

Theophilus A. Benson

Contact Info

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Employment

Assistant Professor
Brown University

Sept 2017-Present

Assistant Professor
Duke University

Jul 2013-Aug 2017

Post-Doctoral Scholar
Princeton University

Jul 2012-Jul 2013

Education

University of Wisconsin, Madison, Wisconsin USA

Ph.D., Computer Science, May 2012

M.S., Computer Science, May 2008

- Dissertation: “New Approaches for Managing Enterprise Networks”
- Advisor: Aditya Akella

Tufts University, Medford, Massachusetts USA

B.S., Computer Science, May 2004

Honors and Awards

- NEC Faculty Award, awarded 2021.
 - Elected Member, DARPA Information Science and Technology (ISAT) Study Group.
 - Best student poster, SIGCOMM 2020.
 - Best workshop paper, CoNEXT ENCP 2019.
 - Best student paper, EuroSYS 2019.
 - NSF CAREER, awarded 2018.
 - Google Faculty Award, awarded 2018.
 - Applied Networking Research Prize (ANRP), awarded 2018.
 - Facebook Faculty Award, awarded 2015, 2016.
 - Yahoo FREP (Faculty Research and Engagement Program), awarded 2014, 2015.
 - Yahoo ACE (Academic Career Enhancement), awarded 2014.
 - Best paper, IMC 2010.
 - Top ranked paper (fast tracked to CCR), SIGCOMM WREN 2009.
 - IBM Research fellowship, awarded 2009-2010.
 - IBM Research PhD Assistantship, awarded 2009.
 - IBM Bravo Award, awarded 2009.
 - AOF Fellowship, Univ. of Wisconsin, awarded 2006 and 2011.
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Publications

The convention in computer networking is generally to list students first, in order of their contributions, and to list senior authors either alphabetically or in order of contributions (you will find both below). The author list is annotated to indicate students/postdocs that I advised (underlined name) and lead senior authors (names with *).

Conference Workshop

1. **ConfigTron: Tackling network diversity with heterogeneous configurations.**

Usama Naseer, Theophilus A. Benson*

In Proc. of USENIX Symposium on Networked Systems Designs & Implementation (NSDI) 2022.

2. **A Comprehensive Study of Bugs in Software Defined Networks.**
Ayush Bhardwaj, Theophilus A. Benson*
 In Proc. of IEEE International Conference on Dependable Systems and Networks (DSN) 2021.
3. **WebMedic: Disentangling the Memory–Functionality Tension for the Next Billion Mobile Web Users.**
Usama Naseer, Theophilus A. Benson*, Ravi Netraveli*
 In Proc. of ACM International Workshop on Mobile Computing Systems and Applications (HotMobile) 2021.
4. **WebOptProfiler: Providing performance clarity for Mobile Web Optimizations.**
Ghulam Murtaza, and Theophilus A. Benson*
 In Proc. of ACM International Workshop on Mobile Computing Systems and Applications (HotMobile) 2021.
5. **Dissecting Performance of Production QUIC.**
Alex Yu, and Theophilus A. Benson*
 In Proc. of The Web Conference (WWW) 2021.
6. **Mobile Web Browsing Under Memory Pressure.**
 Ihsan Qazi*, Zafar Qazi*, Theophilus A. Benson*, Muhammad Latif, Abdul Manan, Ghulams Murtaza, and Muhammad Tariq
 In Proc. of SIGCOMM Computer Communications Review (SIGCOMM CCR) 2020.
7. **ViperProbe: Rethinking Microservice Observability with eBPF**
Joshua Levin, Theophilus A. Benson*
 In Proc. of IEEE International Conference on Cloud Networking (CloudNet) 2020.
8. **Solver-Aided Multi-Party Configuration.**
 Kevin Dackow, Andrew Wagner, Tim Nelson*, Shriram Krishnamurthi*, Theophilus A. Benson*
 In Proc. ACM Workshop on Hot Topics in Networks (HotNets) 2020.
9. **Zero Downtime Release: Disruption-free Load Balancing of a Multi-Billion User Website.**
Usama Naseer, Luca Niccolini*, Udip Pant*, Alan Frindell*, Ranjeeth Dasineni*, and Theophilus A. Benson*
 In Proc. of ACM Special Interest Group on Data Communication (SIGCOMM) 2020.
10. **Inspector Gadget: A Framework for Inferring TCP Congestion Control Algorithms and Protocol Configurations.**
Sishuai Gong, Usama Naseer, and Theophilus A. Benson*
 In Proc. of TMA (IFIP Network Traffic Measurement and Analysis Conference) 2020.
11. **P4-InTel: Bridging the Gap between iCF Diagnosis and Functionality.**
 Lucas Castanheira, Alberto Schaeffer-Filho*, and Theophilus A. Benson*
 In Proc. of ACM CoNEXT Workshop on Emerging in-Network Computing Paradigms (ENCP) 2019.
12. **Composing SDN Controller Enhancements with Mozart.**
Zhenyu Zhou, and Theophilus A. Benson*
 In Proc. of ACM Symposium on Cloud Computing (SoCC) 2019.
13. **In-Network Compute: Considered Armed and Dangerous.**
 Theophilus A. Benson*
 In Proc. of ACM Workshop on Hot Topics in Operating Systems (HotOS) 2019.
14. **Efficient and Safe Network Updates with Suffix Causal Consistency.**
 Sheng Liu, Theophilus A. Benson*, and Michael Reiter*
 In Proc. of ACM European Conference on Computer Systems (EUROSYS) 2019.

