

Rachee Singh

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EDUCATION	University of Massachusetts, Amherst Doctor of Philosophy, Computer Science <i>Advisor:</i> Prof. Phillipa Gill <i>Thesis Committee:</i> Prof. Deepak Ganesan, Prof. Brian Levine, Dr. Victor Bahl <i>Awarded Google PhD Fellowship in Systems and Networking (2018)</i>	2016 – 2021 (<i>expected</i>)
	University of Massachusetts, Amherst Master of Science, Computer Science.	2016 – 2019
	Stony Brook University Doctor of Philosophy, Computer Science.	2015 – 2016 (<i>Transferred</i>)
	Birla Institute of Technology and Science - Pilani, India Bachelor of Engineering (Honors), Computer Science. <i>Co-op host organization:</i> Arista Networks.	2008 – 2012
RESEARCH EXPERIENCE	Microsoft Research , Redmond, Researcher Part of the Mobility and networking (MNR) group, working on WAN cost optimizations.	June 2019 – Present
	Microsoft Research , Redmond, Intern <i>Advisor:</i> Sharad Agarwal and Victor Bahl Peering-aware WAN traffic engineering.	May 2018 – August 2018
	Microsoft Research , Redmond, Intern <i>Advisor:</i> Manya Ghobadi Improving the throughput and availability of WAN optical links.	June 2017 – August 2017
	International Computer Science Institute , Berkeley, Intern <i>Advisor:</i> Sadia Afroz and Prof. Vern Paxson. Estimation of the rate at which IPs addresses harness a bad reputation online.	May 2016 – August 2016
AWARDS AND FELLOWSHIPS	<i>Google PhD Fellowship (Systems and Networking)</i> <i>ACM Student Research Competition SIGCOMM – Silver medal</i>	March 2018 August 2016
INDUSTRY EXPERIENCE	Arista Networks , Bangalore. Software Engineer. Building features for Open Shortest Path First protocol for IPv6 including Link State Update throttle timers for preventing network churn, support for totally stubby NSSA areas, Virtual Routing and Forwarding (VRF) support for OSPFv3.	July 2012 – July 2015
	CERN , Switzerland. Google Summer of Code Intern. Built a geographically aware Domain Name System for CERN VMFS clients to allow low latency access to servers by responding with the address of the server geographically closest to the querying client.	June – Sep 2012
	Arista Networks , Bangalore. Software Engineer Intern. Reduces the memory footprint of the Address Resolution Protocol (ARP) by re-implementing it in C++. (Was offered a full time position in the company after the completion of the internship).	July – Dec 2011
PUBLICATIONS AND PRE-PRINTS	Characterizing the deployment and performance of multi-CDNs Rachee Singh , Arun Dunna, and Phillipa Gill. ACM IMC 2018, Boston, MA.	

RADWAN: Rate Adaptive Wide Area Network

Rachee Singh, Monia Ghobadi, Klaus-Tycho Foerster, Phillipa Gill, and Mark Filer.
ACM SIGCOMM 2018, Budapest, Hungary.

Run, Walk, Crawl: Towards Dynamic Link Capacities

Rachee Singh, Monia Ghobadi, Klaus-Tycho Foerster, Phillipa Gill, and Mark Filer.
ACM HotNets 2017, Palo Alto, CA.

Characterizing the Nature and Dynamics of Tor Exit Blocking

Rachee Singh, Rishab Nithyanand, Sadia Afroz, Paul Pearce, Michael Carl Tschantz, Phillipa Gill and Vern Paxson.

USENIX Security Symposium 2017, Vancouver, BC.

PathCache: A Path Prediction Toolkit (Poster)

Rachee Singh and Phillipa Gill.

ACM SIGCOMM 2016. Florianopolis, Brazil

[*Awarded the silver medal in the SIGCOMM ACM Student Research Contest*].

The Politics of Routing: Investigating the Relationship Between AS Connectivity and Internet Freedom

Rachee Singh, Hyungjoon Koo, Najmehalsadat Miramirkhani, Fahimeh Mirhaj, Phillipa Gill and Leman Akoglu.

