Swetank Kumar Saha

Ph.D. Candidate
Computer Science & Engineering
University at Buffalo, SUNY

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Education

2013-Present
Ph.D. Computer Science & Engineering
University at Buffalo, SUNY, NY, US
ADVISOR *Dr. Dimitrios Koutsonikolas*
CGPA 3.81/4.0

2009-2013
Bachelor of Technology Computer Science & Engineering (*with Honors*)
IIIT-Delhi, New Delhi, IN
THESIS *Smartphone-based Anomalous Human Activity Detection and Prediction*
CGPA 9.01/10.0

Research Interests

- Wireless Networking
- Mobile Systems

Research Directions

Current

- Indoor 802.11ad/mmWave WLANs
  - Identify opportunities & challenges in realizing 802.11ad indoor WLANs
  - Design and evaluation of link adaptation mechanisms
  - Leverage MPTCP to build fast & reliable 802.11ad+ac network
  - Identify energy consumption concerns in commercial 802.11ad clients
- LTE/WiFi coexistence in 5 GHz
  - Quantify coexistence issues with LTE-Unlicensed and Enterprise WLAN
  - Propose standard-compliant WiFi-based solutions

Previous

- WiFi power-performance tradeoffs in Smartphones
  - Identified the power-performance relationship in context of 802.11n/ac/ad in mobile devices
  - Built accurate power models

Publications

Conference

C9 **Fast and Infuriating: Performance and Pitfalls of 60 GHz WLANs Based on Consumer-Grade Hardware**
<u>Swetank Kumar Saha</u>, Hany Assasa, Adrian Loch, Naveen Muralidhar Prakash, Roshan Shyamsunder Ananthara-makrishna, Shivang Aggarwal, Daniel Steinmetzer, Dimitrios Koutsonikolas, Joerg Widmer, and Matthias Hollick
IEEE International Conference on Sensing, Communication and Networking (**SECON**) *2018*

C8 **Medium Access and Transport Protocol Aspects in Practical 802.11ad Networks**
Hany Assasa, <u>Swetank Kumar Saha</u>, Adrian Loch, Dimitrios Koutsonikolas, Joerg Widmer
IEEE International Symposium on A World of Wireless, Mobile and Multimedia Networks (**WoWMoM**) *2018*

C7 **Multipath TCP in Smartphones: Impact on Performance, Energy, and CPU Utilization**
<u>Swetank Kumar Saha</u>, Abhishek Kannan, Geunhyung Lee, Nishant Ravichandran, Parag Kamalakar Medhe, Naved Merchant, Dimitrios Koutsonikolas
ACM International Symposium on Mobility Management and Wireless Access (**MobiWac**) *2017*

C6 **A Detailed Look into Power Consumption of Commodity 60 GHz Devices**
<u>Swetank Kumar Saha</u>, Tariq Siddiqui, Dimitrios Koutsonikolas, Adrian Loch, Joerg Widmer, Ramalingam Sridhar
IEEE International Symposium on A World of Wireless, Mobile and Multimedia Networks (**WoWMoM**) *2017*

C5 **A Feasibility Study of 60 GHz Indoor WLANs**
<u>Swetank Kumar Saha</u>, Tariq Siddiqui, Viral Vijay Vira, Anuj Garg, Dimitrios Koutsonikolas
IEEE International Conference on Computer Communication and Networks (**ICCCN**) *2016*

C4 **Revisiting 802.11 Power Consumption Modeling in Smartphones**
<u>Swetank Kumar Saha</u>, Pratham Malik, Selvaganesh Dharmeswaran, Dimitrios Koutsonikolas
IEEE International Symposium on A World of Wireless, Mobile and Multimedia Networks (**WoWMoM**) *2016*

C3 **Multi-Gigabit Indoor WLANs: Looking Beyond 2.4/5 GHz**
<u>Swetank Kumar Saha</u>, Viral Vijay Vira, Anuj Garg, Dimitrios Koutsonikolas
IEEE International Conference on Communications (**ICC**) *2016*

C2 **Power-Throughput Tradeoffs of 802.11n/ac in Smartphones**
<u>Swetank Kumar Saha</u>, Pratik Deshpande, Pranav P Inamdar, Ramanujan K Sheshadri, Dimitrios Koutsonikolas
IEEE Conference on Computer Communications (**INFOCOM**) *2015*

