Vaskar Raychoudhury

Senior Member, ACM **Senior Member, IEEE** **DAAD Fellow** **Humboldt Fellow**

CONTACT INFORMATION

Associate Professor (tenured since Aug. 2022)
Director, SMART Research Lab
Graduate Program Co-director
Department of Computer Science & Software Engineering
364 McVey Data Science Building
Miami University, Oxford, OH 45056
https://miamioh.edu/profiles/cec/vaskar-raychoudhury.html
https://scholar.google.com/citations?user=GX5RGegAAAAJ&hl=en

Office: (+1) 513-529-0845
e-mail: vaskar@gmail.com
raychov@miamioh.edu
Teams: it_vaskar
Mobile: 513-293-0730

RESEARCH INTERESTS

Large-scale Data Analysis & Mining, Applied Machine Learning and AI, Distributed and Bio-inspired Algorithms, Mobile & Pervasive Computing, Wireless Sensor Networks and Internet-of-Things (IoT), Cross-domain Human-centric Applications, Federated and Open-world Learning

PAST WORK EXPERIENCE

- Assistant Professor in the Department of Computer Science & Engineering, Indian Institute of Technology (IIT) Roorkee, India (October 27, 2011 – January 10, 2018)
- Alexander von Humboldt Postdoctoral Research Fellow at the University of Mannheim, Germany (May 2016 - July 2017 & June - August 2018)
- Visiting Assistant Professor, Department of Computer Science (Informatik), Technische Universität Darmstadt, Germany (June - July 2015)
- Postdoctoral Researcher Engineer in the Handicom Lab, Telecommunication Network and Services Department, Institut Telecom & Management SudParis, Evry, France (March - October 2011)
- Postdoctoral Research Associate, Internet, and Mobile Computing Lab, Department of Computing, The Hong Kong Polytechnic University (May 2010 – February 2011)

EDUCATION

Ph.D. in Computing, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong
April 2006 – May 2010
- *Advisor*: Dr. Jiannong Cao
- *Thesis title*: Reliable Service Discovery and Access in Pervasive Computing Environments
- *URI*: http://hdl.handle.net/10397/2769

M.S. (by research) in Information Technology, Indian Institute of Technology (IIT) Kharagpur, India
August 2003 – January 2006
- *Thesis title*: A Middleware for Building Mobile Agent-Based Distributed Applications

B.Tech. in Information Technology, Kalyani University, West Bengal, India
September 1999 – July 2003

HONOURS AND AWARDS

- Miami University Creativity and Innovation Award, 2023
- *Student Recognition of Teaching Excellence Award from MU* **(Fall 2020)**
- ACM Senior Member since July 2017
- Alexander von Humboldt Postdoctoral fellowship in March 2015 (One of only 9 people among 193 countries to receive AvH fellowship in Computer Science in 2015) [It is one of the most prestigious and generous global research awards made by Germany since 1860.]
- DAAD-IIT joint fellowship on bilateral academic exchange for the year 2015.
- IEEE Senior Member since April 2014
- Young Scientist Research Grant from SERB, Department of Science & Technology (DST), Govt. of India, 2012-2016
- International Travel Support (ITS) from the Department of Science & Technology (DST), Govt. of India (for presenting the paper accepted in IEEE Healthcom 2014)
- Faculty Research Initiation Grant 10 Lakhs Indian Rupees from IIT Roorkee as the first faculty member to receive such a high amount through Institute-wide competition

- The Hong Kong Polytechnic University International Postgraduate Scholarship for PhD Studies. [Yr. 2005] (One of only 6 people globally to receive the scholarship in 2005)
- A national prize and a certificate of merit as a selected candidate in the 12th all-India essay contest on nuclear science and technology, conducted by Bhabha Atomic Research Centre (BARC) & the Dept. of Atomic Energy, Govt. of India. [Yr. 2000]
- A national prize, a certificate of merit, and a national scholarship for being 33rd (among 3, 38, 206 examinees) in the state (West Bengal) in the Higher Secondary (12th standard) Examination (M.O: 89.9%) [Yr. 1999]
- A national prize, a certificate of merit, and a national scholarship for being 24th (among 4, 72, 665 examinees) in the state (West Bengal) in the Secondary (10th standard) Examination (M.O: 91.625%). [Yr. 1997]

PUBLICATIONS

My publications over the last 18+ years (2005-2023) are divided into five categories – Book chapters (peer-reviewed), Technical reports (not peer-reviewed), Journal articles (peer-reviewed), Conference proceedings (peer-reviewed), and Workshop proceedings (peer-reviewed). They are co-authored with collaborators, graduate, and undergraduate (UG) students of different places I worked, and professors/supervisors. I have marked students using different special symbols - §*MU Grad Students* / *Other Grad Students* / †*MU UG Students* / ‡*Other UG students*. As quality indicators, journal impact factors (I/F) and Scimago Quartiles (Q1, Q2, or Q3) are indicated for Journal articles. Quality of Conference proceedings is indicated through CORE, ERA, or Qualis ranks, if available. Otherwise, we mentioned them as (ranking) Not Available (N/A). Workshop papers are published in workshops associated with top-tier conferences. Therefore, I have indicated the rank of the main conference for the workshop papers, as the workshops are not usually ranked separately.

Book Chapters

1. Jiannong Cao, Joanna Siebert*, and *Vaskar Raychoudhury*, "Service Management in Pervasive Computing Environments", *Pervasive Computing and Networking*, Mohammad S. Obaidat, Mieso Denko, and Isaac Woungang (Eds.), John Wiley & Sons, Ltd.
2. Sobin CC*, *Vaskar Raychoudhury*, S. Saha, "A Survey of Parallel Community Detection Algorithms," Handbook of Research on Applied Cybernetics and Systems Science. IGI Global, 2017. 1-26. doi:10.4018/978-1-5225-2498-4.ch001

Technical Reports (not peer-reviewed)

1. Deepak Uniyal and *Vaskar Raychoudhury*, "Pervasive healthcare-a comprehensive survey of tools and techniques," pp. 1-48, arXiv preprint arXiv:1411.1821, Nov 2014.
2. *Vaskar Raychoudhury*, Rahul Raj, Pranay Chaudhary, Surendra Gadwal, "Text Detection in Natural Scenes," pp. 1-12, May 2014.

Journal Publications

1. A. Mehra, D. Singh, S. Saha, V. Raychoudhury and A. Mathur, "Last Mile: A Novel, HotSpot-Based Distributed Path-Sharing Network for Food Deliveries", IEEE Transactions on Intelligent Transportation Systems, October 05, 2024, DOI: 10.1109/TITS.2024.3465217
2. V. Misra, S.S. Menon, S. Saha, A. Mathur, H. Yu, and V. Raychoudhury, "AdaGen: Adaptive Generalized Knowledge Transfer Framework for Sensor-Based Surface Classification for Wheelchair Routing." SN COMPUT. SCI. 5, 820 (2024). https://doi.org/10.1007/s42979-024-03181-w.
3. A. Seetha, S.S Chouhan, E.S. Pilli, *V. Raychoudhury*, and S. Saha, "DiEvD-SF: Disruptive Event Detection using Continual Machine Learning with Selective Forgetting", IEEE Transactions on Computational Social Systems, Feb. 2024.
4. A. Seetha, S.S Chouhan, E.S. Pilli, and *V. Raychoudhury*, "DiEvD: Disruptive Event Detection from Dynamic Datastreams using Continual Machine Learning: A Case Study with Twitter", Accepted for publication in IEEE Transactions on Emerging Topics in Computing on May 02, 2023.
5. J. Parmar$, S.S. Chouhan, *V. Raychoudhury*, and S. Soni, "A Machine Learning based Framework to Identify Unseen Classes in Open-world Text Classification," Elsevier Information Processing and Management, Volume 60, Issue 2, 2023, ISSN 0306-4573, https://dog/10.1016/j.ipm.2022.103214 (CORE - A, I/F: 7.466, SJR:1.85 (Q1)).
6. J. Parmar$, S.S. Chouhan, *V. Raychoudhary*, and S.S. Rathore, "Open-world Machine Learning: Applications, Challenges, and Opportunities," ACM Computing Surveys (CSUR),

Vol 55, Issue 10, PP-1-37, Feb 02, 2023 (CORE – A*, I/F: 10.282, SJR: (Q1)).