15. **Detecting volumetric attacks on IoT devices via sdn-based monitoring of network activity.**
Ayyoob Hamza, Dinesha Ranathunga, Hassan Habibi Gharakheili*, Theophilus A. Benson*, Matthew Roughan*, and Vijay Sivaraman*
In Proc. of ACM Symposium on SDN Research (SoSR) 2019.
16. **P4Visor: Lightweight Virtualization and Composition Primitives for Building and Testing Modular Programs.**
Peng Zheng, Theophilus A. Benson*, and Chengchen Hu*
In Proc. of ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT) 2018.
17. **Learning to Simplify Distributed Systems Management.**
C Streiffer, R Raghavendra, T Benson, M Srivatsa*
In Proc. of IEEE International Conference on Big Data (Big Data) 2018 .
18. **MP-HULA: Multipath Congestion Aware Load-Balancing using Programmable Data Planes.**
Cristian Hernandez, Andreas J. Kassler*, Theophilus A. Benson*, and Gergely Pongrácz*
In Proc. of ACM SIGCOMM 2018 Workshop on In-Network Computing (NetCompute) 2018.
19. **DeepConfig: Automating Data Center Network Topologies Management with Machine Learning.**
Saim Salman, Chris Streiffer, Huan Chen, Theophilus A. Benson*, and Asim Kadav*
In Proc. of ACM SIGCOMM Workshop on Network Meets AI & ML (NetAI) 2018.
20. **Darnet: a deep learning solution for distracted driving detection**
Chris Streiffer, Ramya Raghavendra*, Theophilus A. Benson*, MudhakaTheophilus A. Benson Srivatsa*
Proceedings of the 18th acm/ifip/usenix middleware conference (MIDDLEWARE) 2018.
21. **InspectorGadget: Inferring Network Protocol Configuration for Web Services.**
Usama Naseer and Theophilus A. Benson*
In Proc. of IEEE ICDCS Workshop on QoE-based Analysis and Management of Data Communication Networks (InternetQoE) 2018.
22. **Hermes: Providing Tight Control over High-Performance SDN Switches.**
Huan Chen and Theophilus A. Benson*
In Proc. of ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT) 2017.
23. **Switch-visor: towards infrastructure-level virtualization of SDN switches.**
Huan Chen and Theophilus A. Benson*
In Proc. of ACM CoNEXT Workshop on Cloud-Assisted Networking (CAN) 2017.
24. **Fending off IoT-hunting attacks at home networks.**
Vincentius Martin, Qiang Cao*, Theophilus A. Benson*
In Proc. of ACM CoNEXT Workshop on Cloud-Assisted Networking (CAN) 2017.
25. **Sounding the Bell for Improving Internet (of Things) Security.**
Balakrishnan Chandrasekaran and Theophilus A. Benson*
In Proc. of International ACM Workshop on Security and Privacy for the Internet-of-Things (IoT S&P) 2017.
26. **A Call to Arms for Tackling the Unexpected Implications of SDN Controller Enhancements.**
Theophilus A. Benson*
In Proc. of Asia-Pacific Workshop on Networking (ApNet) 2017.
27. **ConfigTron: Tackling network diversity with heterogenous configurations.**
Usama Naseer and Theophilus A. Benson*
In Proc. of USENIX Workshop on Hot Topics in Cloud Computing (HotCloud) 2017.

