

Arpit Gupta

Research Assistant
Computer Science, Princeton University
320 Sherrerd Hall, Princeton, NJ

arpitg@cs.princeton.edu
<http://cs.princeton.edu/~arpitg/>

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

Research Interests

My research focuses on the intersection of Internet Routing, Network Security, Big Data, and Software Defined Networks (SDN).

Referred Publications

SOSR 2017	Rudiger Birkner, Arpit Gupta , Nick Feamster, Laurent Vanbever, “SDX-Based Flexibility or Internet Correctness? Pick Two! ”, <i>ACM SOSR 2017, Santa Clara</i> .
SOSR 2017	Robert MacDavid, Rudiger Birkner, Ori Rottenstreich, Arpit Gupta , Nick Feamster, Jennifer Rexford, “Concise Encoding of Flow Attributes in SDN Switches”, <i>ACM SOSR 2017, Santa Clara</i> . Best Paper Award
HotNets 2016	Arpit Gupta , Rudiger Birkner, Marco Canini, Nick Feamster, Chris Mac-Stoker, Walter Willinger, “Network Monitoring as a Streaming Analytics Problem ”, <i>ACM HotNets 2016, Atlanta</i> .
NSDI 2016	Arpit Gupta , Robert MacDavid, Rudiger Birkner, Marco Canini, Nick Feamster, Jennifer Rexford, Laurent Vanbever, “An Industrial-Scale Software Defined Internet Exchange Point”, <i>USENIX NSDI 2016, Santa Clara</i> . Community Contribution Award, USENIX Best of the Rest Award
NSDI 2015	Hyojoon Kim, Joshua Reich, Arpit Gupta , Muhammad Shahbaz, Nick Feamster, Russ Clark, “Kinetic: Verifiable Dynamic Network Control”, <i>USENIX NSDI 2015, Oakland</i> .
SIGCOMM 2014	Arpit Gupta , Laurent Vanbever, Muhammad Shahbaz, Sean P. Donovan, Brandon Schlinker, Nick Feamster, Jennifer Rexford, Scott Shenker, Russ Clark, Ethan Katz-Bassett, “SDX: A Software Defined Internet Exchange”, <i>ACM SIGCOMM 2014, Chicago</i> .
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”, <i>PAM 2014, LA</i> .
CoNEXT 2012	Arpit Gupta , Jeongki Min, Injong Rhee, “WiFox: Scaling WiFi Performance for Large Audience Environments”, <i>ACM SIGCOMM CoNEXT, 2012, Nice</i> .

Awards and Honors

2017	<i>Best Paper Award</i> for the PathSets (iSDX) project at SOSR 2017
2016	USENIX’s <i>Best of the Rest Award</i> for the iSDX project
2016	<i>Community Contribution Award</i> for the iSDX project at NSDI 2016
2013	<i>Internet-2 Innovation Award</i> for the SDX project
2013	Offered <i>Meissner Fellowship</i> at Purdue University
2010-2011	<i>College of Engineering Fellowship</i> at NC State University

¹Transferred from Georgia Tech in Spring 2015

Employment History

- June 2013-Present **Research Assistant** **Princeton University** (*Princeton, NJ*)
Designed and prototyped software defined Internet exchange (SDX) platform². Developed a scalable industrial-scale SDX (iSDX) platform and open-sourced the project with Open Networking Foundation (ONF). Designed and prototyped streaming analytics platform for network telemetry (SONATA)³. Worked on multiple active/passive measurement dataset to analyse and model ISP interconnectivity in developing regions. Assisted in design and implementation of event based network management tool called Kinetic⁴, simplifying network configuration and management.
- May 2016-Present **Research Collaborator** **Microsoft Research** (*Redmond, WA*)
Designed and implemented *Roshan*, that takes traffic matrices and error probabilities as input to generate optical layer configurations—maximizing throughput under failures.
- 2011-2012 **Research Assistant** **North Carolina State University** (*Raleigh, NC*)
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 **Intern** **Google Inc.** (*Mountain View, CA*)
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.

Teaching Experience

- Spring 2016 Teaching Assistant, COS 461, Computer Networks
Instructor: Nick Feamster
Assisted with rebooting the networking course at Princeton University.
- Summer 2014 Teaching Assistant, Coursera SDN 002, Software Defined Networking
Instructor: 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
Instructor: 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
Instructor: Rudra Dutta
Assisted with homework/quiz design and grading, held weekly office hours.

Talks

- 2016-2017 **Sonata: Query-driven Network Telemetry**
Conferences: ACM HotNets (11/16), P4 Workshop (05/16), NANOG 70 (06/17)
Industry: AT&T (11/16), Comcast (10/16)
Universities: New England Networking Seminar, Boston University (10/16)
- 2015-2016 **iSDX: An Industrial-Scale Software Defined Internet Exchange Point**
Conferences: Usenix NSDI (03/16), Usenix ATC (06/16), GENI NICE (12/16)
Industry: AT&T (10/15), Endeavour (10/15), Corsa (11/15), ONF Webinar (04/16)
- 2013-2014 **SDX: A Software Defined Internet Exchange**
Conferences: ACM SIGCOMM (08/14), GEC 20 (06/14), NANOG 59 (10/13)
Industry: Facebook Inc. (08/14), Microsoft (08/14)
Universities: Stanford NetSeminar (10/14)
- 2014 **Peering at the Internet's Frontier**
Conference: Passive & Active Measurements (03/14)

²sdx.cs.princeton.edu

³sonata.cs.princeton.edu

⁴resonance.noise.gatech.edu