7. H. Yu[§], *V. Raychoudhury*, S. Saha, J. Edinger, R.O. Smith, Md O. Gani, "Automated Surface Classification System using Vibration Patterns - A Case Study with Wheelchairs," IEEE Transactions on Artificial Intelligence, June 2022 (I/F: 10.282, SJR: 1.38 (Q1)).
8. A. Manjunath[‡], *V. Raychoudhury*, S. Saha, S. Kar, and A. Kamath[‡], "CARE-Share: A Cooperative and Adaptive Strategy for Distributed Taxi Ride Sharing", IEEE Transactions on Intelligent Transportation Systems, March 2021, https://doi.org/10.1109/TITS.2021.3066439 (I/F: 6.319, SJR2020 - Q1).
9. Ankush Mishra[‡], S. Saha, Simran Makhija[‡], Sumana Sinha, *Vaskar Raychoudhury* and Sobin CC[*], "Empirical study of dynamics of amoebiasis transmission in mobile ad-hoc networks (MANETs), International Journal of Communication Systems, John Wiley & Sons Inc. 2020; 33:e4186. https://doi.org/10.1002/dac.4186 (I/F: 1.319, SJR2020 – Q2).
10. Sobin CC[*], *Vaskar Raychoudhury*, S. Saha, "Addressing space-constraint driven selfishness in smart opportunistic environment," International Journal of Communication Systems, John Wiley & Sons Inc., 2018; 31:e3762. https://doi.org/10.1002/dac.3762 (I/F: 1.319, SJR2020 – Q2).
11. Tarun Kulshrestha[*], Divya Saxena[*], Rajdeep Niyogi, *Vaskar Raychoudhury*, and Manoj Misra, "SmartITS: Smartphone-based identification and tracking using seamless indoor-outdoor localization," Journal of Network and Computer Applications (JNCA), Elsevier, Volume 98, 15 November 2017, Pages 97-113, https://doi.org/10.1016/j.jnca.2017.09.003, (I/F: 5.570, SJR2020 - Q1).
12. Divya Saxena[*] and *V. Raychoudhury*, "Design and Verification of an NDN-based Safety-critical Application: A Case Study with Smart Healthcare," IEEE Transactions on Systems, Man, and Cybernetics: Systems, vol. 49, no. 5, pp. 991-1005, May 2019, doi: 10.1109/TSMC.2017.2723843, (I/F: 9.309, SJR2020 - Q1).
13. Sobin CC[*], *V. Raychoudhury*, S. Saha, "An Incentive-Based Scheme for Mitigating Node Selfishness in Smart Opportunistic Mobile Networks," Wireless Personal Communications, 96**,** 3533–3551 (2017). https://doi.org/10.1007/s11277-017-4139-x, (I/F: 1.061, SJR2020 – Q3).
14. Divya Saxena[*] and *V. Raychoudhury*, "N-FIB: Scalable, Memory Efficient Name-based Forwarding," Journal of Network and Computer Applications (JNCA), Elsevier, Volume 76, December 2016, Pages 101–109, https://doi.org/10.1016/j.jnca.2016.09.007, (I/F: 5.570, SJR2020 - Q1).
15. Divya Saxena[*], *V. Raychoudhury*, Neeraj Suri, Christian Becker, and Jiannong Cao, "Named Data Networking: A Survey", Elsevier Computer Science Review, Volume 19, Pages 15-55, February 2016, https://doi.org/10.1016/j.cosrev.2016.01.001, (I/F: 7.707, SJR2020 - Q1).
16. Sobin CC[*], *V. Raychoudhury*, Gustavo Marfia, and Ankita Singla[*], "A Survey of Routing and Data Dissemination in Delay Tolerant Networks," Journal of Network and Computer Applications (JNCA), Elsevier, Volume 67, Pages 128–146, May 2016, https://doi.org/10.1016/j.jnca.2016.01.002 (I/F: 5.570, SJR2020 - Q1).
17. Divya Saxena[*] and *V. Raychoudhury*, "Radient: Scalable, Memory Efficient Name Lookup Algorithm for Named Data Networking," Journal of Network and Computer Applications (JNCA), Elsevier, Volume 63, March 2016, Pages 1–13, https://doi.org/10.1016/j.jnca.2015.12.009 (I/F: 5.570, SJR2020 - Q1).
18. *V. Raychoudhury*, Shikhar Shrivastav[‡], Sandeep Singh Sandha[‡], and Jiannong Cao, "Crowd-PAN-360: Crowdsourcing based Context-aware Panoramic Map Generation for Smartphone Users," In IEEE Transactions on Parallel and Distributed Systems (TPDS), Vol. 26, Issue 8, pp. 2208 – 2219, Aug. 2015, doi: 10.1109/TPDS.2014.2345067 (I/F: 2.6, SJR2020 - Q1).
19. *V. Raychoudhury*, Ajay D. Kshemkalyani, Daqing Zhang, and Jiannong Cao, "Automatic Event Scheduling in Mobile Social Network Communities," In IEEE Transactions on Parallel and Distributed Systems (TPDS), Vol. 25, Issue 11, pp. 2772 – 2782, Nov. 2014, Nov. 2014, doi: 10.1109/TPDS.2013.2297111 **(**I/F: 2.6, SJR2020 - Q1**)**.
20. *V. Raychoudhury*, Jiannong Cao, Rajdeep Niyogi, Weigang Wu[*], and Yi Lai[*], "Top K-leader Election in Mobile Ad Hoc Networks," In Pervasive and Mobile Computing (PMC), Elsevier, Vol. 13, pp. 181-202, August 2014, https://doi.org/10.1016/j.pmcj.2013.10.003 **(**I/F: 2.725, SJR2020 - Q1**)**.
21. *V. Raychoudhury*, Jiannong Cao, Mohan Kumar, and Daqiang Zhang[*], "Middleware for

Pervasive Computing: A Survey," Journal of Pervasive and Mobile Computing, Elsevier, Volume 9, Issue 2, Pages 177–200, April 2013, https://doi.org/10.1016/j.pmcj.2012.08.006 **(**I/F: 2.725, SJR2020 - Q1**)**.