28. **Dapper: Data Plane Performance Diagnosis of TCP.**
Mojgan Ghasemi, Theophilus A. Benson* and Jennifer Rexford*
In Proc. of ACM Symposium on SDN Research (SoSR) 2017.
29. **The Case for Making Tight Control Plane Latency Guarantees in SDN Switches.**
Huan Chen and Theophilus A. Benson*
In Proc. of ACM Symposium on SDN Research (SoSR) 2017.
30. **A First Look at Bugs in OpenStack.**
Washington Garcia and Theophilus A. Benson*
In Proc. of ACM CoNEXT Workshop on Cloud-Assisted Networking (CAN) 2016.
31. **A View from the Other Side: Understanding Mobile Phone Characteristics in the Developing World.**
Sohaib Ahmad, Abdul Lateef Haamid, Zafar Ayyub Qazi, Zhenyu Zhou,
Theophilus A. Benson* and Ihsan Ayyub Qazi*
In Proc. of ACM Internet Measurement Conference (IMC) 2016.
32. **Performance Characterization of a Commercial Video Streaming Service.**
Mojgan Ghasemi, Partha Kanuparth*, Ahmed Mansy*, Theophilus A. Benson* and Jennifer Rexford*
In Proc. of ACM Internet Measurement Conference (IMC) 2016.
33. **FOCUS: Function Offloading from a Controller to Utilize Switch Power.**
Ji Yang, Zhenyu Zhou, Theophilus A. Benson* and Xiaowei Yang*, Xin Wu* and Chengchen Hu*
In Proc. of IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN) 2016.
34. **SFC-Checker: Checking the Correct Forwarding Behavior of Service Function Chaining.**
Brendan Tschaen, Ying Zhang*, Theophilus A. Benson*, Sujata Banerjee*, Jeongkeun Lee* and Joon-Myung Kang*
In Proc. of IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN) 2016.
35. **Picocenter: Supporting long-lived, mostly-idle applications in cloud environments.**
Liang Zhang, James Litton, Frank Cangialosi, Theophilus A. Benson*, Dave Levin* and Alan Mislove*
In Proc. of ACM European Conference on Computer Systems (EUROSYS) 2016.
36. **Isolating and Tolerating SDN Application Failures with LegoSDN.**
Balakrishnan Chandrasekaran, Brendan Tschaen and Theophilus A. Benson*
In Proc. of ACM Symposium on SDN Research (SOSR) 2016.
37. **Dynamic Prioritization of Traffic in Home Networks.**
Ilker Nadi Bozkurt, Yilun Zhou and Theophilus A. Benson*
In Proc. of ACM Symposium on SDN Research (SOSR) 2016.
38. **Programming Slick Network Functions.**
Bilal Anwer, Theophilus A. Benson*, Dave Levin*, and Nick Feamster*
In Proc. of SOSR (ACM Symposium on SDN Research) 2015.
39. **A Universal Approach to Data Center Network Design.**
Aditya Akella*, Theophilus A. Benson*, Balakrishnan Chandrasekaran,
Cheng Huang*, Bruce Maggs*, and David Maltz*
In Proc. of International Conference on Distributed Computing and Networks (ICDCN) 2015.
40. **Destroying Networks for Fun (and Profit).**
Nick Shelly, Brendan Tschaen, Tyco-Kaus*, Michael Chang, Theophilus A. Benson* and Laurent Vanbever*
In Proc. ACM Workshop on Hot Topics in Networks (HotNets) 2015.

