

Ravi Netravali

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RESEARCH INTERESTS

Computer systems and networks, distributed systems and applications, programming analysis+systems, machine learning+systems.

EDUCATION

Massachusetts Institute of Technology *February 2015 - September 2018*

Ph.D. in Computer Science

Advisors: Hari Balakrishnan and James Mickens

Massachusetts Institute of Technology *September 2012 - February 2015*

S.M. in Computer Science

Advisor: Hari Balakrishnan

Columbia University *September 2008 - May 2012*

B.S. in Electrical Engineering

EMPLOYMENT

UCLA *January 2019 - Present*

Assistant Professor of Computer Science

MIT *September 2012 - September 2018*

Graduate Research Assistant

Hewlett-Packard Labs *May 2011 - September 2012*

Research Intern, Networking and Mobility Laboratory

Columbia University *May 2010 - May 2011*

Research Intern, Digital Video and Multimedia Laboratory

AWARDS AND HONORS

1. NSF CAREER Award, *2020*
2. Google Faculty Research Award, *2020*
3. ACM SoCC Best Paper Award, *2019*
4. IRTF Applied Networking Research Prize, *2018*
5. Qualcomm Innovation Fellowship, *2017*
6. Irwin Jacobs Presidential Fellowship (MIT), *2012*
7. William L. Everitt Student Award of Excellence (Columbia University), *2012*

PROFESSIONAL SERVICE

1. Program Committee Member, ACM MobiSys, *2021*

2. Program Committee Member, ACM SIGCOMM, 2021
3. Program Committee Member, USENIX OSDI, 2021
4. Program Committee Member, USENIX NSDI, 2021
5. Program Committee Member, ACM MobiCom, 2021
6. Program Committee Member, The Web Conference (WWW), 2021
7. Topics Preview Co-Chair, ACM SIGCOMM, 2020
8. Program Committee Member, USENIX NSDI, 2020
9. Poster Co-Chair, USENIX NSDI, 2020
10. Program Committee Member, USENIX ATC, 2020
11. External Reviewer, ACM HotNets, 2019
12. Program Committee Member, ACM CoNext ENCP Workshop, 2019
13. External Reviewer, USENIX NSDI, 2019
14. External Reviewer, ACM MobiCom, 2018
15. Reviewer, IEEE Transactions on Parallel and Distributed Systems, 2018
16. Reviewer, IEEE/ACM Transactions on Networking, 2018

PUBLICATIONS

Refereed Conference and Workshop Publications

1. Nikhil Kansal, Murali Ramanujam, and Ravi Netravali. “Alohamora: Reviving HTTP/2 Push and Preload by Adapting Policies On the Fly,” *USENIX NSDI 2021*.
2. Ronny Ko, Blake Loring, Ravi Netravali, and James Mickens. “Oblique: Accelerating Page Loads Using Symbolic Execution,” *USENIX NSDI 2021*.
3. U. Naseer, T. Benson, and R. Netravali. “WebMedic: Disentangling the Memory–Functionality Tension for the Next Billion Mobile Web Users,” *ACM HotMobile 2021*.
4. A. Goel, V. Ruamviboonsuk, R. Netravali, H. Madhyastha. “Rethinking Client-Side Caching for the Mobile Web,” *ACM HotMobile 2021*.
5. Chenxi Wang, Haoran Ma, Shi Liu, Yuanqi Li, Zhenyuan Ruan, Khanh Nguyen, Michael Bond, Ravi Netravali, Miryung Kim, and Harry Xu. “Semeru: A Memory-Disaggregated Managed Runtime,” *USENIX OSDI 2020*.
6. Neil Agarwal, Matteo Varvello, Andrius Aucinas, James Newman, Fabian Bustamante, Ravi Netravali. “Mind the Delay: The Adverse Effects of Delay-Based TCP on HTTP,” *ACM CoNEXT 2020*.
7. Haneen Mohammed, Ziyun Wei, Eugene Wu, and Ravi Netravali. “Continuous Prefetch for Interactive Data Applications,” *VLDB 2020*.
8. Yuanqi Li, Arthi Padmanabhan, Pengzhan Zhao, Yufei Wang, Harry Xu, and Ravi Netravali. “Reducto: On-Camera Filtering for Resource-Efficient Real-Time Video Analytics,” *ACM SIGCOMM 2020*.

