

Arpit Gupta

Research Assistant
Computer Science, Princeton University
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Education Ph.D., Computer Science, **PRINCETON UNIVERSITY**, Princeton, NJ *Summer 2013-Present*¹
 Advisor: Nick Feamster
 M.S., Computer Science, **NORTH CAROLINA STATE UNIVERSITY**, Raleigh, NC *Spring 2013*
 B.Tech., ECE, **INDIAN INSTITUTE OF TECHNOLOGY (IIT)**, Roorkee, India *Spring 2009*

Research Interests

My interests are in design, analysis and implementation of network infrastructures, protocols, and systems that involve distinct and mutually distrustful entities. My current research focuses on the intersection of interdomain traffic delivery and SDN. I am trying to make interdomain traffic delivery more robust and flexible.

Referred Publications

NSDI 2016 **Arpit Gupta**, Robert MacDavid, Rüdiger Birkner, Marco Canini, Nick Feamster, Jennifer Rexford, Laurent Vanbever, “An Industrial-Scale Software Defined Internet Exchange Point”, *USENIX NSDI 2016, Santa Clara*.

SOSR 2016 **Arpit Gupta**, Nick Feamster, Laurent Vanbever, “Authorizing Network Control at Software Defined Internet Exchange Points”, *ACM SOSR 2016, Santa Clara*.

NSDI 2015 Hyojoon Kim, Joshua Reich, **Arpit Gupta**, Muhammad Shahbaz, Nick Feamster, Russ Clark, “Kinetic: Verifiable Dynamic Network Control”, *USENIX NSDI 2015, Oakland*.

SIGCOMM 2014 **Arpit Gupta**, Laurent Vanbever, Muhammad Shahbaz, Sean P. Donovan, Brandon Schlinder, Nick Feamster, Jennifer Rexford, Scott Shenker, Russ Clark, Ethan Katz-Bassett, “SDX: A Software Defined Internet Exchange”, *ACM SIGCOMM 2014, Chicago*.

PAM 2014 **Arpit Gupta**, Matt Calder, Nick Feamster, Marshini Chetty, Enrico Calandro, Ethan Katz-Bassett, “Peering at the Internet’s Frontier: A First Look at ISP Interconnectivity in Africa”, *Passive and Active Measurements 2014, Los Angeles*.

CoNEXT 2012 **Arpit Gupta**, Jeongki Min, Injong Rhee, “WiFox: Scaling WiFi Performance for Large Audience Environments”, *ACM SIGCOMM CoNEXT, 2012, Nice*.

¹Transferred from **Georgia Tech** in Spring '15

Awards and Honors

2013	Internet-2 Innovation Award for the SDX project
2013	Offered Meissner Fellowship at Purdue University
2012	Slashdotted and covered by CBS, Engadget, TechCrunch etc. for the WiFox project
2010-2011	College of Engineering Fellowship at NC State University
2007	IEEE-Motorola Innovation Award at IIT, Roorkee
2005-2009	Merit-cum-Means Scholarship at IIT, Roorkee

Employment History

June 2013-Present	Research Assistant	Princeton University ² (<i>Princeton, NJ</i>)
	Designed and prototyped software defined Internet exchange (SDX) platform ³ . Developed container based emulation platform for SDX, to simplify development of various SDX applications ⁴ . Worked on multiple active/passive measurement dataset to analyse and model ISP interconnectivity in developing regions ⁵ . Assisted in design and implementation of event based network management tool called Kinetic ⁶ , simplifying network configuration and management.	
2010-2013	Research Assistant	North Carolina State University (<i>Raleigh, NC</i>)
	Designed and implemented WiFox, solving the problem of performance degradation for large audience environments. This technology has been licensed out to Intel.	
May-Aug 2011	Summer Intern	Google Inc (<i>Mountain View, CA</i>)
	Worked on quantifying the role played by TCP time outs on Google's search traffic. Instrumented the TCP stack for Google's front end servers to collect the data required for this measurement study.	
March-Aug 2010	Research Assistant	Indian Institute of Science (<i>Bangalore, India</i>)
	Designed and implemented a WiFi AP based scheduling algorithm ensuring fairness to clients with disparate link qualities.	

Teaching Experience

Summer 2014	Teaching Assistant, Coursera SDN 002, Software Defined Networking <i>Instructor:</i> Nick Feamster Assisted with homework/quiz design and grading for Coursera course with 50K+ students.
Fall 2014	Teaching Assistant, Georgia Tech CS 8803, Software Defined Networking Lab <i>Instructor:</i> Nick Feamster Currently assisting with homework/quiz design, grading, and some lectures. Mentoring students for their term projects.
Fall 2012	Teaching Assistant, NC State CSC 570, Computer Networks <i>Instructor:</i> Rudra Dutta Assisted with homework/quiz design and grading, held weekly office hours.

Talks

2013-2014	SDX: A Software Defined Internet Exchange <i>Invited Talks:</i> Open-IX Summit (04/15), Huawei Networking & Big Data Workshop (12/15) <i>Conferences:</i> ACM SIGCOMM (08/14), GEC 20 (06/14), NANOG 59 (10/13) <i>Industry:</i> Facebook Inc.(08/14), Microsoft (08/14) <i>Universities:</i> Stanford NetSeminar (10/14)
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²Transferred from **Georgia Tech** in Spring'15

³github.com/sdn-ixp/sdx

⁴github.com/sdn-ixp/sdx/wiki/SDX-Demo

⁵github.com/aguapt13/Peering-Africa

⁶<http://resonance.noise.gatech.edu>

- 2014 **Peering at the Internet's Frontier**
Conference: Passive & Active Measurements (03/14)
- 2012 **WiFox: Scaling WiFi Performance for Large Audience**
Universities: Duke University (10/12), UNC Chapel Hill (10/12)
Conference: ACM SIGCOMM CoNEXT (12/12)

Skills

Programming: C/C++, Java, Python

Software Pkg: MATLAB, R, Android SDK, Pyretic, POX, Kinetic, Ryu, SDX, iSDX

References

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Prof. Jennifer Rexford
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