41. **Towards a Safe Playground for HTTPS and Middleboxes with QoS2.**
Zhenyu Zhou and Theophilus A. Benson*
In Proc. of ACM SIGCOMM Workshop on Hot Topics in Middleboxes 2015 (HotMiddleboxes) 2015.
42. **Tolerating SDN Application Failures with LegoSDN.**
Balakrishnan Chandrasekaran, Theophilus A. Benson*
In Proc. ACM Workshop on Hot Topics in Networks (HotNets) 2014
Appeared earlier In Proc. of ACM HotSDN 2014 as a Poster
43. **ProActive Routing in Scalable Data Centers with PARIS**
Durshyant Arora, Theophilus A. Benson*, Jennifer Rexford*
In Proc. Workshop on Distributed Cloud Computing (DCC) 2014
44. **Real-time diagnosis of TCP performance in clouds**
Mojgan Ghasemi, Theophilus A. Benson*, Jennifer Rexford*
In Proc. CoNEXT Student Workshop 2013
45. **A Slick Control Plane for Network Middleboxes**
Bilal Anwer, Theophilus A. Benson*, Nick Feamster*, Dave Levin*, Jennifer Rexford*
In Proc. of ACM SIGCOMM workshop on Hot topics in software defined networking (HotSDN) 2013
(Poster), and In Proc. of ONS 2013
46. **HotSwap: Correct and Efficient Controller Upgrades for Software-Defined Networks**
Laurent Vanbever*, Joshua Reich*, Theophilus A. Benson*, Nate Foster* and Jennifer Rexford*
In Proc. of ACM SIGCOMM workshop on Hot topics in software defined networking (HotSDN) 2013
47. **Challenges in Unifying Control of Middlebox Traversals and Functionality**
Aaron Gember, Theophilus A. Benson, and Aditya Akella*.
In Proc. of International Workshop on Large Scale Distributed Systems and Middleware (LADIS) 2012
48. **A First Look at Problems in the Cloud**
Theophilus A. Benson, Sambit Sahu*, Aditya Akella* and Anees Shaikh*.
In Proc. of USENIX Workshop on Hot Topics in Cloud Computing (HotCloud) 2010.
49. **The Case for Fine-Grained Traffic Engineering in Data Centers**
Theophilus A. Benson, Ashok Anand*, Aditya Akella* and Ming Zhang*.
In Proc. of USENIX INM/WREN 2009.
50. **The Evolution of Network Configuration: A Tale of Two Campuses**
Hyojoon Kim, Theophilus A. Benson, Aditya Akella* and Nick Feamster*.
In Proc. of ACM Internet Measurement Conference (IMC) 2011.
51. **Demystifying Configuration Challenges and Trade-Offs in Network-based ISP Services**
Theophilus A. Benson, Aditya Akella* and Aman Shaikh*.
In Proc. of ACM Special Interest Group on Data Communication (SIGCOMM) 2011 .
52. **Network Traffic Characteristics of Data Centers in the Wild**
Theophilus A. Benson, Aditya Akella* and David Maltz*.
In Proc. of ACM Internet Measurement Conference (IMC) 2010.
53. **Mining Policies from Enterprise Network Configuration**
Theophilus A. Benson, Aditya Akella* and David Maltz*.
In Proc. of ACM Internet Measurement Conference (IMC) 2009.
54. **Unraveling the Complexity of Network Management**
Theophilus A. Benson, Aditya Akella* and David Maltz*.
In Proc. of USENIX Symposium on Networked Systems Designs & Implementation (NSDI) 2009.

Journals

1. **Building and Testing Modular Programs for Programmable Data Planes.**
Peng Zheng, Theophilus A. Benson*, and Chengchen Hu*
Journal on Selected Areas in Communications, 2020.
2. **Verifying and Monitoring IoTs Network Behavior using MUD Profiles.**
Ayyoob Hamza, Dinesha Ranathunga, Hassan Habibi Gharakheili, Theophilus A. Benson*, Matthew Roughan* and Vijay Sivaraman*
IEEE Transactions of Dependable and Secure Computing, 2020.

