

AYUSH MISHRA

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RESEARCH INTERESTS

Systems and Networking → Internet Congestion Control, TCP, QUIC.

EDUCATION

National University of Singapore, Singapore

PhD Candidate, Computer Science

Advisor: Dr. Ben Leong

Jan 2019 - Present (expected graduation 2024)

National Institute of Technology, Trichy, Tamil Nadu, India

Bachelor of Technology, Computer Science and Engineering

May 2018

CGPA: 8.70/10.00

Global Indian International School, Singapore

Higher Secondary School Certificate Examination, CBSE

May 2014

Aggregate 95.6%

PUBLICATIONS

Containing the Cambrian Explosion in QUIC Congestion Control

Proceedings of IMC 2023

Ayush Mishra and Ben Leong.

Masking Corruption Packet Losses in Datacenter Networks with Link-local Retransmission

Proceedings of SIGCOMM 2023

Raj Joshi, Chaw Hwan Song, Xin Zhe Khooi, Nishant Budhdev, Ayush Mishra, Mun Choon Chan, and Ben Leong.

Are we heading towards a BBR-dominated Internet?

Proceedings of IMC 2022

Ayush Mishra, Tiu Wee Han, and Ben Leong.

Understanding Speciation in QUIC Congestion Control

Proceedings of IMC 2022

Ayush Mishra, Sherman Lim, and Ben Leong.

LinkGuardian: Mitigating the impact of packet corruption loss with link-local retransmission

Proceedings of APNet 2022

Raj Joshi, Qi Guo, Nishant Budhdev, Ayush Mishra, Mun Choon Chan, Ben Leong

Conjecture: Existence of Nash Equilibria in Modern Internet Congestion Control

Proceedings of APNet 2021

Ayush Mishra, Jingzhi Zhang, Melodies Sim, Sean Ng, Raj Joshi, and Ben Leong.

The Great Internet TCP Congestion Control Census.

Proceedings of SIGMETRICS 2020

Ayush Mishra, Xiangpeng Sun, Atishya Jain, Sameer Pande, Raj Joshi, and Ben Leong.

AWARDS

Award for Excellence in Teaching

January 2021, January 2022

School of Computing, National University of Singapore

Research Achievement Award

January 2023, January 2020

School of Computing, National University of Singapore

INSPIRE Scholarship for Higher Education

July 2014

Department of Science and Technology (DST)

Ministry of Science and Technology, Government of India

APJ Abdul Kalam Award for Academic Proficiency
Global Indian International School, Singapore

June 2012

SERVICE

Contributed reviews

ACM HotNets '20, APNet '21, ICNP '21, ICNP '22, ICNP '23, IMC '23, NSDI '24

TECHNICAL SKILLS

Programming:

Over 5000 lines: C, C++, Python, Bash

Familiar: Java, Go, Rust

Mobile and Web Technologies: Networking:

Android, Django, HTML, CSS, JavaScript
P4-16, OpenFlow, Docker

PROFESSIONAL EXPERIENCE

HP Enterprises, Singapore

Software Development Intern

May, 2016 - June, 2016

- **Team Polling Web application:**

- Designed and built a Polling and Feedback application using Django that was deployed on the HPE cloud.
- The application proved to be an effective productivity tool and was adopted by the Hybrid-APJ cloud computing team.

ACADEMIC INTERNSHIPS

School of Computing, National University of Singapore

Supervisor: *Dr. Ben Leong*

May, 2017 - Aug, 2017

- **Building heterogeneous container clusters for power saving in Data Centres.**

This project aimed to build an energy-efficient heterogeneous cluster with both Raspberry Pi and x86 servers. I built this cluster and worked on a scheduler for Docker swarm that could schedule less compute-intensive workloads on the more power-efficient Raspberry Pi nodes.

- **Dynamic Bandwidth adaption in 802.11ac WiFi networks.**

The goal of this research project was to allow the AP to perform bandwidth adaptation on the fly using client-supplied information (such as contention time, packet air-time and the traffic load). For this, I had to thoroughly study the 802.11ac wireless stack in Linux, as well as explore mechanisms to perform this rate adaptation on an OpenWRT router.

TEACHING EXPERIENCE

Teaching Assistant, CS1010X: Programming Methodology

Jan, 2019 - June, 2019, Instructor: *Dr. Ben Leong*, Mean Student Rating: **4.1/5.0**

Jan, 2020 - June, 2020, Instructor: *Dr. Tan Tiow Seng*, Mean Student Rating: **4.4/5.0**

Teaching Assistant, CS1231S: Discrete Structures

Jan, 2021 - May, 2021, Instructor: *Dr. Aaron Tan*, Mean Student Rating: **4.7/5.0**

Teaching Assistant, CS5229: Advanced Computer Networks

Aug, 2021 - Dec, 2021, Instructor: *Dr. Ben Leong*