C1 **Take Control of Your SMSes : Designing an Usable Spam SMS Filtering System**
Kuldeep Yadav, <u>Swetank K Saha</u>, Ponnurangam Kumaraguru, Rohit Kumra
IEEE International Conference on Mobile Data Management (**MDM**) 2012

Journal

J2 **X60: A Programmable Testbed for Wideband 60 GHz WLANs with Phased Arrays**
<u>Swetank Kumar Saha</u>, Swetank Kumar Saha, Yasaman Ghasempour, Muhammad Kumail Haider, Tariq Siddiqui, Paulo De Melo, Neerad Somanchi, Luke Zakrajsek, Arjun Singh, Roshan Shyamsunder, Owen Torres, Daniel Uvaydov, Josep Miquel Jornet, Edward Knightly, Dimitrios Koutsonikolas, Dimitris Pados, Zhi Sun, Ngwe Thawdar
Elsevier Computer Communications (**COMCOM**) *2018*

J1 **60 GHz Indoor WLANs: Insights into Performance and Power Consumption**
<u>Swetank Kumar Saha</u>, Darshan Godabanahal Malleshappa, Avinash Palamanda, Viral Vijay Vira, Anuj Garg, Dimitrios Koutsonikolas
Springer Wireless Networks (**WINE**) *2017*

Workshop

W4 **X60: A Programmable Testbed for Wideband 60 GHz WLANs with Phased Arrays**
<u>Swetank Kumar Saha</u>, Yasaman Ghasempour, Muhammad Kumail Haider, Tariq Siddiqui, Paulo De Melo, Neerad Somanchi, Luke Zakrajsek, Arjun Singh, Owen Torres, Daniel Uvaydov, Josep Miquel Jornet, Edward Knightly, Dimitrios Koutsonikolas, Dimitris Pados, Zhi Sun
ACM Workshop on Wireless Network Testbeds, Experimental evaluation & CHaracterization (**WiNTECH**) *2017*

W3 **Improving Connectivity, Coverage, and Capacity in 60 GHz Indoor WLANs Using Relays**
<u>Swetank Kumar Saha</u>, Li Sun, Dimitrios Koutsonikolas
ACM Workshop on Wireless of the Students, by the Students, & for the Students (S^3) *2015*

W2 **A First Look at TCP Performance in Indoor IEEE 802.11ad WLANs**
<u>Swetank Kumar Saha</u>, Anuj Garg, Dimitrios Koutsonikolas
IEEE Conference on Computer Communications Workshops (**INFOCOM WKSHPS**) *2015*

W1 **On the Feasibility of Indoor IEEE 802.11ad WLANs**
<u>Swetank Kumar Saha</u>, Viral Vijay Vira, Anuj Garg, Andrew Tennenbaum, Dimitrios Koutsonikolas
IEEE Conference on Computer Communications Workshops (**INFOCOM WKSHPS**) *2015*

Poster

P4 **Poster: AMuSe: An Agile Multipath TCP Scheduler for Dual-Band 802.11ad/ac Wireless LANs**
<u>Swetank Kumar Saha</u>, Shivang Aggarwal, Dimitrios Koutsonikolas, Joerg Widmer
ACM International Conference on Mobile Computing and Networking (**MobiCom**) *2018*

P3 **Poster: Can MPTCP Improve Performance for Dual-Band 60 GHz/5 GHz Clients?**
<u>Swetank Kumar Saha</u>, Roshan Shyamsunder, Naveen Muralidhar Prakash, Hany Assasa, Adrian Loch, Dimitrios Koutsonikolas, Joerg Widmer
ACM International Conference on Mobile Computing and Networking (**MobiCom**) *2017*

P2 **Poster: X60: A Programmable Testbed for Wideband 60 GHz WLANs with Phased Arrays**
<u>Swetank Kumar Saha</u>, Yasaman Ghasempour, Muhammad Kumail Haider, Tariq Siddiqui, Paulo De Melo, Neerad Somanchi, Luke Zakrajsek, Arjun Singh, Owen Torres, Daniel Uvaydov, Josep Miquel Jornet, Edward Knightly, Dimitrios Koutsonikolas, Dimitris Pados, Zhi Sun
ACM International Conference on Mobile Computing and Networking (**MobiCom**) *2017*

