

Ranysha Ware

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Education

- **Ph.D. in Computer Science**, Carnegie Mellon University, August 2024
Co-Advisors: Justine Sherry, Srinivasan Seshan
Thesis: Battle for Bandwidth: On The Deployability of New Congestion Control Algorithms
- **M.S. in Computer Science**, University of Massachusetts Amherst, May 2015
- **B.S. in Computer Science**, State University of New York at New Paltz, May 2013

Honors and Awards

- **SIGCOMM Doctoral Dissertation Award** (2025)
- **IRTF Applied Networking Research Prize** (2020)
- **Facebook Emerging Scholars Award** (2019)
- **SUNY New Paltz 40 Under Forty Alumni Award** (2017)
- **National GEM Consortium PhD Fellowship** (2017)
- **National GEM Consortium MS Fellowship** (2013)
- **SUNY New Paltz Outstanding Graduate** (2013)
- **LSAMP Outstanding Scholar's Award** (2010, 2013)

Publications

1. Justine Sherry, **Ranysha Ware**, Isabel Suizo, Srinivasan Seshan, Adithya Abraham Philip, [Congestion Safety Audits for Internet Services](#) (August 1, 2025). The 53rd Research Conference On Communications, Information and Internet Policy (**TPRC-53**).
2. Margarida Ferreira, **Ranysha Ware**, Yash Kothari, Ins Lynce, Ruben Martins, Akshay Narayan, Justine Sherry. 2024. [Reverse-Engineering Congestion Control Algorithm Behavior](#). In Proceedings of the 2024 ACM Internet Measurement Conference (**IMC '24**), November 4-6, 2024, Madrid, Spain. Association for Computing Machinery, New York, NY, USA, 401-414.
3. **Ranysha Ware**, Adithya Abraham Philip, Nicholas Hungria, Yash Kothari, Justine Sherry, and Srinivasan Seshan. 2024. [CCAnalyzer: An Efficient and Nearly-Passive Congestion Control Classifier](#). In Proceedings of the ACM SIGCOMM 2024 Conference (**SIGCOMM '24**). Association for Computing Machinery, New York, NY, USA, 181-196.
4. Adithya Abraham Philip, Rukshani Athapathu, **Ranysha Ware**, Fabian Francis Mkocheke, Alexis Schlomer, Mengrou Shou, Zili Meng, Srinivasan Seshan, and Justine Sherry. 2024. [Prudentia: Findings of an Internet Fairness Watchdog](#). In Proceedings of the ACM SIGCOMM 2024 Conference (**SIGCOMM '24**). Association for Computing Machinery, New York, NY, USA, 506-520.
5. Adithya Abraham Philip, **Ranysha Ware**, Rukshani Athapathu, Justine Sherry, and Vyas Sekar. 2021. [Revisiting TCP congestion control throughput models & fairness properties at scale](#). In Proceedings of the 21st ACM Internet Measurement Conference (**IMC '21**). Association for Computing Machinery, New York, NY, USA, 96-103.
6. **Ranysha Ware**, Matthew K. Mukerjee, Srinivasan Seshan, and Justine Sherry. 2019. [Beyond Jain's Fairness Index: Setting the Bar For The Deployment of Congestion Control Algorithms](#). In Proceedings of the 18th ACM Workshop on Hot Topics in Networks (**HotNets '19**). Association for Computing Machinery, New York, NY, USA, 17-24.

🏆 IRTF Applied Networking Research Prize

7. **Ranysha Ware**, Matthew K. Mukerjee, Srinivasan Seshan, and Justine Sherry. 2019. [Modeling BBR's Interactions with Loss-Based Congestion Control](#). In Proceedings of the Internet Measurement Conference (IMC '19). Association for Computing Machinery, New York, NY, USA, 137-143.