22. Weiping Zhu*, Jiannong Cao, Henry Chan, Xuefeng Liu*, and *V. Raychoudhury* "Mobile RFID with a High Identification Rate," in IEEE Transactions on Computers (TC), vol. 63, no. 7, pp. 1778-1792, July 2014, doi: 10.1109/TC.2013.41, **(**I/F: 2.711, SJR2020 - Q1**)**.
23. Daqiang Zhang, Zhijun Yang*, *V. Raychoudhury*, Zhe Chen, "An Energy-efficient Routing Protocol Using Movement Trend in Vehicular Ad-hoc Networks," in the Computer Journal, vol. 56, no. 8, pp. 938-946, Aug. 2013, doi: 10.1093/comjnl/bxt028, **(**I/F: 0.98, SJR2020 – Q2**)**.
24. *V. Raychoudhury*, Jiannong Cao, Weigang Wu*, and Steven Lai*, "K-Directory Community: Reliable Service Discovery in MANET," Journal of Pervasive and Mobile Computing, Elsevier, Volume 7, Issue 1, Pages 140-158, February 2011, https://doi.org/10.1016/j.pmcj.2010.10.004 **(**I/F: 2.725, SJR2020 - Q1**)**.

Conference Publications

1. A.M. Shaikh, H. Nambiar, K. Ghate, S. Banik, S. Sen, S. Ghosh, V. Raychoudhury, N. Ganguly, S. Saha. Self-SLAM: A Self-supervised Learning Based Annotation Method to Reduce Labeling Overhead. In: Machine Learning and Knowledge Discovery in Databases. Applied Data Science Track. ECML PKDD, September 9 – 13, 2024, Vilnius, Lithuania. Lecture Notes in Computer Science (LNAI), vol 14949. Springer, Cham, https://doi.org/10.1007/978-3-031-70378-2_8 (CORE RANK: A).
2. R. Banerjee, E. Han, L. Li, H. Yu, Md O. Gani, V. Raychoudhury, and R.O. Smith., "FedAccess: Federated Learning-Based Built Surface Recognition for Wheelchair Routing," 2024 IEEE 48th Annual Computers, Software, and Applications Conference (COMPSAC), Osaka, Japan, July 2-4, 2024, pp. 1406-1415, doi: 10.1109/COMPSAC61105.2024.00185. (CORE RANK: B)
3. A. Mehra, S. Saha, V. Raychoudhury and A. Mathur, "DeliverAI: Reinforcement Learning Based Distributed Path-Sharing Network for Food Deliveries," 2024 International Joint Conference on Neural Networks (IJCNN), Yokohama, Japan, June 30 - July 5, 2024, Yokohama, Japan, pp. 1-9, doi: 10.1109/IJCNN60899.2024.10651403. (CORE RANK: B)
4. T. Nguyen†, Md F. Islam*, R. Banerjee§, H.M. Noyce*, E.M. Olejniczak*, R.O. Smith, Md O. Gani, and *V. Raychoudhury*, "MyPath: Accessible Route Generation using Crowd-sensed Surface Information", 20th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous), November 14-17, 2023, Melbourne, Australia (Short Paper with 12 Pages). (CORE RANK: C)
5. R. Banerjee§, Md F. Islam, S. Saha, Md O. Gani, and *V. Raychoudhury*, "Surface Recognition from Wheelchair-induced Noisy Vibration Data: A Tale of Many Cities", 18th International Conference on Mobility, Sensing, and Networking (MSN 2022), December 14-16, 2022, Guangzhou, China (Invited Paper).
6. J. Hata§, H. Yu§, *V. Raychoudhury*, S. Saha, and H.Q. Tran§, "Study of Heterogeneous User Behaviour in Crowd Evacuation in Presence of Wheelchair Users," In Proceedings of the 20th International Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS), July 13-15, 2022, L'Aquila, Italy. (CORE RANK: B)
7. E.M. Olejniczak, H.M. Noyce, Md F. Islam, R. Banerjee§, *V. Raychoudhury*, Md O. Gani, and R.O. Smith, "Accessible Routing Using MyPath: Testing and PAR Feedback on the Data Collection Module", in Proceedings of the 2023 Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference.
8. S. Saha, L. Selingo, E. Olejniczak, H. Noyce, *V. Raychoudhury*, Md O. Gani, "MyPath: Accessible Routing for Wheelchair Users," In Proceedings of the 2022 Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference. 2022 July.
9. S. Saha, Md F. Islam, R.O. Smith, *V. Raychoudhury*, Md O. Gani, "Redefining Wheelchair Accessibility through Cross-Domain Knowledge Transfer (WheelTransfer)", Occupational Therapy Summit, Madison, WI 2022 June
10. L. Selingo, H. Noyce, E. Olejniczak, *V. Raychoudhury*, Md O. Gani, R.O. Smith, "Exploring Older Adults' Community Accessibility Needs Through the I-Corps Program," Proceedings

from the 2022 OT Summit Annual Conference. 2022 June.

11. H.. Yu, *V. Raychoudhury*, and S.. Saha, "Dynamic Taxi Ride-Sharing through Adaptive Request Propagation using Regional Taxi Demand and Supply," Accepted in the 18th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking, and Services (MobiQuitous), November 8-11, 2021, Beppu, Japan. ▸ RANK: B (*was CORE A till 2020*).
12. V.Mokrenko[*], H. Yu[*], *Vaskar Raychoudhury*, J. Edinger, Roger O. Smith, and Md O. Gani, "A Transfer Learning Approach to Surface Detection for Accessible Routing for Wheelchair Users," Accepted as a full paper for Publication in IEEE Computers, Software, and Applications Conference (COMPSAC 2021), July 12 – 16, 2021. ▸ RANK: B.
13. Divya Saxena[*] and *V. Raychoudhury*, "A Scalable, Memory-efficient Pending Interest Table of Named Data Networking," In Proceedings of the 17th IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS), Delhi NCR, India, December 10-13, 2020. ▸ RANK: B.
14. Shrawani Silwal[§], *V. Raychoudhury*, S. Saha and Md O. Gani, "A Dynamic Taxi Ride Sharing System Using Particle Swarm Optimization," In Proceedings of the 17th IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS), Delhi NCR, India, December 10-13, 2020. ▸ RANK: B.
15. Haoxiang Yu[†], *V. Raychoudhury* and Shrawani Silwal[§], "Dynamic Taxi Ride Sharing using Localized Communication," In Proceedings of the 21st International Conference on Distributed Computing and Networking (ICDCN), January 4-7, 2020, Kolkata, India. [**Acceptance Rate: 15/42 ~ 35.7%**] ▸ RANK: B
16. Md O. Gani, *V. Raychoudhury*, J. Edinger, V. Mokrenko[§], Zheng Cao[†], Ce Zhang[†], "Smart Surface Classification for Accessible Routing through Built Environment - A Crowd-sourced Approach," In Proceedings of the 6th ACM International Conference on Systems for Energy-Efficient Built Environments, Cities, and Transportation (BuildSys'19), Nov. 13-14, 2019, Columbia University, NY, USA, doi>10.1145/3360322.3360863 [**Acceptance Rate: 38/128 ~ 29.7%**] ▸ RANK: A [BUILDSYS MAIN TRACK] ▸ CITES: 1.
17. Shrawani Silwal[§], Md O. Gani, *V. Raychoudhury*, "A Survey of Taxi Ridesharing System Architectures," in Proceedings of the 5th IEEE International Conference on Smart Computing (SMARTCOMP), June 12-15, 2019, Washington DC, USA.
18. D. Saxena[*], Suyash Mahar[‡], *V. Raychoudhury*, J. Cao, "Scalable, High-speed On-chip based NDN Name Forwarding using FPGA," In Proceedings of the 20th International Conference on Distributed Computing and Networking (ICDCN), January 4-7, 2019, Bangalore, India. ▸ RANK: B
19. Anmol Agrawal[*], *V. Raychoudhury*, D. Saxena[*], Ajay Kshemkalyani, "Efficient Taxi and Passenger Searching in Smart City using Distributed Coordination," In Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC2018), November 4-7, Maui, Hawaii, USA. ▸ RANK: B1
20. Kanika Bathla[*], *V. Raychoudhury*, D. Saxena[*], and Ajay D Kshemkalyani, "Real Time Distributed Taxi Ride Sharing," In Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC2018), November 4-7, Maui, Hawaii, USA. ▸ RANK: B1
21. J. Edinger[*], Dominik Schaefer[*], Christian Krupitzer[*], *V. Raychoudhury* and Christian Becker, "Fault-Avoidance Strategies for Context-Aware Schedulers in Pervasive Computing Systems," In Proceedings of IEEE International Conference on Pervasive Computing and Communications (PerCom), March 13-17, 2017 Hawaii, USA. [**Acceptance Rate: 32/194 ~ 16.5%**] ▸ RANK: A*
22. D. Saxena[*], *V. Raychoudhury* and Christian Becker, "Implementation and Performance Evaluation of Name-based Forwarding Schemes in V-NDN," In Proceedings of International Conference on Distributed Computing and Networking (ICDCN), January 4-7, Hyderabad, India, 2017. [**Acceptance Rate: 19/55 ~ 34.54%**] ▸ RANK: B
23. D. Saxena[*], *V. Raychoudhury* and Christian Becker, "An NDNoT based Efficient Object Searching Scheme for Smart Home using RFIDs," In Proceedings of International Conference on Distributed Computing and Networking (ICDCN), January 4-7, Hyderabad, India, 2017. [**Acceptance Rate: 19/55 ~ 34.54%**] ▸ RANK: B
24. Sobin CC[*], *V. Raychoudhury* and S. Saha, "An Energy-efficient and Buffer-aware Routing Protocol for Opportunistic Smart Traffic Management," Accepted in International Conference