Posters

1. **Optimized Tracing of iCF-enabled Programmable Data Planes.**
Lucas Castanheira and Alberto Schaeffer-Filho* and Theophilus A. Benson*.
In Proc. of SIGCOMM 2020.
2. **ShadowP4: Building and Testing Modular Programs.**
Peng Zheng, Theophilus A. Benson* and Chengchen Hu*.
In Proc. of SIGCOMM 2018.
3. **Delorean: Using Time Travel to Avoid Bugs and Failures in SDN Applications.**
Zhenyu Zhou, Theophilus A. Benson*, Marco Canini* and Balakrishnan Chandrasekaran*.
In Proc. of SoSR 2017.
4. **FOCUS: Function Offloading from a Controller to Utilize Switch Power.**
Ji Yang, Zhenyu Zhou, Theophilus A. Benson* and Xiaowei Yang*, Xin Wu* and Chengchen Hu*
In Proc. of NSDI 2016.
5. **Picocenter: Supporting long-lived, mostly-idle applications in cloud environments.**
Liang Zhang, Frank Cangialosi, Theophilus A. Benson*, Dave Levin* and Alan Mislove*.
In Proc. of SoCC 2015.
6. **Towards a Safe Playground for HTTPS and Middleboxes with QoS2.**
Zhenyu Zhou and Theophilus A. Benson*.
In Proc. of NSDI 2015.
7. **CloudSSI: revisiting SSI in cloud era**
Mansoor Alicherry*, Ashok Anand*, Shoban Preeth Chandrabose* and Theophilus Benson*.
In Proc. of SoCC 2014.
8. **Harmony: coordinating network, compute, and storage in software-defined clouds.**
Robert Grandl, Yizheng Chen, Junaid Khalid, Suli Yang, Ashok Anand, Theophilus A. Benson and Aditya Akella*.
In Proc. of SoCC 2013.
9. **Phoenix: A system for automatically reconfiguring networks.**
Theophilus A. Benson, Aditya Akella and David Maltz*.
In Proc. of USENIX NSDI 2009.

Grants and Gifts

External Funded Grants:

- **2021** NEC Faculty Award, PI, Data-driven 5G and Edge Optimizations for Next Generation Applications, \$50K.
- **2020** Google Cloud AI Credits, \$30K (in GCP credits).
- **2020** Xilinx, \$15K (in hardware).
- **2018-2023** NSF Small Award, co-PI, Network-centric IoT Security, \$500K.
- **2018-2023** NSF Small Award, PI, Data Driven Mobile Web Performance, \$500K.
- **2018-2023** NSF CAREER Award, PI, Bug Tolerant Networking: Enabling Highly-Available Network Infrastructures through Semantic Transformations, \$500K.

- **2018-2019** Google Faculty Award, PI, Improving Web Performance over Low-end Smartphones in the Developing World, \$50K.
- **2016-2017** Facebook Faculty Award, \$30K.
- **2015-2016** Facebook Faculty Award, \$30K.
- **2015-2016** Yahoo Faculty Research Proposal, PI, \$29K.
- **2014-2015** Google Cloud Resource Usage Grant, \$10K.
- **2014-2018** NSF Medium, PI, Towards Finer-grained Cloud Computing, \$399,650K.
- **2014-2015** Yahoo Faculty Research Proposal, PI, \$30K.
- **2014** Equipment Gift from Yahoo, estimated \$50K
- **2014** Gift from Facebook, \$25K
- **2014-2015** Yahoo Academic Career Enhancement, \$10K.

Internal Funding and Gifts:

- **2018-2019** Brown Salomon, Democratizing Web Performance: Principled Measurements and Optimizations for Performance in Developing Regions, PI, \$15K.
- **2014-2017** Duke Bass Connections, PI, “Distance-based, Executive- style Degree Completion Program for Ghanaian Nurse Anesthetists”, interdisciplinary team developing an online distance-based degree completion program for Ghanaian nurse anesthetists without internet connections.

Outreach

Boards and Committees:

- Tufts University, External Advisor Board, CoChair Diversity & Inclusion 2019 - 2020
- Usenix, USENIX Committee for Black, African-American, and African Diaspora Inclusion 2020 - 2021
- Grad Cohort Workshop, Founding Steering Committee 2016 - 2021

Distributed Research Experiences for Undergraduates (DREU) Summer Internships:

- William Otey Summer 2017
- Washington Garcia Summer 2016

Keynotes, Mentoring, Panels and Talks: (*Strikethrough indicates declined invitations*)