9. Lana Ramjit, Zhaoning Kong, Ravi Netravali, and Eugene Wu. "Physical Visualization Design," *ACM SIGMOD 2020*.
10. Shaghayegh Mardani, Mayank Singh, and Ravi Netravali. "Fawkes: Faster Mobile Page Loads via App-Inspired Static Templating," *USENIX NSDI 2020*.
11. Prateesh Goyal, Anup Agarwal, Ravi Netravali, Mohammad Alizadeh, and Hari Balakrishnan. "ABC: A Simple Explicit Congestion Controller for Wireless Networks," *USENIX NSDI 2020*.
12. Lana Ramjit, Matteo Interlandi, Eugene Wu, and Ravi Netravali. "Acorn: Aggressive Result Caching in Distributed Data Processing Frameworks," *ACM SoCC 2019*.
13. Pradeep Dogga, Karthik Narasimhan, Anirudh Sivaraman, and Ravi Netravali. "A System-Wide Debugging Assistant Powered by Natural Language Processing," *ACM SoCC 2019*.
14. Ravi Netravali and James Mickens. "Reverb: Speculative Debugging for Web Applications," *ACM SoCC 2019*.
15. Pradeep Dogga, Sandip Chakraborty, Subrata Mitra, and Ravi Netravali. "Edge-based Transcoding for Adaptive Live Video Streaming," *USENIX HotEdge 2019*.
16. Prateesh Goyal, Ravi Netravali, Mohammed Alizadeh, and Hari Balakrishnan. "Secure Incentivization for Decentralized Content Delivery," *USENIX HotEdge 2019*.
17. Ravi Netravali, Anirudh Sivaraman, James Mickens, and Hari Balakrishnan. "WatchTower: Fast, Secure Mobile Page Loads Using Remote Dependency Resolution," *ACM MobiSys 2019*.
18. Ravi Netravali, Vikram Nathan, James Mickens, and Hari Balakrishnan. "Vesper: Measuring Time-to-Interactivity for Modern Web Pages," *USENIX NSDI 2018*.
19. Ravi Netravali and James Mickens. "Prophecy: Accelerating Mobile Page Loads Using Final-state Write Logs," *USENIX NSDI 2018*.
20. Ravi Netravali and James Mickens. "Remote-Control Caching: Proxy-based URL Rewriting to Decrease Mobile Browsing Bandwidth," *ACM HotMobile 2018*.
21. Hongzi Mao, Ravi Netravali, and Mohammad Alizadeh. "Neural Adaptive Video Streaming with Pensieve," *ACM SIGCOMM 2017*.
22. Vaspoul Ruamviboonsuk, Ravi Netravali, Mohammad Uluyol, and Harsha Madhyastha. "Vroom: Accelerating the Mobile Web with Server-Aided Dependency Resolution," *ACM SIGCOMM 2017*.
23. Ravi Netravali, Ameesh Goyal, James Mickens, and Hari Balakrishnan. "Polaris: Faster Page Loads Using Fine-grained Dependency Tracking," *USENIX NSDI 2016*.
24. Peter Iannucci, Ravi Netravali, Ameesh Goyal, and Hari Balakrishnan. "Room-Area Networks," *ACM HotNets 2015*.
25. Ravi Netravali, Anirudh Sivaraman, Keith Winstein, Somak Das, Ameesh Goyal, James Mickens, and Hari Balakrishnan. "Mahimahi: Accurate Record-and-Replay for HTTP," *USENIX ATC 2015*.
26. Shuo Deng, Ravi Netravali, Anirudh Sivaraman, and Hari Balakrishnan. "WiFi, LTE, or Both? Measuring Multi-homed Wireless Internet Performance," *ACM IMC 2014*.
27. Jack Brassil, Ravi Netravali, Stuart Haber, Pratyusa Manadhata, and Prasad Rao. "Authenticating a Mobile Device's Location Using Voice Signatures," *IEEE WiMob 2012*.

Journal Publications

1. Anirudh Sivaraman, Thomas Mason, Aurojit Panda, Ravi Netravali, and Sai Anirudh Kondaveeti. “Network Architecture in the Age of Programmability,” *ACM SIGCOMM CCR* 2020.
2. Jack Brassil, Pratyusa Manadhata, and Ravi Netravali. “Traffic Signature-Based Mobile Device Location Authentication,” *IEEE Transactions on Mobile Computing, Volume 13*, 2013.
3. Xiaopeng Huang, Ravi Netravali, Hong Man, and Victor Lawrence. “Multi-Sensor Fusion of Infrared and Electro-Optic Signals for Night Images,” *MDPI Sensors, Volume 12*, 2012.

TEACHING

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| 1. CS239: ML-Driven Video Analytics Systems (UCLA) | <i>Winter 2020, Fall 2020</i> |
| 2. CS219: Web and Mobile Systems (UCLA) | <i>Winter 2019, Fall 2019</i> |
| 3. CS134: Distributed Systems (UCLA) | <i>Spring 2019, Spring 2020</i> |

FUNDING

1. Cisco Research Gift, *PI, \$50,000, 2020-2021*
2. NSF CNS Core: Small: “Not All Cameras are Created Equal: Systems Support for Highly Adaptive Video Analytics Pipelines,” *PI, \$500,000, 2020-2023*
3. NSF CNS: CAREER: “Adaptive Web Execution: Supporting Billions of Diverse Users by Adapting Execution to Available Resources,” *PI \$500,000, 2020- 2025*
4. Google Faculty Research Award, *PI, \$80,000, 2020-2021*
5. NSF CNS CORE: Large: “Network Design Automation.” *PI, \$1,999,404, 2019-2023*