on Distributed Computing and Networking (ICDCN), January 4-7, Hyderabad, India, 2017. [**Acceptance Rate: 19/55 ~ 34.54%**] ▸ RANK: B

25. [Invited Paper] D. Saxena*, *V. Raychoudhury*, Christian Becker and Neeraj Suri, "A Reliable Memory Efficient Name Forwarding in Named Data Networking," In Proceedings of 14th IEEE/IFIP International Conference on Embedded and Ubiquitous Computing (EUC), August 24-26, 2016, Paris, France. ▸ RANK: B2
26. Weiping Zhu, Yi Hong*, *V. Raychoudhury*, Run Zhao, Dong Wang, "Adaptive Distributed Reader Activation Approach for Large-Scale RFID Systems," IEEE 12th International Conference on Mobile Ad Hoc and Sensor Systems (MASS), Dallas, TX, 2015, pp. 82-90. ▸ RANK: B
27. Weiping Zhu, Yi Hong*, *V. Raychoudhury*, Run Zhao, Dong Wang, "A distributed RFID reader activation approach," IEEE 23rd International Symposium on Quality of Service (IWQoS), Portland, OR, 2015, pp. 83-84. ▸ RANK: A2
28. Sobin CC*, Alark Sharma*, Deepak S. * and *V. Raychoudhury*, "Socio-Physical Interaction Network (SPIN)," In Proceeding of 4th International Conference on Advances in Computing, Communications and Informatics (ICACCI), August 10-13, 2015, Kochi, India. ▸ RANK: 0
29. Harsh Jhamtani‡, Suleep Kumar Bhogi‡ and *V. Raychoudhury*, "Word-level Language Identification in Bi-lingual Code-switched Texts," In Proceedings of the 28th Pacific Asia Conference on Language, Information and Computing (PACLIC), 2014. ▸ RANK: B
30. Preetika, Rani*, *V. Raychoudhury*, Sandeep Singh Sandha‡ and Dhaval Patel, "Mobile Health Application for Early Disease Outbreak-Period Detection," In Proceedings of the 16th IEEE International Conference on e-Health Networking, Applications and Services (Healthcom 2014), October 15-18, 2014, Natal, Brazil. ▸ RANK: N/A
31. *V. Raychoudhury*, Ajay D. Kshemkalyani, Daqing Zhang, Jiannong Cao, Mohit Bakshi‡, Kanik Gupta‡, Vishal Mittal‡ and Siddharth Maheshwari‡, "Automatic Event Scheduling in Mobile Social Network Communities," In Proceeding of 5th IEEE International Conference on Social Computing (SocialCom), September 8-14, 2013, Wasington D.C., USA [**accepted initially as a journal paper: Top 3%**]. ▸ RANK: N/A [DISCONTINUED]
32. *V. Raychoudhury*, Jiannong Cao, Weiping Zhu* and Ajay D. Kshemkalyani, "Context Map for Navigating the Physical World," In Proceedings of 20th Euromicro International Conference on Parallel, Distributed and Network-Based Computing (PDP), Pages 146-153, February 15-17, 2012, Munich, Germany. ▸ RANK: B1
33. Daqing Zhang, Zhu Wang*, Bin Guo, Xingshe Zhou* and *V. Raychoudhury*, "A Dynamic Community Creation Mechanism in Opportunistic Mobile Social Networks," In Proceedings of Privacy, security, risk and trust (PASSAT), IEEE 3rd International conference on social computing (SOCIALCOM), pp. 509-514, October 9-11, 2011, Boston, MA, USA. ▸ RANK: N/A [DISCONTINUED]
34. Weiping Zhu*, Jiannong Cao, Yi Xu and *V. Raychoudhury*, "Event Aggregation with Different Latency Constraints and Aggregation Functions in Wireless Sensor Networks," In Proceedings of IEEE International Conference on Communications (ICC), pp. 1-5, June 5-9, 2011, Kyoto, Japan. ▸ RANK: A2
35. *V. Raychoudhury*, Jiannong Cao, Weigang Wu*, and Cheng Hui*, "Service Handoff for Reliable and Continuous Service Access in Pervasive Computing," In Proceedings 19th Euromicro International Conference on Parallel, Distributed and Network-Based Computing (PDP), pp. 172-179, February 09-11, 2011, Ayia Napa, Cyprus. ▸ RANK: B1
36. *V. Raychoudhury*, Jiannong Cao, Weigang Wu*, and Steven Lai*, "K-Directory Community: Reliable Service Discovery in MANET," In Proceedings of 11th International Conference on Distributed Computing and Networking (ICDCN2010), Springer LNCS Volume 5935, 2010, pp. 420-433, January 3-6, 2010, Kolkata, India (http://dx.doi.org/10.1007/978-3-642-11322-2_40). ▸ RANK: B
37. Daqiang Zhang*, Jiannong Cao, Jingyu Zhou*, Minyi Guo, and *V. Raychoudhury*, "An Efficient Collaborative Filtering Approach Using Smoothing and Fusing," In Proceedings of the 38th International Conference on Parallel Processing (ICPP'09), pp. 558 – 565, September 22-25, 2009, Vienna, Austria. ▸ RANK: A
38. **[Invited Paper]** *V. Raychoudhury*, Jiannong Cao, and Weigang Wu*, "Top K-leader Election in Wireless Ad Hoc Networks," In Proceedings of 17th International Conference on Computer Communications and Networks (ICCCN'08), pp. 1 – 6, August 3-7, 2008, St. Thomas, U.S.

