

SAMARESH BERA

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Assistant Professor, Dept. of CSE, Indian Institute of Technology, Jammu, India, 181221

Website: <https://samareshbera.github.io/>

RESEARCH INTERESTS

Software-defined networking, Network function virtualization, 5G (and beyond), and Network slicing

EXPERIENCE

Assistant Professor

December 2022 - Present

Department of Computer Science and Engineering
Indian Institute of Technology, Jammu-181221, India

C. V. Raman Post-doctoral Research Fellow

January 2021 - December 2022

Department of Electrical Communication Engineering
Indian Institute of Science, Bangalore-560012, India
Mentor: Prof. Neelesh B. Mehta

Post-doctoral Researcher

December 2020

Center for Networked Intelligence
Indian Institute of Science, Bangalore-560012, India
Mentor: Prof. Neelesh B. Mehta

Visiting Researcher

September 2020 - November 2020

British Telecom India Research Centre
Indian Institute of Science, Bangalore-560012, India

Research Engineer

January 2020 - April 2020

INRIA, Sophia Antipolis and Nokia Bell Labs, France

EDUCATION

Doctor of Philosophy

2020

Department of Computer Science and Engineering
Indian Institute of Technology Kharagpur, India
Thesis: Software-Defined Networking for Internet of Things: Rule Placement and Routing
Supervisor: Prof. Sudip Misra

Master of Science (by research)

2015

School of Information Technology
Indian Institute of Technology Kharagpur, India
Thesis: Distributed Pricing Policy and Energy Management in Smart Grid
Supervisor: Prof. Sudip Misra
CGPA: 9.47

Bachelor of Technology

2011

Electronics and Communication Engineering

West Bengal University of Technology, India
CGPA: 8.2

12th Standard

2007

West Bengal Council of Higher Secondary Education, India
CGPA: 80.8%

10th Standard

2005

West Bengal Board of Secondary Education, India
CGPA: 86.5%

TEACHING

Instructor:

Information Security (CSC050P1M) IIT Jammu Spring 2022

Teaching Assistant:

Software Engineering (CS20006 and CS29006)	IIT Kharagpur	Spring 2019, 2018, 2017
Wireless & Ad-Hoc Sensor Networks (IT60119)	IIT Kharagpur	Autumn 2016, 2015, 2014
Internet and Web-based Technologies (IT60102)	IIT Kharagpur	Spring 2015
Advanced Network Technologies (IT60106)	IIT Kharagpur	Spring 2014
Programming and Data Structure (CS10001)	IIT Kharagpur	Spring 2016
Programming and Data Structure Lab (CS19001)	IIT Kharagpur	Autumn 2018

PUBLICATIONS

Book

1. S. Misra and **S. Bera**, “Smart Grid Technology: A Cloud Computing and Data Management Approach”, *Cambridge University Press*, Cambridge, UK, ISBN: 9781108566506, 2018 [⟨ link ⟩](#).

Journal

1. P. Khambooj, S. Pal, **S Bera**, S Misra, “QoS-aware Multipath Routing in Software-Defined Networks”, *IEEE Trans. on Network Science and Engineering*, 2022 (accepted).
2. C. R. Chowdhury, S Misra, C Mandal, **S Bera**, “SeamFlow: Seamless Flow Forwarding in Energy Harvesting-Enabled Access Points of SDWLAN”, *IEEE Trans. on Sustainable Computing*, 2022 (preprint), [⟨ link ⟩](#).
3. **S. Bera**, S. Misra, N. Saha, and H. Sharif, “Q-Soft: QoS-aware Traffic Forwarding in Software-Defined Cyber-Physical Systems”, *IEEE Internet of Things Journal*, 2021 (preprint), [⟨ link ⟩](#).
4. N. Saha, S. Misra, and **S. Bera**, “Q-Flag: QoS-Aware Flow-Rule Aggregation in Software-Defined IoT Networks”, *IEEE Internet of Things Journal*, 2021 (preprint), [⟨ link ⟩](#).
5. **S. Bera**, S. Misra, and N. Saha, “Traffic-Aware Dynamic Controller Assignment in SDN”, *IEEE Transactions on Communications*, vol. 68, no. 7, 2020, [⟨ link ⟩](#).
6. S. Misra and **S. Bera**, “Soft-VAN: Mobility-Aware Task Offloading in Software-Defined Vehicular Network”, *IEEE Trans. on Vehicular Technology*, 2019, [⟨ link ⟩](#).