- ~~NSF-NeTS Early Career Workshop (Panel)~~ Aug 2021
- Grad Cohort Workshop (Speaker/Mentor) 2018 - 2020
- Brown McNair Scholars Visit Day (Speaker) Jun 2020
- ~~NSF-NeTS Early Career Workshop Panel~~ Aug 2019
- ~~SOSP Diversity Workshop (Panel)~~ Jun 2019
- Brazilian Symposium on Computer Networks and Distributed Systems (Keynote) May 2019
- Latin American Student Workshop on Data Communication Networks (Panel) May 2019
- Tufts Black Students in Computer Science (Roundtable) Oct 2019
- U of Maryland (College Park) Student (Roundtable) Oct 2018
- Brown Third World Transition Program (Panel) Aug 2018
- Networking Networking Women Workshop (Panel Moderator) Aug 2017
- StreetCoders @ Facebook (Roundtable) Summer 2015
- ICNP 2014 PhD Forum (Keynote) Oct 2014
- Semester Faculty Round Tables with Delta Sigma Theta (Roundtable) 2014-2017
- Conference for African-American Researchers in Mathematical Sciences (CAARMS) 2012 - 2013
- OSDI Diversity Workshop Oct 2012

Student Mentoring Graduated Ph.D. Students:

- **Zhenyu Zhao (co-advised with Xiaowei Yang), 2020. First job: Google.**
 Dissertation: Improving System Availability for Better Services.
 Included Publications: NSDI'20, TechReport, NFV-SDN'16, SoCC'19.

Current Ph.D. Students:

- Usama Naseer (Brown): started 2016.
- Saim Salman (Brown): started 2017.
- Abdul Manan (Brown): started 2020.
- Ayush Bhardwaj (Brown): started 2021.

Previous Visiting Scholars:

- Huan Chen (Brown): 2016-2017.
Publications: First authored (CoNEXT'17, CAN'17, SoSR'17), Non-first authored (NetAI'18).
- Huan Chen (Brown): 2017-2019.
Publications: First authored (CoNEXT'18, JSAC'20).

Current M.Sc. Students:

- Changhao Wu (Brown): started 2019.
- Akshat Mahajan (Brown): started 2020.
- Yongjeong Kim (Brown): started 2020.

Previous M.Sc. Students:

- Samuel McKinney (Brown), First Job: Sonos.
- Vincentius Martin (Duke), Pursing Ph.D. at Duke.
Publications: First authored (CAN'17).
- Brendan Tschaen (Duke), First Job: AT&T.
Publications: First authored (NFV-SDN'16), Non-First authored (HotNets'15, SoSR'16).

Previous Undergraduate Students:

- Alex Yu (Brown), First Job: Amazon
Publications: First Authored (WWW'21).
- Kevin Dukrow (Brown), First Job: Google
Publications: First Authored (HotNets'20).
- Joshua Levin (Brown), First Job: Palantir
Senior Thesis: ViperProbe: Using eBPF Metrics to Improve Microservice Observability.
Publications: First Authored (CloudNet'20).
- Joshua Pettiz (Brown), First Job: Google
Capstone Project: Trace And Break (TAB): Improving Chaos Engineering by Examining Traces.
- Varun Mathur (Brown), First Job: Microsoft
Capstone Project: Trace And Break (TAB): Improving Chaos Engineering by Examining Traces.
- Silei Ren (Brown), Pursuing Ph.D. Cornell
Senior Thesis: ChaosBear: A Framework for Inducing Systematic Failures in SDNs.
- Ali Mir (Brown), First Job: MongoDB
Senior Thesis: ChaosBear: A Framework for Inducing Systematic Failures in SDNs.
- Sishuai Gong (XJTU), Pursuing Ph.D. Purdue
Publications: First Authored (TMA'20).
- Chris Streiffer (Duke), Pursuing M.D. John Hopkins
Publications: First Authored NetAI'18, Middleware'17, BigData'17).

Service Activities	Keynotes, Mentoring, Panels and Talks: (Strikethrough indicates declined invitations)	
	• NSF-NeTS Early Career Workshop (Panel)	Aug 2021
	• HotOS'21 Panel on the Future of Hardware and Systems (Panel)	Jun 2021
	• Workshop on HotTopics on Data Centers (HotDC) (Keynote)	Jan 2021
	• EdgeSys Workshop (Keynote)	Apr 2020
	• Open-Cloud-Testbed-Workshop (Panel)	Mar 2020

- ~~CoNEXT Student Workshop (Panel)~~ Dec 2019
- Internet-QoE workshop (KeyNote) Jul 2018
- Cisco Cloud Resiliency Workshop (KeyNote) Jun 2018
- ICNP 2014 PhD Forum (Keynote) Oct 2014