Virgin Islands. ▸ RANK: B1

39. Joanna Izabela Siebert[*], Jiannong Cao, Yu Zhou[*], Miaomiao Wang[*], and *V. Raychoudhury*, "Universal Adaptor: A Novel Approach to Supporting Multi-protocol Service Discovery in Pervasive Computing," In Proceedings of International Conference on Embedded and Ubiquitous Computing (EUC'07), pp. 683-693, December 2007, Taipei, Taiwan. ▸ RANK: B2
40. Miaomiao Wang[*], Jiannong Cao, Joanna Izabela Siebert[*], *V. Raychoudhury*, and Jing Li, "Ubiquitous Intelligent Object: Modeling and Applications," In Proceedings of 3rd International Conference on Semantics, Knowledge and Grid (SKG'07), pp. 236 – 241, Oct. 29-31, 2007. Xian, China. ▸ RANK: C
41. *V. Raychoudhury* and Arobinda Gupta, "A Middleware for Building Mobile Agent-Based Distributed Applications," In Proceedings of 13th International Conference on Advanced Computing & Communications (ADCOM'05), December 14-17, 2005, Coimbatore, India. ▸ RANK: N/A.

Workshop Publications

1. Biplav Srivastava, Sandeep Sandha[‡], *V. Raychoudhury*, Sukanya Randhawa, Viral Kapoor[*], Anmol Agrawal[*], "Building an Open, Multi-Sensor, Dataset of Water Pollution of Ganga Basin and Application to Assess Impact of Large Religious Gatherings," In Proceedings of Fifth IEEE International Workshop on Pervasive Context-Aware Smart Cities and Intelligent Transport Systems (PerAwareCity'20), in conjunction with IEEE International Conference on Pervasive Computing and Communications (PerCom), March 23-27, 2020, Austin, Texas, USA. ▸ RANK: A* [PERCOM MAIN TRACK]
2. **[Invited Paper]** Aishwarya Manjunath[‡], *V. Raychoudhury*, S. Saha, "Ant-Taxi to Pie-Passenger: Optimizing Routes and Time for Distributed Taxi Ride Sharing," In proceedings of the Workshop on Machine Intelligence in Networked Data and Systems (MINDS), co-located with the Tenth International Conference on COMmunication Systems and NETworkS (COMSNETS), January 7-11, 2020, Kolkata, India. **[Best-Paper Award]**. ▸ RANK: N/A
3. J. Edinger[*], *V. Raychoudhury*, Alexandra Hofmann[*], Anton Wachner[*], Christian Becker, and Christian Krupitzer[*], "WheelShare: Crowd-sensed Surface Classification for Accessible Routing," - In Proceedings of the IEEE International Workshop on Technologies and Solutions for Urban Mobility (TSUM'19), in conjunction with IEEE International Conference on Pervasive Computing and Communications (PerCom), March 11-15, 2019, Kyoto, Japan. ▸ RANK: A* [PERCOM MAIN TRACK]
4. Nicholas Jarvis[†], John Hata[†], Nicholas Wayne[†], *V. Raychoudhury*, Md O. Gani, "MiamiMapper: Crowd Analysis using Active and Passive Indoor Localization through Wi-Fi Probe Monitoring," In proceedings of the 15th ACM Symposium on QoS and Security for Wireless and Mobile Networks (Q2SWinet 2019), Co-located with 22nd ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM), Miami, Florida, USA, November 25-29, 2019 ▸ RANK: A [MSWIM MAIN TRACK]
5. Manh Nguyen[†], Md O. Gani, *V. Raychoudhury*, "Yours Truly? Survey on Accessibility of Our Personal Data in the Connected World," In Proceedings of Fourth IEEE International Workshop on Pervasive Context-Aware Smart Cities and Intelligent Transport Systems (PerAwareCity'19), in conjunction with IEEE International Conference on Pervasive Computing and Communications (PerCom), March 11-15, Kyoto, Japan. ▸ RANK: A* [PERCOM MAIN TRACK]
6. Viral Kapoor[*], D. Saxena[*], *V. Raychoudhury*, Sandeep Kumar, "Real Time Building and Maintaining Causal Congestion Graph for Intelligent Traffic Management," In Proceedings of Third IEEE International Workshop on Pervasive Context-Aware Smart Cities and Intelligent Transport Systems (PerAwareCity), in conjunction with IEEE International Conference on Pervasive Computing and Communications (PerCom), March 19-23, 2018, Athens, Greece. ▸ RANK: A* [PERCOM MAIN TRACK]
7. *V. Raychoudhury*, D. Saxena[*], Mayank Chaudhary[‡] and Shivam Mangla[‡] "Shahbag Movement: The Tweeted Perspective," In Proceedings of the Social Networking Workshop of the 7th International Conference on COMmunication Systems & NETworkS (COMSNETS), January 6-10, 2015, Bangalore, India. ▸ RANK: N/A
8. D. Saxena[*], *V. Raychoudhury* and Nalluri SriMahathi[*], "*SmartHealth-NDNoT*: Named Data Network of Things for Healthcare Services," In Proceedings of ACM 5th International Workshop on Pervasive Wireless Healthcare (MobileHealth) in conjunction with the ACM

International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc), June 22-25, 2015, Hangzhou, China. ▸ RANK: A (MOBIHOC)

9. Peeyush Jain‡, Rohan Kabra‡, Sajal Rustagi‡, Tarun Bansal‡, Dhaval Patel and *V. Raychoudhury*, "MC^2: On-the-Fly Mobile Compute Cloud for Computational Intensive Task," In Proceedings of the 5th IBM Collaborative Academia Research Exchange (I-CARE) Workshop, October 2013, New Delhi, India. ▸ RANK: N/A
10. *V. Raychoudhury*, Ajay D. Kshemkalyani and Jiannong Cao, "Querying Context Maps using Relative Timing Predicates in Pervasive Environments," In Proceedings of 6th International Workshop on Middleware Tools, Services and Run-time Support for Networked Embedded Systems (MidSens'11) held with Middleware 2011 Conference, December 12-16, 2011, Lisbon, Portugal. ▸ RANK: A [MIDDLEWARE]
11. Yu Zhou*, Jiannong Cao, *V. Raychoudhury*, Joanna Izabela Siebert*, and Jian Lu, "A Middleware Support for Agent-Based Application Mobility in Pervasive Environments," In Proceedings of the 27th International Conference on Distributed Computing Systems Workshops (ICDCSW'07), pages -9, June 25-29, 2007, Toronto, Ontario, Canada. ▸ RANK: A [ICDCS]

RESEARCH EXPERIENCE

Associate Professor — **SMART Research Lab**
January 2018 – Till Date — **Miami University, Oxford, Ohio, USA**

Smart Transportation Research: One of my recent research directions is developing distributed algorithms to facilitate large-scale taxi ride-sharing. This requires large-scale data processing using high-performance computing facilities and designing efficient distributed algorithms. I have published several conference papers in high-quality venues.

Accessible Routing Research: My most recent research focuses on developing accessible routing and navigation systems for wheelchair users through various surfaces available in the built environment. I am deeply researching this area for the last four years and have published a few workshop and conference papers. I have **received a federal research grant worth $600,000** from the National Institute on Disability and Rehabilitation Research (NIDILRR) [HHS/ACL] for the period 2021-2024. We are closely working with several disability organizations to make this project a reality.

Assistant Professor — **SMART Research Lab**
October 2011 – January 2018 — **IIT Roorkee, Roorkee, Uttarakhand, India**

NDN Research: My research has made significant impact in the development of the novel networking technology called Named Data Network (NDN), which is known to be a Future Internet Architecture. I started research on NDN for the first time in India and along with my PhD student (Ms Divya Saxena) I have impactful publications in that area, which continue to fetch great number of citations.