Posters

- **Invited:** J. Slaughter, **R. Ware**, S. Seshan, and J. Sherry. Using Non-Congestive Loss to Differentiate TCP Reno and TCP Westwood. CMU ISR REUSE Poster Session, Aug 2019
- **Invited:** M. Pardeshi, **R. Ware**, and J. Sherry. Reverse Engineering FastTCP. CMU Spring 2019 Meeting of the Minds Symposium, May 2019
- **Invited:** **R. Ware**, A. Kholbrenner, M. K. Mukerjee, S. Seshan, and J. Sherry. Battle for Bandwidth: Fairness and Heterogeneous Congestion Control. CRA URMD Workshop 2019, March 2019
- **Invited:** **R. Ware**, A. Kholbrenner, M. K. Mukerjee, S. Seshan, and J. Sherry. Battle for Bandwidth: Fairness and Heterogeneous Congestion Control. Google Networking Research Summit, March 2019
- **R. Ware**, M. K. Mukerjee, J. Sherry, S. Seshan. Battle for Bandwidth: Fairness and Heterogeneous Congestion Control. NSDI 2018, April 2018.

Invited External Talks

- **Battle for Bandwidth: On The Deployability of New Congestion Control Algorithms.** *Wellesley College*, February 2025
- **Battle for Bandwidth: On The Deployability of New Congestion Control Algorithms.** Rising Stars in Computer Science Lecture Series, *UMass Amherst*, November 2024
- **Battle for Bandwidth: Evaluating Congestion Control Deployability For The Internet.** *MIT*, July 2021
- **Battle for Bandwidth: Evaluating Congestion Control Deployability For The Internet.** *UC Santa Cruz*, May 2021
- **Beyond Jain's Fairness Index: Setting the Bar For The Deployment of Congestion Control Algorithms.** *IETF-109*, November 2020
- **Battle for Bandwidth: Fairness and Heterogeneous Congestion Control.** *Facebook Networking & Communications Faculty Summit*, June 2019

Teaching Experience

- **Instructor**, Computer Networks (CS 43), Swarthmore College
Semesters: Fall 2024
Course Website: <https://www.cs.swarthmore.edu/~rware/cs43/f25/>
Led lecture and 1 lab section. (20 students)
- **Instructor**, Introduction to Computer Systems (15-213), Carnegie Mellon University
Semesters: Spring 2025
Course Website: <https://www.cs.cmu.edu/afs/cs/academic/class/15213-s25/www/>
Co-instructor with Professor David Andersen and Professor Nathan Beckmann. (~250 students, 17 TAs)
- **Instructor**, Principles of Computing (15-110), Carnegie Mellon University
Semesters: Fall 2024
Course Website: <https://www.cs.cmu.edu/~15110-f24/>
Co-instructor with Professor Mike Taylor. Led lecture section 2. (~250 students, ~30 TAs)
- **Instructor**, Fundamentals of Programming and Computer Science (15-112), Carnegie Mellon University
Semesters: Summer 2023
Course Website: <https://www.cs.cmu.edu/~112-n23/>
Created and led daily lectures for 6 weeks. (~80 students, ~20 TAs)

- **Teaching Assistant**, Fundamentals of Programming and Computer Science (15-112), Carnegie Mellon University
Semesters: Spring 2023
 Led weekly recitations, held weekly office hours, and graded assignments.
- **Teaching Assistant**, Research and Innovation in Computer Science (07-300), Carnegie Mellon University
Semesters: Fall 2022
 Only TA. Led weekly recitations, created rubrics and graded assignments.
- **Teaching Assistant & Guest Lecturer**, Computer Networks (15-441/641), Carnegie Mellon University
Semesters: Spring 2019
 Led weekly recitations, held weekly office hours, and graded assignments.
 Led guest lecture: “TCP Part 2: Performance, Fairness, & Modern Congestion Controllers.”
- **Guest Lecturer**, Computer Networks (15-441/641), Carnegie Mellon University
Semesters: Fall 2017
 Led guest lecture: “Battle for Bandwidth: Fairness and Congestion Control Heterogeneity.”
- **Guest Lecturer**, Machine Learning (SDS 293), Smith College
Semesters: Fall 2016
 Led guest lecture: “Data Wrangling with Python”.
- **Grader**, Programming with Data Structures (CMPSCI 187), UMass Amherst
Semesters: Fall 2013, Spring 2014
 Graded homework and exams.
- **Tutor**, SUNY New Paltz, Mathematics Laboratory
Semesters: Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013
 Assisted students in walk-in tutoring center with algebra and calculus courses.
- **Tutor**, SUNY New Paltz, AMP/CSTEP Community
Semesters: Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013
 Tutored underrepresented STEM students taking calculus and computer science courses.