Organizing committee member for: *(Strikethrough indicates declined invitations)*

- **2022:** Steering Committee CoNEXT, Technical Program Chair for Internet Measurement Conference (IMC).
- **2021:** Steering Committee CoNEXT, ~~Technical Program Chair for CCNC 2021 (Area Chair), Technical Program Chair for ICNP 2021 (Area Chair).~~
- **2020:** Steering Committee CoNEXT, Tufts CS External Advisory Board (Diversity and inclusion CoChair), Organizer of NSF Workshop on Programmable Data Planes.
- **2019:** Technical Program Chair for SIGCOMM Workshop on Networking meets ML/AI (NetAI), Steering Committee CoNEXT, Tufts CS External Advisory Board (Diversity and inclusion CoChair), URM GradCohort Steering Committee
- **2018:** Technical Program Chair for SIGCOMM Workshop on IoT S&P, Technical Program Chair for CoNEXT, Technical Program Chair for ANCS, Technical Program Chair for HSPR, Travel Grants Chair, Technical Program Chair for SIGCOMM SecSoN Workshop, URM GradCohort Steering Committee.
- **2017:** Technical Program Chair for CCS Workshop on IoT S&P , SoCC Poster and Demo Co-Chair, SoSR Publicity Chair.
- **2016:** Co-Editor for IJNM (Special Issue on SDN and NFV for Flexible Management), Co-Editor for IEEE Internet Computing (NFV Special Issue).
- **2015:** HotMiddleboxes Technical Program Chair, SIGCOMM Publicity Co-Chair, LISA Research Committee, CoNext Student Workshop Co-Chair.
- **2014:** CoNEXT Travel Grant Co-Chair, LISA Research Committee.
- **2013:** ITC Publicity Co-Chair.

Program committee member: *(Strikethrough indicates declined invitations)*

- **2022:** NSDI.
- **2021:** NSDI, SIGCOMM, OSDI, APNet, PAM, EuroSys '21 Workshop on High Availability and Observability of Cloud Systems (HAOC), ~~CoNEXT, IMC, SoCC, APNet, SoSR.~~
- **2020:** HotCloud, ANRW, APNet, IMC, SIGCOMM'20 NetAI Workshop, ~~ICNP Workshop HDR-Nets, CoNEXT, SoCC, ACM COMPASS 2020, SoSR, PAM, USENIX ATC, Cloud Intelligence Workshop for AAAI20.~~
- **2019:** SIGCOMM, EUROSYS, APNet, HotNets, CoNEXT, IMC, ACM COMPASS, PAM, SoSR Poster/Demo, Workshop on Harnessing the Data Revolution in Networking, NSF CSR/NeTS Joint PI Meeting, ANRW, New England Network and Systems Day, ~~ANCS, SoSR.~~
- **2018:** SIGCOMM, SoSR, ICDCS, USENIX ATC, SIGCOMM Workshop on NetCompute, APNet, ACM COMPASS, ~~SoCC.~~
- **2017:** SIGCOMM, IMC, HotCloud, SIGCOMM Workshop on HotContainers, ITC (Future Internet Architectures), IEEE Networking, SoCC, SoSR Poster and Demo, ~~ICDCS.~~
- **2016:** Usenix ATC, CoNext, INFOCOM, SIGCOMM, ANCS, HotMiddleboxes, ICDCS, SoSR, IMC, Richard Tapia Scholarship Committee, CAN.
- **2015:** ANCS, SoSR, Workshop on Cross-Cloud, LISA, ICNP, ONUG Research Track, DCC.
- **2014:** NSF Cloud, IMC, CoNEXT, SOCC, HotCloud, LISA, SIGCOMM Posters/Demos, ANCS, ICWA, INFOCOM Workshop on Cross-Cloud.
- **2013:** IMC, SOCC, HotCloud, NSDI Posters/Demos, RSDA.

Campus Service
Activities

- **2020-2021:** Chair Graduate Admissions Committee.
- **2019-2021:** Member of Brown Salomon Faculty Awards Committee.
- **2013-2020:** Member of Graduate Admissions Committee.

Duke Campus Involvement:

- **2014-2017:** Student Organization Advisor for *Duke Stop Motion*.