DTN Research: Along with a second PhD student (Mr. Sobin CC) of mine, I have developed various routing schemes for Delay Tolerant Networks (DTN), which are re-emerging as an efficient networking paradigm for Internet of Things (IoT). We have published multiple journal and conference papers in this domain, which have significantly extended the horizon of knowledge.

Localization Research: I have contributed significantly in indoor and outdoor localization research.

Postdoctoral Researcher — **HANDICOM Lab**
March 2011 – October 2011 — Institut Telecom & Management SudParis, France

I have worked on an EU FP7-funded project named *Self Orchestrating CommunIty ambiEnT IntelligEnce Spaces*, or SOCIETIES, in short. The vision of SOCIETIES was to develop a complete, integrated Community Smart Space (CSS), which extends pervasive systems beyond the individual to dynamic communities of users. CSS would embrace online community services, such as Social Networking to offer new and powerful ways of working, communicating, and socializing. The project had 16 partners spread over 10 different EU countries.

Our primary task in this project was to develop a user agent functionality that will coordinate and manage the implementation of behaviors on behalf of a user. Therefore, it would provide various intelligent decision-making functionalities to mitigate the need for user intervention while automatically resolving conflicts in the CSS. Decisions had to be based on the needs of the user as an individual and as a member of multiple communities. My responsibility was to analyze the user agent function over various application use cases and then propose a suitable and effective architecture for the user agent system. Later I was responsible for implementing the user agent functionalities.

Postdoctoral Research Associate **Internet and Mobile Computing Laboratory**
May 2010 – February 2011 The Hong Kong Polytechnic University

During my Ph.D. study, I have written a proposal with another team mate for the project titled "*A Ubiquitous Searching and Browsing Framework (USBF)*" for NOKIA Research Centre, Beijing and we received the funding of **224,980 Hong Kong dollars (~23,652 Euros)**. I have worked on this project during my postdoctoral research. The objective of this project was to develop a Google-like search engine to enable users to identify, search, and browse information about objects and people in the physical world as they do in the cyberspace of the Internet. We considered that all the physical world objects as well as humans are smart entities with embedded sensing, computing, and communication capabilities, and they are interconnected through different contextual relationships. We developed a smart logistics system that entitles users to search objects and people and browse through their contextual links.

I have also worked on another project titled "*Programming Pervasive Computing Middleware based on Ubiquitous Interacting Objects*". A middleware for pervasive computing is required to assist application developers by bridging the huge gap between the high-level application requirements and the heterogeneity of the underlying devices, networks, and platforms. However, Most existing middleware systems for pervasive computing are based on a top-down, centralized model which lacks flexibility. In this project, we worked to develop a bottom-up, decentralized approach for designing and programming pervasive computing middleware functions based on ubiquitous interacting objects (UIOs), which are smart objects augmented with various processing capabilities. Many middleware functions, such as service discovery and composition, context derivation, and context inconsistency checking, could be performed through the decentralized interaction and autonomous collaboration of the UIOs. I, along with a team member, wrote a proposal requesting funding for this topic, under the guidance of my supervisor, and we received a grant of **1,218,000 Hong Kong dollars (~127,844 Euros)** from GRF Hong Kong for the period 2010-2013.

A third project I worked on during my postdoctoral stint at The Hong Kong Polytechnic University dealt with designing a novel simulation platform for aiding developers in developing applications, protocols, and algorithms in pervasive networking and computing (PNC) environment. Development and deployment of systems and applications for PNC is challenging due to the need of creating various application-specific smart environments. In many cases, it is very difficult and even impractical to experiment with and test the proposed mechanisms due to the overhead of managing a large number of smart devices. Existing test beds and simulators for experimenting with PNC systems are limited in scale and are mostly designed for simulating applications and not protocols and algorithms. In this project, we aimed to develop a generic framework and software environment for simulating different types of PNC applications, protocols, and algorithms. Along with the traditional computing devices, sensors and actuators, we planned to model everyday physical objects as smart entities called ubiquitous interacting objects (UIOs), and to develop the simulation system based on the abstraction of UIO and their interactions. I, along with a team member, wrote a proposal requesting funding for this topic, under the guidance of my supervisor, and we received a grant of **945,000 Hong Kong dollars (~99,189 Euros)** from GRF Hong Kong for the period 2011-2014.

Graduate Research Assistant **Internet and Mobile Computing Laboratory**
April 2006 – May 2010 The Hong Kong Polytechnic University

Service discovery is one of the fundamental services in pervasive computing where different services are provided by various portable devices interconnected in an ad hoc manner. Given its dynamic nature, service unavailability can frequently occur in pervasive environments due to service provider failure, network partitioning, or service scope outage by a service provider or user mobility. As part of my Ph.D. thesis, I attempted to address some of the fault-tolerance issues associated with service discovery applications in pervasive and mobile computing environments and proposed some algorithms and protocols. Following is a brief description of these approaches.

- **Formation of a Directory Community:** The directory community framework consists of a set of relatively resource-rich mobile devices acting as directory nodes and the framework along with a suite of protocols works as the basis of our research in reliable service discovery and access in ad hoc networks. The directory community formation problem has been modeled as the

top-K highest resource leader election in mobile ad hoc networks and a distributed algorithm has been proposed to achieve the objective in a scalable, reliable, and message-efficient manner.

- **Quorm-based Reliable Service Discovery:** Using the directory community framework, a quorum-based fault-tolerant service discovery protocol has been developed. The elected directory nodes are divided into multiple quorums. Services registered with a directory are replicated among its quorum members, in order to increase availability. This approach guarantees network-wide service availability using the quorum intersection property and reduces replication and update costs by minimizing the quorum size.

- **Service Handoff based Reliable Service Access:** Based on the directory community, a reliable and continuous service access mechanism has been developed for mobile users and it works using service handoff. Service handoff provides mobile users seamless service access by proactively finding new matching services once the original service becomes unavailable. Three different service handoff protocols have been designed for different situations. The handoff protocols can reduce handoff message cost and time delay while achieving a load balance on service providers.

Junior Project Assistant — **Microsoft Laboratory**
August 2003 – January 2006 — Department of Computer Science and Engineering, Indian Institute of Technology, Kharagpur

During my M.S. study, I was associated with the project "*A Middleware for Building Mobile Agent-Based Distributed Applications*", sponsored by the Ministry of Human Resource Development (MHRD), Govt. of India. This project targeted users unacquainted with mobile agent programming. The project aimed to develop a middleware to facilitate the automatic generation of mobile agent codes based on certain input parameters specified by the user. The middleware also provided certain fault-tolerant functionalities. I solely developed the middleware in C#.