USENIX Workshop on Free and Open Communications on the Internet (**FOCI** 2016). Austin, TX.

Holding all the ASes: Identifying and Circumventing the Pitfalls of AS-aware Tor Client Design

Rishab Nithyanand, **Rachee Singh**, Shinyoung Cho, and Phillipa Gill
Arxiv Preprint 2016.

TALKS AND PRESENTATIONS	Facebook , Menlo Park RADWAN: a rate-adaptive wide-area network.	February 2020
	University of Colorado Boulder RADWAN: a rate-adaptive wide-area network.	December 2018
	Colorado State University , Fort Collins, Colorado RADWAN: a rate-adaptive wide-area network.	December 2018
	SIGCOMM 2018 , Budapest, Hungary RADWAN: a rate-adaptive wide-area network.	August 2018
	IMC 2018 , Boston, MA Characterizing the performance of multi-CDNs.	Novemeber 2018
	Applied Networking Research Workshop 2018 , Montreal, Canada Characterizing the Nature and Dynamics of Tor Exit Blocking.	July 2018
	HotNets 2017 , Palo Alto, CA Run, Walk, Crawl: Towards Dynamic Link Capacities.	Novemeber 2017
	USENIX Security , Vancouver, BC	August 2017
	New England Security Day , Northeastern University Characterizing the Nature and Dynamics of Tor Exit Blocking.	September 2017
	USENIX Security, FOCI , Austin, TX Politics of Routing.	August 2016
	New England Security Day , Harvard University Cipollino: A Measurement Driven AS-aware Tor Client	April 2016

AIMS, 2016, University of California, San Diego **Feb 2016**
Applications for Measurement Data: Improving Anonymity Online.

PyCon India, 2012 **Sep 2012**
Presented a tutorial on building a Linux cluster using Python and a distributed message queue.

TEACHING **Introduction to Databases** **Aug 2015 – Dec 2015**

EXPERIENCE Grading student homework assignments, exams and projects. Holding office hours. Coursework included SQL based database queries and database design in Microsoft Access Design View.

Programming Languages and Compilers **Jan – July 2012**
Involved with the organization of the course project and tools to evaluate the student submissions.

MIT Indian Mobile Initiative **July – Aug 2011**
Student mentor for the MIT-backed initiative to teach Android development. Organized lab sessions and mentored students to gain proficiency in developing complex Android applications.

COURSEWORK **Advanced Artificial Intelligence - UMass Amherst**
Research Methods in Empirical CS - UMass Amherst
Advanced Algorithms - UMass Amherst
Probability and Random Processes - UMass Amherst
Advanced Operating Systems - Stony Brook University
Advanced Computer Networks - Stony Brook University
Advanced Database Systems - Stony Brook University
Internet Censorship - Stony Brook University
Parallel Computing - BITS Pilani

OUTREACH **Volunteer classroom teacher, Beulah High School, North Dakota** **2020 – 2021**
I co-teach Introduction to Computer Science to high school students as part of an initiative by TEALS.org. This initiative aims to provide CS education to students in remote parts in the United States.

STEM Paths Innovation Network (SPIN), Seattle - Mentor **2019 – 2020**
Mentored 8th grade school girls belonging to under-represented groups in scientific thinking and problem solving. Held lab-days for experimentation and field days to visit science museums with my mentees.

Women in Engineering and Computing Career Day at UMass Amherst - Mentor **2018**
Taught 8th grade school girls to program light patterns in LEDs using computer programs.

SERVICE **SIGCOMM Student Research competition (SRC), Judge** **2020**
SIGCOMM Posters and Demo, Reviewer **2020**
SIGCOMM CCR, Reviewer **2020**
Intl. Symposium on Research in Attacks, Intrusions and Defenses (RAID), Reviewer **2019**
Transactions on Networking (ToN), Reviewer **2019**
Transactions on Web (TWeb), Reviewer **2018**
Transactions on Networking (ToN), Reviewer **2018**