Research Experience

- **Research Assistant**, Carnegie Mellon University
 Aug 2017 - August 2024
 Leading research projects on fairness and congestion control heterogeneity.
- **Research Intern**, Microsoft Research
 May 2019 - August 2019
 Studied how to make RDMA work well in datacenter networks with 100 Gbps, 100 meter long links.
- **Associate Technical Staff**, MIT Lincoln Laboratory, Cyber Analytics and Decision Systems Group
 Jun 2015 - Aug 2017
 Built big data analysis pipelines for network logs and open-source cyber threats for predictive modeling and analytics for cybersecurity.
- **Research Assistant**, UMass Amherst
 Aug 2014 - May 2015
 Developed and benchmarked an efficient implementations of a theoretically optimal short division algorithm on various parallel architectures.
- **Summer Research Intern**, MIT Lincoln Laboratory, Cyber Systems and Technology Group
 May 2014 - Aug 2014
 Designed and developed a user-friendly tool for end-to-end-management and analysis of a dynamic cyber-defense prototype.
- **Summer Research Intern**, MIT Lincoln Laboratory, Computing and Analytics Group
 Jun 2013 - Aug 2013

Designed and developed a modular software framework for graph signal processing in million-edge graphs.

- **Research Assistant**, SUNY New Paltz

Sep 2011 - Dec 2011

Explored applications of the Gaussian Quadrature Rule to multivariate problems.

Advising and Mentoring

Undergraduate and master student projects supervised at CMU.

- 2018: Anne Kohlbrenner, now Assistant Teaching Professor at CMU
- 2019: Monica Pardeshi, CS MS at CMU
- 2019: Megan Yu, now Senior Software Engineer at Oscar Health
- 2019: Joshua Slaughter (CMU ISR REUSE student from Univ. Maryland Baltimore County), now PhD candidate studying Biomedical Artificial Intelligence at the University of Edinburg
- 2024: Nicholas Hungria, now Software Engineer at Meta
- 2024: Darshil Kaneria, advising MS Thesis: *Congestion Control Identification for Video Streaming Platforms*, now Software Engineer at Amazon

Service

- **IMC Student Workshop, Reviewer** (2025)
- **CMU Computer Science Department Faculty Hiring Committee** (2024)
- **CMU Academic Advising Award Committee** (2024)
- **Introductory Programming in Python through Robotics Workshop Co-Facilitator**, Black in Robotics (June 2023, July 2024, August 2024)
- **CMU SCS Committee For Improving Doctoral Student Advising** (2021)
- **CMU Counseling and Psychological Services (CaPs) Student Advisory Board** (2021)
- **CMU ISR REUSE Admissions Committee** (2020)
- **Python Introductory Workshop Co-Facilitator**, Carnegie Library of Pittsburgh (July - August 2018)
- **Network Reading Group Coordinator**, Carnegie Mellon University (Fall 2017 - Summer 2018)
- **Membership Chair**, GEM Alumni Association (2015)

Media Coverage

- **Asia Pacific Network Information Centre (APNIC) blog**: [Modelling BBRs interactions with loss-based congestion control](#). January 24, 2020.
- **Packet Pushers podcast**: [Heavy Networking 489: Is BBR Too Unfair An Algorithm For The Internet?](#). November 27, 2019.
- **Vice Motherboard**: [Google's network congestion control algorithm isn't fair, researchers say](#). October 31, 2019
- **Wired Italian**: [Un algoritmo di Google "monopolizza" il traffico web](#). October 28, 2019.
- **Telegraph**: [Google algorithm 'hogs' internet traffic, researchers show](#). October 10, 2019.

Last updated: August 2025