FUNDED RESEARCH PROJECTS (Completed & Ongoing)

- *CARE: Campus-wide Accessible Route Estimation Through Surface Analysis*, Committee on Faculty Research (CFR) grant, Miami University || (USD 16,000) (2019-2020)
- *Development of an Internet-of-Things (IoT) framework for navigating the physical world*, Faculty Initiation Research Grant, Ministry of Human Resources Development (MHRD), Govt. Of India || Rs. 10 Lakh (~15,000 USD) (2012-16)
- *SPIN: Socio-Physical Interaction Network to facilitate searching, tracking, and socializing between smart entities*, Fast Track Scheme for Young Scientists, Department of Science & Technology (DST), Govt. of India || Rs. 15.42 Lakh (~ 24,000 USD) (2013-16)
- Information Security and Education Program-II, The Department of Electronics and Information Technology (DeitY), Ministry of Communications and Information Technology, Govt. of India (co-PI of this joint project)
- *Accessible Routing Using Smart Crowd-Sensed Surface Classification for Wheelchair Users*, Department of Health and Human Services (HHS) - Administration for Community Living, Field Initiated Projects Program (Development), Sept 01, 2021-Aug 31, 2024 || $600,000 (PI)

RESEARCH PROJECTS (Submitted pending decision)

- "OmniAcc: Personalized Accessibility Assistant using Large Language Model based Generative AI," Submitted on Dec 11, 2023, to the Department of Health and Human Services, Administration for Community Living under the Field Initiated Projects Program (Development) as PI for $600,000.
- "SCC-IRG Track2: MyPath: Personalized Accessible Routing for the Wheelchair Community though Smart Integration of User and Surface Characteristics," Ready to submit to NSF Smart and Connected Communities (S&CC) as Co-PI, for $480,000 (MU-Share) and $1.5 Million (total)
- "Smart Mapping of Crowd-Sensed Path Barrier Information for Wheelchair Navigation", Submitted on Dec 11, 2023, to the Department of Health and Human Services, Administration for Community Living under the Field Initiated Projects Program (Development) as Co-PI for $600,000.

RESEARCH STUDENTS

Graduate (PhD) Students:

- Completed – 2 [IIT-Roorkee]

Graduate (M.Tech/ MS) Students:

- Completed – 2 [Univ of Mannheim]
- Completed – 5 [Miami U], Ongoing – 2 [Miami U]
- Completed – 18 [IIT-Roorkee]

Undergraduate (B.Tech) FYP/BTP/Capstone Students:

- Completed – 16 [IIT-Roorkee]
- Completed – 54 [Miami Capstone]

PhD Theses Advised

Name	Thesis Title	Status	Year
Ms Divya Saxena	Efficient Forwarding Techniques in Named Data Networking for Next-generation Applications	Awarded	2017
Mr. Sobin CC	Efficient Routing Protocols for Resource-Constrained Delay Tolerant Networks	Awarded	2017

MS Theses Advised [* indicates the outcomes in form of one or more peer-reviewed publications]

	Name	Thesis Title	Status	Year
1	Mr. Robert Kilgore [**MU**]	TBD	Ongoing	2025
2	Mr. Rochishnu Banerjee [**MU**]	Privacy Preserved Personalized Accessibility Model using Cross-silo Federated Learning Approach	Ongoing	2024
3	Mr. John Hata [**MU**]	Indoor Crowd-modelling using Passive Wi-Fi based Localization Technique*	Awarded	2022
4	Mr. Haoxiang Yu [**MU**]	A Comprehensive System For Dynamic And Distributed Taxi Ride-Sharing Via Localized Communication**	Awarded	2021
5	Ms Valeria Mokrenko [**MU**]	An Accessible, Route Recommendation, Learning System Using Surface-Induced, Vibration Data*	Awarded	2020
6	Ms Shrawani Silwal [**MU**]	A Dynamic Taxi Ride-Sharing System Using Particle Swarm Optimization**	Awarded	2019
7	Mr. Marouane El Assad [University of Mannheim]	Telehealth for treatment of patients with chronic diseases: Current use, Opportunities and Challenges	Awarded	2017
8	Ms Sophia Bettina Maier [University of Mannheim]	Artificial Intelligence for the Social Good: A Survey of Emerging Application Domains	Awarded	2017
9	Mr. Anmol Agrawal [IITR] (jointly w/ another faculty)	Optimizing Taxi Profits and Passenger Waiting Time in Smart City Environment*	Awarded	2017
10	Mr. Viral Kapoor [IITR] (jointly w/ another faculty)	Congestion Control using the Causal Relation between Congested Locations in a Road Network*	Awarded	2017
11	Ms Kanika Bathla [IITR]	Real Time Distributed Taxi Ridesharing*	Awarded	2017
12	Mr. Deepak S [IITR]	Efficient Incentive-Based Routing In DTN Using Coalitional Game Theory	Awarded	2016
13	Ms Harpreet Kaur [IITR] (jointly w/ another faculty)	Prediction Based Seam Carving for Video Retargeting	Awarded	2016
14	Ms Swarnjeet Kour [IITR] (jointly w/ another faculty)	Structural Similarity Based On High-Order Moments	Awarded	2016
15	Ms Ankita Singla [IITR]	Routing with Efficient Buffer Management in Opportunistic Networks*	Awarded	2015
16	Ms Surabhi Goyal [IITR]	Analysis and Mitigation of Selfishness in Delay Tolerant Networks (DTN)	Awarded	2015
17	Ms Divya Sharma [IITR]	Empirical Analysis of VANET Communi-cation using IP Network and Next Generation Network (NGN)*	Awarded	2015

18	Ms Nalluri Sri Mahathi [IITR]	Smart Home Environment Using Future Internet Architecture*	Awarded	2015
19	Mr. Joydeep Mondal [IITR]	A Memory Efficient Algorithm for Implementing NDN-FIB Using Patricia Trie*	Awarded	2015
20	Deepak Uniyal [IITR]	Event-detection and Resolution through Decentralized Co-ordination of Intelligent Entities in Smartphone-Based Remote Elderly Health Monitoring System*	Awarded	2014
21	Alark Sharma [IITR]	Socio-physical Interaction Network*	Awarded	2014
22	Arpit Neema [IITR]	Development and Implementation of Internet-of-things Framework	Awarded	2014
23	Preetika Rani [IITR]	Developing Efficient Method for Early Outbreak Detection*	Awarded	2014
24	Sana Khurana [IITR]	Designing an Efficient Indoor Localization System for a Hybrid WSN-Smart Phone Platform	Awarded	2013
25	Mitul Shah [IITR]	Designing an Efficient Search Algorithm for Internet of Things (IoT)	Awarded	2013
26	Gyanesh Meena [IITR]	Data Aggregation in Wireless Sensor Network	Awarded	2013

Undergraduate Final Year Projects / Capstones Advised / Mentored [* indicates publications]

Team Project Title	Team Size	Year
WheelShare App Development [**MU**]	4	20-21
WheelShare System Development [**MU**]	4	20-21
Wi-Fi based Indoor Mapping (M3 – Phase II) [**MU**]	4	19-20
Wheel Share – Surface Classification-based Accessible Routing for Wheelchair Users* [**MU**]	4	19-20
Distributed Taxi Ride Sharing* [**MU**]	4	19-20
RedHawk Parking Pal [**MU**]	4	19-20
Miami LibFinder (Finding path through the library to a particular resource) [**MU**]	4	19-20
Miami LibTracker (Tracking user path through the library) [**MU**]	3	19-20
Wi-Fi based Indoor Mapping/Location tracing (M3)* [**MU**]	3	18-19
Automated Parking Spot Detection/Management [**MU**]	4	18-19
Miami University Accessibility Map [**MU**]	8	18-19
NDN Overlay for Vehicular Ad-Hoc Network using Smartphones [IITR]	3	15-16
E Commerce Android Application [IITR]	2	15-16
Hyper local real-time event detection for smart city environment [IITR]	3	15-16
Smartphone-Based Remote Health Monitoring System* [IITR]	1	13-14
Modelling of Code Switched Languages* [IITR]	2	13-14
Twitter Data Analysis for the Shahbag Movement* [IITR]	2	13-14
Application of Machine Learning On Social Media [IITR]	3	12-13

Other Undergraduate Research Advising (Summer / CADS funded) [* indicates publications]

