

EDUCATION

University of Illinois, Urbana-Champaign

2023 - 2028

Ph.D. in Computer Science (GPA: 4.0/4.0)

Advisor: [Prof. Brighten Godfrey](#)

Birla Institute of Technology and Science, Pilani

2016 - 2020

B.E. in Computer Science

EXPERIENCE

Clockwork Systems

Summer 2024

Research Intern, advised by [Prof. Balaji Prabhakar](#)

- Implemented link failure handling in NCCL as a plugin for RDMA/IB setups.
- Allows DL training to continue seamlessly even in light of network failures with failover in less than rooms.

Microsoft Research

2020 - 2023

Research Fellow, advised by [Venkat Padmanabhan](#) and [Ranjita Bhagwan](#)

- Optimized NCCL to intelligently generate AllReduce topology for TCP/Ethernet systems. Improved throughput by 36% on Azure over unmodified version.
- Optimized compute and network scheduling for Microsoft Teams which reduced operational costs by \$10M/year.

PUBLICATIONS AND PATENTS

Localizing failures among symmetric network components

Rahul Bothra*, Vipul Harsh*, Brighten Godfrey

Under submission at NSDI 2025

Detecting and Recovering from Network Failures

Rahul Bothra, Katherine Gioioso, Vinay Sriram, Akram Sbaih, Yilong Geng

Patent application filed

Lightweight Automated Reasoning for Network Architectures

Rahul Bothra, Venkat Arun, Akshay Narayan, Ahmed Saeed, Brighten Godfrey

ACM HotNets 2024

Switchboard: Efficient resource management for conferencing services

Rahul Bothra, Rohan Gandhi, Ranjita Bhagwan, Venkat Padmanabhan et. al.

ACM SIGCOMM 2023

Don't forget the user: It's time to rethink network measurements

Rahul Bothra*, Aryan Taneja*, Ranjita Bhagwan, Venkat Padmanabhan et. al.

ACM HotNets 2023

PROJECTS

P4-TrafficTool

Advisor: Prof. Ben Leong

Optimized P4-Traffictool to parse P4 programs and generate protocol and packet templates for popular frameworks like Scapy, MoonGen, Wireshark, etc. [source](#)

Hyperloop India - SpaceX Global Challenge

Designed and manufactured the MagLev system with Neodymium magnets for a Hyperloop prototype, and piloted at the SpaceX Global Challenge finals.

AWARDS

KVPY Fellowship

Ranked 357 amongst 100,000+ candidates; awarded fellowship to pursue research in pure sciences.

NTSE Scholarship

Awarded to 750 out of over 1,000,000 students based on technical and aptitude examinations.

SERVICE

Teaching Assistant

- CS F2II: Logic in Computer Science (Formal Methods), during Fall 2018 and 2019.
- CS FIII: Computer Programming, during Spring 2018 and 2019.

Open source Maintainer

- Mentored over 50 high school and college students in Google's open source programs in 2019 and 2020.
- Served on the Sugar Labs Oversight Board from 2019-2020, steering the community towards building better pedagogy tools for underprivileged students.