Kaustubh Gadkari

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OBJECTIVE

An full time position in the field of computer networks with special interests in network measurements, scalable forwarding techniques and routing.

EDUCATION

Ph.D. Computer Science   Spring 2011 - Present
Colorado State University, Fort Collins, CO 80523
Network Security Group
Co-advisers: Dr. Christos Papadopoulos and Dr. Daniel Massey

Master's Degree. Computer Science   Fall 2010
Colorado State University, Fort Collins, CO 80523

Bachelor of Engineering. Information Technology   Fall 2006
University of Pune, Pune, India

COURSES & PROJECTS

BGPMon   Spring 2012 - Spring 2015
- Implemented a system in Perl to automatically archive BGPmon XML streams.
- Code is available via CPAN.

Computer Security   Fall 2007
- Did a comprehensive study of Mandatory Access Control mechanisms, with a focus on SELinux.

Advanced Topics in Computer Security   Fall 2007
- Presented and critiqued computer security themed papers, with a focus on privacy models.

Advanced Networking   Fall 2007
- Created an information distribution system that later inspired parts of BGPMon.
- Researched the benefits of BGP prefix caching.

Advanced Topics In Networking   Spring 2008
- Implemented testbed using multiple machines and Cisco 2600 routers.
- Measured packet rates required to cause the router to drop packets and deny service to hosts.

Internet Engineering   Spring 2009
- Implemented reliable transport and shortest path routing protocols over UDP on PlanetLab.
- Developed a CHORD-based P2P network.

Image Computation   Spring 2010
- Implemented a ray tracer, video stabilizer, and object detection software.

EXPERIENCE

Senior Software Engineer - Infrastructure   October 2015 - Present
Ooyala, Inc.
- Design of data center networks for cloud-based video delivery.
- Build and maintain large-scale infrastructure deployments for efficient cloud-based video delivery.

Network Data Scientist   July 2015 - September 2015
ThousandEyes, Inc.
- Analysis of network data to analyze network failures and perform root-cause analysis of failures.

Internship   January 2015 - July 2015
Ooyala, Inc.
- Worked on design of data center networks for cloud-based video delivery.

Internship   August 2014 - January 2015
Naddive LLC, Fort Collins CO 80521
- Worked on packet inspection techniques to improve live-event video delivery over wirelss networks.

Internship   Summer 2011
Palo Alto Research Center, Palo Alto CA 94304
- Worked on performance measurements of "Content Centric Networking." (`http://www.ccnx.org`).
- Performance measurements were carried out on PlanetLab (`http://www.planet-lab.org/`) and the Open Network Laboratory (`https://onl.wustl.edu/`).
- Compared performance of CCN with TCP as well as CDNs such as CoralCDN.

Graduate Research Assistant   Fall 2009 - Present
Colorado State University, Fort Collins CO 80523
- **Interests**: Network measurements, routing with reduced tables, content-centric networking.
- Researching new designs for reduced forwarding tables.
- Studied the use of fingerprinting custom TCP/IP stacks to detect botnets.
- Studied the characteristics of TCP resets.

Graduate Teaching Assistant   Fall 2008 - Fall 2009
Colorado State University, Fort Collins CO 80523
Have assisted the following courses:
- CS 457 - Computer Networking and the Internet.
- CS 475 - Parallel Programming
- CS 155 - Introduction to Unix
- CS 156 - Introduction to C, part 1
- CS 157 - Introduction to C, part 2

NDN Hub Operator   Fall 2010 - Spring 2013
Colorado State University, Fort Collins CO 80523
- Setup and maintain one of the two central hubs of the Named Data Networking Testbed.

Network Security Lab System Administrator   Fall 2006 - Present
Colorado State University, Fort Collins CO 80523
- Setup and currently maintain the Network Security Group Lab, consisting of 30 rack mounted servers and 5 desktop computers running Ubuntu Linux/FreeBSD and a Cisco router.
- Setup and maintain data capture points at a regional ISP, using specialized packet capture hardware from Endace.

Visiting Lecturer   2006
Symbiosis Institute of Computer Studies and Research, Pune, India
- Taught Linux system administration to students pursuing the Master of Science (Computer Applications) degree.

Undergraduate Research   Fall 2005 - Fall 2006
SONIX Systems, Pune, India
- Worked on a project to develop a process infrastructure for the Linux kernel to allow transparent process migration across cluster nodes.

PUBLICATIONS

1. *Pragmatic Router FIB Caching*, Kaustubh Gadkari, M. Lawrence Weikum, Dan Massey and Christos Papadopoulos, Accepted to COMCOM, `http://dx.doi.org/10.1016/j.comcom.2016.02.006`

2. *Pragmatic Router FIB Caching*, Kaustubh Gadkari, M. Lawrence Weikum, Dan Massey and Christos Papadopoulos, Networking 2015, May 2015

3. *A Fresh Look At Scalable Forwarding Through Router FIB Caching*, Kaustubh Gadkari, Dan Massey and Christos Papadopoulos, NANOG 57, February 2013

4. *Dynamics of Prefix Usage at an Edge Router*, Kaustubh Gadkari, Dan Massey and Christos Papadopoulos, 12th Passive and Active Measurements Conference (PAM 2011), March 2011

5. *Fingerprinting Custom Botnet Protocol Stacks*, Steve DiBenedetto, Kaustubh Gadkari, Nicholas Diel, Andrea Steiner, Dan Massey and Christos Papadopoulos, Workshop on Secure Network Protocols (NPSec 2010) (in conjunction with ICNP 2010), October 2010

6. *Dynamics of RIB Usage at an Edge Router* (Poster), Kaustubh Gadkari, Steve DiBenedetto, Dan Massey and Christos Papadopoulos, 18th International Conference on Network Protocols (ICNP 2010), October 2010

7. *Characterizing TCP Resets in Established Connections*, Nicholas Diel, Kaustubh Gadkari, Steve DiBenedetto, Andrea Steiner and Christos Papadopoulos, Technical Report *CS-08-102*.

EXPERTISE AND SKILLS

- Programming Languages: C, C++, Perl and Python.
- Operating Systems: Windows, GNU/Linux and OS X.
- Other software: Microsoft Office, R, LaTeX.
- Expertise in network data analysis and working with terabytes of packet-level and flow-level network traces.
- Extensive experience with Perl and Python and automating data visualization with GNUplot and matplotlib.

SERVICES

- Web and Publications Chair, 4th Workshop on Secure Network Protocols, 2008
- Ad hoc reviewer for conferences/workshops like INFOCOM 2013, INFOCOM 2010, GLOBECOM 2011 and NPSec 2008.
- Helped organize CANVAS 2008, which was a computer security vulnerability assessment game for undergraduate students.

ACADEMIC MEMBERSHIPS

- ACM Student Member
- IEEE Student Member
- Internet Society (ISOC)
- Colorado Chapter of the ISOC