7. **S. Bera**, S. Misra, and A. Jamalipour, “FlowStat: Adaptive Flow-Rule Placement for Per-Flow Statistics in SDN”, *IEEE Journal on Selected Areas in Communications*, vol. 37, no. 3, pp. 530-539, 2019 [⟨link⟩](#).
8. **S. Bera**, S. Misra, and M. S. Obaidat, “Mobi-Flow: Mobility-Aware Adaptive Flow-Rule Placement in Software-Defined Access Network”, *IEEE Trans. on Mobile Computing*, 2018 [⟨link⟩](#).
9. N. Saha, **S. Bera**, and S. Misra, “Sway: Traffic-Aware QoS Routing in Software-Defined IoT”, *IEEE Trans. on Emerging Topics in Computing*, 2018 [⟨link⟩](#).
10. **S. Bera**, S. Misra, S. K. Roy, and M. S. Obaidat, “Soft-WSN: Software-Defined WSN Management System for IoT Applications”, *IEEE Systems Journal* vol. 12, no. 3, pp. 2074-2081, Sept. 2018 (**Best paper award 2019**) [⟨link⟩](#).
11. S. Misra, **S. Bera**, Achuthananda M.P., S. K. Pal, and M. S. Obaidat, “Situation-Aware Protocol Switching in Software-Defined Wireless Sensor Network Systems”, *IEEE Systems Journal*, vol. 12, no. 3, pp. 2353-2360, Sept. 2018 [⟨link⟩](#).
12. **S. Bera**, S. Misra, and A. V. Vasilakos, “Software-Defined Networking for Internet of Things: A Survey”, *IEEE Internet of Things Journal*, vol. 4, no. 6, pp. 1994-2008, Dec. 2017 [⟨link⟩](#).
13. **S. Bera**, S. Misra, and D. Chatterjee, “C2C: Community-Based Cooperative Energy Consumption in Smart Grid”, *IEEE Transactions on Smart Grid*, vol. 9, no. 5, pp. 4262-4269, Sept. 2018 [⟨link⟩](#).
14. S. Misra, **S. Bera**, T. Ojha, H. T. Mouftah, and A. Anpalagan, “ENTRUST: Energy Trading Under Uncertainty in Smart Grid Systems”, *Computer Networks* (Elsevier), vol. 110, pp. 232-242, Dec. 2016 [⟨link⟩](#).
15. A. Samanta, **S. Bera**, and S. Misra, “Link-Quality-Aware Resource Allocation With Load Balance in Wireless Body Area Networks”, *IEEE Systems Journal*, vol. 12, no. 1, pp. 74-81, Mar. 2018 [⟨link⟩](#).
16. S. Misra, **S. Bera**, T. Ojha, and L. Zhou, “ENTICE: Agent-Based Energy Trading with Incomplete Information in the Smart Grid”, *Journal of Network and Computer Applications*, Vol. 55, pp. 202–212, Sept. 2015, [⟨link⟩](#).
17. **S. Bera**, P. Gupta, and S. Misra, “D2S: Dynamic Demand Scheduling in Smart Grid Using Optimal Portfolio Selection Strategy”, *IEEE Transactions on Smart Grid*, Vol. 6, No. 3, pp. 1434–1442, Apr. 2015, [⟨link⟩](#).
18. **S. Bera**, S. Misra, and J. Rodrigues, “Cloud Computing Applications for Smart Grid: A Survey”, *IEEE Transactions on Parallel and Distributed Systems*, Vol. 26, No. 5, pp. 1477–1494, 2015, [⟨link⟩](#).
19. S. Misra, **S. Bera**, and T. Ojha, “D2P: Distributed Dynamic Pricing Policy in Smart Grid for PHEVs Management”, *IEEE Transactions on Parallel and Distributed Systems*, Vol. 26, No. 3, pp. 702–712, Feb. 2015, [⟨link⟩](#).
20. S. Misra, **S. Bera**, and M. S. Obaidat, “Economics of Customer’s Decisions in Smart Grid”, *IET Networks*, Vol. 4, No. 1, pp. 37–43, January 2015, [⟨link⟩](#).
21. S. Misra, **S. Bera**, A. Mondal, R. Tirkey, H. C. Chao, and S. Chattopadhyay, “Optimal Gateway Selection in Sensor-Cloud Framework for Health Monitoring”, *IET Wireless Sensor Systems*, Vol. 3, No. 4, pp. 61–68, December 2013, [⟨link⟩](#).