P1 **LTE/WiFi Coexistence in 5 GHz: Bringing LTE-Awareness to Enterprise WiFi**
<u>Swetank Kumar Saha</u>, Christina Vlachou, Kyu-Han Kim
Hewlett Packard Enterprise (**Technical Conference**) *2017*

Technical Report

T1 **60 GHz Multi-Gigabit Indoor WLANs: Dream or Reality?**
<u>Swetank Kumar Saha</u>, Viral Vijay Vira, Anuj Garg, Dimitrios Koutsonikolas
arXiv:1509.04274 (**arXiv**) *2015*

Under Submission/Review

IEEE TMC	Fast and Infuriating: Performance and Pitfalls of 60 GHz WLANs Based on Consumer-Grade Hardware
Elsevier PMC	Medium Access and Transport Protocol Aspects in Practical 802.11ad Networks
ACM Mobihoc 2019	DeMiLTE: Detecting and Mitigating LTE Interference for Enterprise Wi-Fi in 5 GHz
	AMuSe: An Agile Multipath TCP Scheduler for Dual-Band 802.11ad/ac Wireless LANs

Work Experience

2013–Present	**Research Assistant**, *University at Buffalo, SUNY*, NY, US.
2013–Present	**Teaching Assistant**, *University at Buffalo, SUNY*, NY, US.
	Designed and developed assignments and automated grader for the Modern Networking Concepts course https://cse4589.github.io/
Summer 2017	**Research Intern**, *Hewlett Packard Labs*, Palo Alto, CA, US.
	LTE-Unlicensed/WiFi Co-existence in 5 GHz
Summer 2016	**Research Intern**, *IMDEA Networks Institute*, Madrid, Spain.
	802.11ad (60 GHz) Indoor WLANs
Summer 2013	**Software Developer**, *Google Summer of Code 2013*, Google.
	Worked on the popular Android data collection framework Funf.
Summer 2012	**Research Intern**, *Airbus India, EADS Innovation Works*, Bangalore, India.
	Study and development of Image based localization techniques.

Awards

- **2nd Runner Up** ACM Student Research Competition (SRC) 2017 [P2]
- **Best Paper Runner Up** ACM WiNTECH 2017 [W4]
- **1st prize** at the UB School of Engineering & Applied Sciences (SEAS) Lightning Talk Competition
- **Winner** of the *Tally Innovation Award* at the All-India Jedi Project Challenge 2012, organized by IISc., Bangalore.
- Travel Grants
  - 2018: IEEE SECON, ACM SRC
  - 2017: ACM MobiCom, ACM SRC
  - 2016: ACM MobiCom, IEEE ICCC
  - 2015: ACM IMC, IEEE ICNP

Professional Service

Chair	○ ACM Wireless of the Students, by the Students, and for the Students (S^3) Workshop 2018
Web Chair	○ International Conference on Embedded Wireless Systems and Networks (EWSN) 2018 ○ ACM Workshop on Wireless Network Testbeds, Experimental evaluation & CHaracterization (WiNTECH) 2016
Invited Journal Reviews	○ IEEE Transactions on Communications 2018 ○ IEEE Transactions on Mobile Computing (TMC) 2017 ○ MDPI Applied Sciences 2017 ○ IEEE Symposium on Computers and Communications (ISCC) 2017 ○ IEEE Transactions on Wireless Communications (TWC) 2017 ○ MDPI Sensors 2015
External Reviewer	○ IEEE Conference on Computer Communications (INFOCOM) 2016, 2015 ○ IEEE International Symposium on A World of Wireless, Mobile and Multimedia Networks (WoWMoM) 2016, 2015 ○ IEEE International Conference on Sensing, Communication and Networking (SECON) 2016, 2015

Technical Skills

Languages	C, Python, Java
SDRs	USRP, GNURadio, LabView
Linux	Wireless Device Drivers (ATH9K, ATH10K, WIL6210), TCP and MPTCP Networking Subsystem/Stack
Cloud	Google App Engine
Web	Django, PHP, HTML, js

Personal

Residency	Buffalo, NY, USA (F1 Visa)
Citizenship	India