. Balasubramaniyan, Mustaque Ahamad, and Haesun Park. CallRank: Using Call Duration, Social Networks and PageRank to combat SPIT. In *Proc. Fourth Conference on Email and Anti-Spam*, Mountain View, California, August 2007.
- Vijay A. Balasubramaniyan, Arup Acharya, Mustaque Ahamad, Mudhakar Srivatsa, Italo Dacosta and Charles P. Wright. SERvartuka: Dynamic Distribution of State to Improve SIP Server Scalability. Accepted at the *28th International Conference on Distributed Computing Systems (ICDCS 2008)*, Beijing, China, June 2008.
- Italo Dacosta, Vijay A. Balasubramaniyan, Mustaque Ahamad. Impact of Digest Authentication in the Performance and Scalability of a SIP Server. In submission for *Networked Systems Design and Implementation (NSDI 09)*
- Vijay A. Balasubramaniyan, Younho Lee, Alexandra Boldyreva, Mustaque Ahamad. Privacy Preserving Credentials. To be submitted, November 2008.

Papers available on website

PATENTS:

- Vijay A. Balasubramaniyan, Arup Acharya and Mustaque Ahamad. A method and apparatus for autonomically regulating ratio of stateful to stateless transaction processing for increasing scalability in a network of SIP servers. Pending, filed in April 2007.
- Vijay A. Balasubramaniyan, Mustaque Ahamad, Haesun Park. CallRank: Combating SPIT Using Call Duration, Social networks and Global Reputation. Provisional patent filed in August 2007.

TECHNICAL SKILLS:

Languages	C, C++, JAVA, Assembly, Perl, VB, SQL, ASP, ABAP, XML
Databases	Oracle 9i, MySQL, MSAccess
Interface Development	QTDesigner, KDeveloper, MFC
Platforms	Linux, Solaris, Unix, Windows NT/XP/2000/9x, DOS

AWARDS AND ACHIEVEMENTS:

- CallRank featured in the Network World Article, '12 spam research projects that might make a difference', <http://www.networkworld.com/news/2007/112007-spam-research.html?page=4>
- Microsoft Trustworthy Scholar, 2005 – 2007
- Won best paper award for 'AGAPE – A Genetic Algorithm Toolkit', presented at the national level technical fete held by the Computer Society of India (CSI) Student Chapter of Karnataka Regional Engineering College (KREC), Surathkal, 2002.
- Placed 2nd in National Science Talent Search conducted by National Science Village, 1998.

CO-CURRICULAR ACTIVITIES:

- Won the General and Audio Visual Quiz at the national level quiz conducted at IIT, Bombay.
- Ranked 2nd in the State by the Karnataka Quiz Association (KQA).
- Essayed the role of 'Giovanni Bardi' in Nobel laureate Dario Fo's play 'Cant Pay, Wont Pay'

REFERENCES:

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