Conference & Workshop

1. **S. Bera** and N. B. Mehta, “Network Slicing in 5G Edge Networks with Controlled Slice Redistributions”, in *Proc. IEEE/ACM/IFIP CNSM*, Oct. 2021, [link](#).
2. N. Saha, **S. Bera**, and S. Misra, “QoS-Aware Adaptive Flow-rule Aggregation in Software-Defined IoT”, in *Proc. IEEE GLOBECOM*, Dec. 2018, [link](#).
3. **S. Bera**, S. Misra, and N. Saha, “DyamiTE: Dynamic Traffic Engineering in Software-Defined Cyber Physical Systems”, in *Proc. IEEE ICC Workshop*, May 2018, [link](#).
4. **S. Bera**, S. Misra, M. S. Obaidat, “Mobility-Aware Flow-Table Implementation in Software-Defined IoT”, in *Proc. IEEE GLOBECOM*, Dec. 2016, [link](#).
5. **S. Bera**, T. Ojha, S. Misra, M. S. Obaidat, “Cloud-based Optimal Energy Forecasting for Enabling Green Smart Grid Communication”, in *Proc. IEEE GLOBECOM*, Dec. 2015, [link](#).
6. T. Ojha, **S. Bera**, S. Misra, and N. S. Raghuwanshi, “Dynamic Duty Scheduling for Green Sensor-Cloud Applications”, in *Proc. IEEE CloudCom*, pp. 841–846, Dec., 2014, [link](#).
7. **S. Bera**, S. Misra, and M. S. Obaidat, “Energy Efficient Smart Metering for Green Smart Grid Communication”, in *Proc. IEEE GLOBECOM*, pp. 2466–2471, Dec., 2014, [link](#).
8. S. Misra, A. Mondal, S. Banik, M. Khatua, **S. Bera**, and M. S. Obaidat, “Residential Energy Management in Smart Grid: A Markov Decision Process Based Approach”, in *Proc. IEEE iThings/CPSCoM*, Aug. 2013, [link](#).

Book Chapter

1. S. N. Das, **S. Bera**, S. Misra, S. K. Pal, “Introduction to Wireless Sensor Networks”, in Book “Soft Computing Applications in Sensor Networks”, Editors: Misra and Pal, CRC Press, 2016, [link](#).

INVITED TALK

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- “Network slicing in 5G edge networks” at CNI, IISc Bangalore, India, Nov. 2021
 - “Software-defined networking for internet of things” at ICACIE, 2020
 - “SDN: Rule placement and routing” at AICTE-sponsored short-term training program on “Computer Networking with SDN”, Bharati Vidyapeeth, Pune, India, 2020

AWARDS AND RECOGNITION

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- **DST AWSAR award**, 2021
 - Received **IEEE Richard E Merwin** Student Scholarship from the IEEE Computer Society, 2017.
 - Selected as **Young Researcher** for attending 5th **Heidelberg Laureate Forum**, Germany, September 2017.
 - Received **travel grant** from **Heidelberg Laureate Forum Foundation** to attend HLF 2017.
 - Received **Merit Cum Means scholarship** from **Govt. of West Bengal**, 2007-2009.

SOCIAL ACTIVITIES

TPC Member	ICDCN-2020, IEEE TechSym-2016, IEEE ScalCom-2014
Reviewer (selected journals)	IEEE/ACM TNET, ACM CSUR, IEEE JSAC, IEEE TNSM, IEEE TCOMM, and IEEE TMC
Student Activity	Chair (2019), Vice-Chair (2017, 2018), Treasurer (2016) IEEE Student Branch, IIT Kharagpur
Membership	Member, IEEE, ACM, and IEEE Computer Society
Conference Org. Committee Member	IEEE TechSym (2014 and 2016)

REFEREES

Professor Sudip Misra, *FIEEE, FNAE, FNASc, FIETE, FIET, FRSPH*
 Dept. of CSE, Indian Institute of Technology Kharagpur, India, 721302
 Email: sudipm@iitkgp.ac.in

Professor Neelesh B. Mehta, *FNASc, FNAE, FNA, FIEEE*
 Dept. of ECE, Indian Institute of Science, Bangalore, India, 560012
 Email: nbmehta@iisc.ac.in

Professor Joel J. P. C. Rodrigues, *FIEEE*
 Federal University of Piauí, Brazil
 Email: joeljr@ieee.org

DECLARATION

I hereby declare that the information furnished above are true to the best of my knowledge.

January 14, 2023

Samaresh Bera