Invited Talks	<i>A Data-driven Approach to Speeding Up the Internet.</i>	
	<ul style="list-style-type: none">● SUNY Stony Brook, Long Island, NYC. Feb 2020● Tufts University, Medford, MA. Oct 2019● ETH-Zurich, Zurich, Switzerland. May 2019● Università della Svizzera italiana, Lugano, Italy. May 2019● Brazilian Symposium on Computer Networks and Distributed Systems, Gramado, Brazil. May 2019	
	<i>Systematic Approach to Managing Software Defined Networks.</i>	
	<ul style="list-style-type: none">● MPI, Saarbrücken, Germany. May 2019● TU-Darmstadt, Darmstadt, Germany. May 2019	
	<i>A case for Management Abstractions for Programmable Data Planes.</i>	
	<ul style="list-style-type: none">● BigSwitch, Santa Clara, CA. Jul 2018● Huawei Data Center Summit, Madison, WI. Jul 2018● Huawei Resiliency Workshop, Santa Clara, WI. Jun 2018	
	<i>A Data-driven Approach to Turbo Charging the Internet.</i>	
	<ul style="list-style-type: none">● InternetQoE, Vienna, Austria. Jul 2018● Facebook, Menlo Park, CA. Jun 2018● AT&T Research, Bedminster, NJ. May 2018	
	<i>Failure as a First Class Entity of SDNs.</i>	
	<ul style="list-style-type: none">● IBM Research, Bangalore, India. Jun 2016● MSR India, Bangalore, India. Jun 2016● Huawei Networking Summit, Princeton, NJ. Dec 2015● ATT Research. Dec 2015● Tufts University. Dec 2015● University of North Carolina, Chapel Hill. Nov 2015	
	<i>Commoditizing Software Defined Networks.</i>	
	<ul style="list-style-type: none">● VMWare Labs. Aug 2015● HP Labs. Jul 2015● ONUG - Research Track. May 2015	
	<i>Large Scale Systems Research from a Fish Bowl.</i>	
	<ul style="list-style-type: none">● Keynote ICNP Phd Forum. Oct 2014	
	<i>Managing Software Defined Networks.</i>	
	<ul style="list-style-type: none">● IBM Research. Jun 2014● NEC Labs. Jun 2014	
	<i>Slick: A control plane for network middleboxes.</i>	
	<ul style="list-style-type: none">● Raytheon BBN. Jul 2013	
	<i>Demystifying and Controlling the Performance of Data Center Networks.</i>	
	<ul style="list-style-type: none">● CAARMS 20 (Princeton, NJ). Jun 2014● Yahoo! Performance Summit. Feb 2014● DIMACS Workshop on Algorithms for Green Data Storage. Dec 2013	

- Facebook (Hosted by Guohui Wang). Aug 2013
- CloudTech3. Oct 2012
- University of California, Berkeley (AMPLab Seminar). Apr 2011

Peeking into the Cloud.

- Clouds10 Workshop. Nov 2010

Classes Taught	• CSCI01380: Computer Distributed Systems.	Spr 2018-2021
	• CSCI2952-F: Practical Distributed Systems at Scale.	Spr/Fall 2020
	• CSCI2952-E: Topics in Network Management: Data-driven and Programmable Networks.	Spr/Fall 2018
	• CPS 512/ECE 514: Computer Networks and Distributed Systems: Advanced Networking.	Fall 2015
	• CPS 356: Computer Network Architecture.	Spr 2015
	• CPS 590-04: Software Defined-Networking.	Fall 2014
	• CPS 512/ECE 514: Computer Networks and Distributed Systems: Advanced Networking.	Spr 2014
	• CPS 590-04: Rethinking Networking Paradigms for Cloud Computing and Big Data Analytics: Infrastructure for Big Data.	Fall 2013

Professional Experience	Facebook , Menlo Park, California USA	
	<i>Web Performance Consultant; Summer</i>	2015
	Yahoo Research , Sunnyvale, California USA	
	<i>Data Center Performance Consultant</i>	2014-2017
	AT&T Research; Visiting Researcher , Florham Park, New Jersey USA	
	<i>Researcher; Spring Intern</i>	2011
Microsoft Research , Redmond, Washington USA		
<i>Researcher; Summer Intern</i>	2008	
IBM Research , Hawthorne, New York USA		
<i>Researcher; Summer Intern</i>	2007-2009	