

# VENKAT ARUN

Assistant Professor, Computer Science Department, UT Austin

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## EDUCATION

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**Massachusetts Institute of Technology (MIT)** 2019-2023

Ph.D. Dept. of EECS

Advisors: Hari Balakrishnan and Mohammad Alizadeh

**Massachusetts Institute of Technology (MIT)** 2017-2019

Master of Science, Dept. of EECS

Advisors: Hari Balakrishnan and Mohammad Alizadeh

**Indian Institute of Technology Guwahati (IIT-G)** 2013-2017

B.Tech. in Computer Science & Engineering

*President of India Gold Medal*

## INDUSTRY IMPACT

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1. Meta uses my congestion control algorithm (CCA), Copa [], for live video uploads
2. Meta uses a my modification to BBR [] (a CCA designed by Google) for a vast majority of their user-facing traffic

## HONORS AND AWARDS

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- MIT EECS G. M. Sprowls PhD Thesis Award in Computer Science (2024)
- ACM SIGCOMM Doctoral Dissertation Award Runner-Up (2024)
- Marconi Society Young Scholar Award (2023)
- ACM SIGCOMM best student paper award (2022)
- ACM SIGCOMM best paper award (2017)
- MIT Jacobs Presidential Fellowship (2017)
- President of India Gold Medal - IIT Guwahati (2017)
- KVPY Government of India Scholarship (2013)

## PUBLICATIONS

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- *Synthesizing a Provably Performant Joint Controller for Low-Latency Video Streaming*  
Tony Pan, Anup Agarwal, Isil Dillig, Venkat Arun  
NSDI 2026
- *FRCC: Towards Provably Fair and Robust Congestion Control*  
Anup Agarwal, Venkat Arun, Srinu Seshan  
NSDI 2026
- *Contracts: A unified lens on congestion control robustness, fairness, congestion, and generality*  
Anup Agarwal, Venkat Arun, Srinivasan Seshan  
NINeS 2026
- *Assistants, Not Architects: The Role of LLMs in Networked Systems Design*  
Pratyush Sahu, Rahul Bothra, Venkat Arun, Brighten Godfrey, Akshay Narayan, Ahmed Saeed  
arXiv 2026
- *Bring Your Own Objective: Inter-operability of Network Objectives in Datacenters*  
Sanjoli Narang, Anup Agarwal, Venkat Arun, Manya Ghobadi  
arXiv 2026

- *Faster-than-light coordination for networked systems with quantum non-local games*  
Venkat Arun, Vijay Chidambaram, Scott Aaronson  
HotNets 2025
- *Robust Heuristic Algorithm Design with LLMs*  
Pantea Karimi, Dany Rouhana, Pooria Namyar, Siva Kesava Reddy Kakarla, Venkat Arun, Behnaz Arzani  
arXiv 2025
- *Speculative Ad-hoc Querying*  
Haoyu Li, Srikanth Kandula, Maria Angels de Luis Balaguer, Aditya Akella, Venkat Arun  
arXiv 2025
- *Lightweight Automated Reasoning for Network Architectures*  
Rahul Bothra, Venkat Arun, Brighten Godfrey, Akshay Narayan, Ahmed Saeed  
HotNets 2024
- *Towards provably performant congestion control*  
Anup Agarwal, Venkat Arun, Devdeep Ray, Ruben Martins, and Srinivasan Seshan  
NSDI 2024
- *Hairpin: Rethinking packet loss recovery in edge-based interactive video streaming*  
Zili Meng, Xiao Kong, Jing Chen, Bo Wang, Mingwei Xu, Rui Han, Honghao Liu, Venkat Arun, Hongxin Hu, and Xue Wei  
NSDI 2024
- *A Performance Verification Methodology for Resource Allocation Heuristics*  
Saksham Goel, Benjamin Mikek, Jehad Aly, Venkat Arun, Ahmed Saeed, and Aditya Akella  
arXiv 2024
- *Starvation in end-to-end congestion control*  
Venkat Arun, Mohammad Alizadeh, and Hari Balakrishnan  
SIGCOMM 2023  
**Best student paper award**
- *Enabling High Quality Real-Time Communications with Adaptive Frame-Rate*  
Zili Meng, Tingfeng Wang, Yixin Shen, Bo Wang, Mingwei Xu, Rui Han, Honghao Liu, Venkat Arun, Hongxin Hu, and Xue Wei  
NSDI 2023
- *Automating network heuristic design and analysis*  
Anup Agarwal, Venkat Arun, Devdeep Ray, Ruben Martins, and Srinivasan Seshan  
HotNets 2022
- *Privid: Practical, Privacy-Preserving Video Analytics Queries*  
Frank Cangialosi, Neil Agarwal, Venkat Arun, Srinivas Narayana, Anand Sarwate, and Ravi Netravali  
NSDI 2022
- *The case for an internet primitive for fault localization*  
William Sussman, Emily Marx, Venkat Arun, Akshay Narayan, Mohammad Alizadeh, Hari Balakrishnan, Aurojit Panda, and Scott Shenker  
HotNets 2022
- *Toward formally verifying congestion control behavior*  
Venkat Arun, Mina T. Arashloo, Ahmed Saeed, Mohammad Alizadeh, and Hari Balakrishnan  
SIGCOMM 2021  
**Proposed a modification to BBR that Meta now uses for most of their production traffic**
- *Throughput-fairness tradeoffs in mobility platforms*  
Arjun Balasingam, Karthik Gopalakrishnan, Radhika Mittal, Venkat Arun, Ahmed Saeed, Mohammad Alizadeh,

Hamsa Balakrishnan, and Hari Balakrishnan  
MobiSys 2021

- *RFocus: Beamforming Using Thousands of Passive Antennas*  
Venkat Arun and Hari Balakrishnan  
NSDI 2020  
**May be the largest antenna array ever used for a single communication link**
- *Finding safety in numbers with secure allegation escrows*  
Venkat Arun, Aniket Kate, Deepak Garg, Peter Druschel, and Bobby Bhattacharjee  
NDSS 2020
- *Copa: Practical Delay-Based Congestion Control for the Internet*  
Venkat Arun and Hari Balakrishnan  
NSDI 2018  
**Being used in production at Meta**
- *Language-directed hardware design for network performance monitoring*  
Srinivas Narayana, Anirudh Sivaraman, Vikram Nathan, Prateesh Goyal, Venkat Arun, Mohammad Alizadeh, Vimalakumar Jeyakumar, and Changhoon Kim  
SIGCOMM 2017  
**Best paper award**

## SELECTED PRESS COVERAGE

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Starvation in CC	MIT News, <a href="#">IEEE Spectrum</a> , <a href="#">APNIC Blog</a> , The Register, Extreme Tech
RFocus	MIT News, <a href="#">BBC Radio</a> , Tech Crunch, Venture Beat, Engadget, Tech Spot, Digital Trends
Privid	MIT News, <a href="#">IEEE Spectrum</a> , Hacker News, Sci Tech Daily, MarkTechPost