Project Title	Team Size	Year
Accessible Routing Techniques for Wheelchair Users [**MU- UG Summer Scholar (USS) Program**]	3	Summer 2022
WheelShare App Development for Wheelchair Users	1	Summer 2021
Accessible Routing Techniques for Wheelchair Users – A Literature Review [**MU- UG Summer Scholar (USS) Program**]	4	Summer 2019
Data Analysis for Wi-Fi based Indoor Localization [**MU-USS]**	2	Summer 2019
Slope Analysis for Wheelchair Routing [**MU-USS]**	2	Summer 2019
Wi-Fi based Indoor Localization [**MU-USS]**	1	Summer 2018
Survey on Data Privacy in Smart Devices* [**MU-USS]**	1	Summer 2018
Chatbot Design for a Pharma Company [MU Center for Analytics and Data Sciences (CADS)]	3	2019
Twitter Emotion Analysis [IITR Summer Undergraduate Research Award (SURA)]	3	Summer 2014
Developing Mobile Compute Cloud for Surveillance and Information Extraction Applications [IITR-SURA]	4	Summer 2013

Teaching Experience

Associate Professor – *Miami University, Oxford, OH, USA*

- *CSE 464/564: Algorithms – Spring 2018 [Enrolment 66] (2 Sections)*
- *CSE 464/564: Algorithms – Fall 2018 [Enrolment 68] (2 Sections)*
- *CSE 464/564: Algorithms – J-term 2019 [Enrolment 68] (2 Sections)*
- *CSE 464/564: Algorithms – Spring 2019 [Enrolment 66] (2 Sections)*
- *CSE 271: OOP with Java – Fall 2019 [Enrolment 65] (2 Sections)*
- *CSE 374: Algorithms I – Spring 2020 [Enrolment 52] (2 Sections)*
- *CSE 374: Algorithms I – Fall 2020 [Enrolment 27] (1 Section)*
- *CSE 271: OOP with Java – Fall 2020 [Enrolment 44] (2 Sections)*
- *CSE 374: Algorithms I – Spring 2021 [Enrolment 51] (2 Sections)*
- *CSE 271: OOP with Java – Spring 2021 [Enrolment 52] (2 Sections)*
- *CSE 374: Algorithms I – Fall 2021 [Enrolment 63] (2 Sections)*
- *CSE 374: Algorithms I – Spring 2022 [Enrolment 40] (2 Sections)*
- *CSE 617 A: Advanced Networks – Spring 2022 [Enrolment 14] (1 Section)*
- *CSE 374: Algorithms I – Fall 2022 [Enrolment 80] (3 Sections)*
- *CSE 374: Algorithms I – Spring 2023[Enrolment 80] (2 Sections)*
- *CSE 374: Algorithms I – Fall 2023 [Enrolment 70] (2 Sections)*
- *CSE 4/532: Machine Learning – Spring 2024 (2 Sections)*
- *CSE 4/532: Machine Learning – Fall 2024 (2 Sections)*
- *CSE 4/532: Machine Learning – Spring 2025 (2 Sections)*
- *CSE 4/586: Introduction to AI – Spring 2025 (1 Section)*

Assistant Professor – *IIT Roorkee, Uttarakhand, India*

- *EC-252: Computer Architecture & Microprocessors – Spring 2012 (3L-4T-0P) [Enrolment 159]*
- *EC-253: System Software – Autumn 2012-13 (2L-2T-0P) [Enrolment 84]*
- *EC-351: Design & Analysis of Algorithms – Autumn 2012 (3L-2T-0P) [Enrolment 124]*
- *EC-252: Computer Architecture & Microprocessors – Spring 2013 (3L-4T-0P) [Enrolment 167]*
- *EC-351: Design & Analysis of Algorithms – Autumn 2013 (3L-2T-0P) [Enrolment 129]*
- *EC-252: Computer Architecture & Microprocessors – Spring 2014 (3L-4T-0P) [Enrolment 173]*
- *EC-652: Parallel and Distributed Algorithms – Spring 2014 (3L-0T-0P) [Enrolment 24]*
- *CS-503: Advanced Computer Networks – Autumn 2014 (3L-1T-0P) [Enrolment 54]*
- *EC-652: Parallel and Distributed Algorithms – Spring 2015 (3L-0T-0P) [Enrolment 80]*
- *CSN-101: Introduction to Computer Sc. and Engg. – Autumn 2015 (2L-0T-0P) [Enrolment 80]*
- *CSN-232: Operating Systems – Spring 2016 (3L-1T-0P) [Enrolment 98]*
- *CSN-221: Computer Architecture & Microprocessors – Autumn 2017 (3L-4T-0P) [Enrol. 169]*

Teaching Assistant – *The Hong Kong Polytechnic University*

- *Information Technology Systems (COMP 111) – Spring 2008*
  Assisted undergraduate students in computer laboratory to learn C programming. I was in charge of projects and assignments for this course.
- *Computer Applications (COMP 250) – Fall 2006 and 2007*
  Taught undergraduate students the basic computer applications using Microsoft Word, Excel, PowerPoint and Access. Also assisted them to develop simple Web applications using HTML.

Teaching Assistant – *Indian Institute of Technology, Kharagpur*

- *Computing Systems Laboratory*
  Assisted graduate students in laboratory assignments

Professional Activities

Invited Talks

- Invited talk in the Dept. of CSE, Wright State University, Ohio, March 06, 2023
- Invited talk in the Dept. of Biomedical Engg., Univ of Wisconsin Milwaukee, May 18, 2023
- Keynote speech at the 2nd IEEE Conference on Applied Signal Processing (ASPCON 2020) at Jadavpur University, Kolkata, 8th October 2020
- Invited talk in the Dept. of CSE, Narula Institute of Technology, Kolkata, India, April 15, 2020
- Siemens Corporate Technology, Cyber-Physical Systems Division, Princeton NJ, Mar. 24, 2017
- IBM T.J. Watson Research Centre, Yorktown Heights, NY USA, Mar. 6, 2017
- Dept. of CS, Rochester Inst. of Technology, NY, USA, Mar. 3, 2017
- Dept. of CS and Software Engineering, Miami University, OH, USA, Mar. 1, 2017

- Dept. of Computer Science, University of Bologna, Italy, Feb 23, 2017
- *IBM* India Research Lab (IRL), Vasant Kunj, New Delhi, April 20, 2016.
- Invited talk (3-day lecture series) in Government Engineering College, Idukki, Kerala, Apr. 2-4, 2016.
- Invited talk (3-day lecture series) in Government Engineering College, Palakkad, Kerala, Mar. 30-Apr. 1, 2016.
- Invited talk in Dept. of Computer Science, IIT Roorkee in the short-term course on Security in Internet-of-Things, February 2016
- Invited talk in Indian Institute of Engineering Science and Technology (IIEST), Shibpur, West Bengal, India, January 8, 2016
- Invited talk in GNIT, Kolkata, India, January 7, 2016
- Plenary speaker in Indian Science Congress 2016, Mysore, India, January 4, 2016.
- Invited talk (2-day lecture series) in Government Engineering College, Wayanad, Kerala, Dec. 31, 2015-Jan. 01, 2016.
- Invited talk in MES College of Engineering, Kuttippuram, Kerala, India, Dec. 30, 2015.

Chairing Responsibilities:

- CORE A / A* Conferences: First Artifact Evaluation Co-Chair in IEEE PERCOM 2020; TPC co-Chair in EAI MobiQuitous 2021, Poster Co-chair IEEE CCGrid 2024
- CORE B Conferences: Publicity co-Chair in ICDCN 2018; Publication co-Chair in ICDCN 2020; Poster/Demo co-Chair in ICDCN 2021; "Algorithms and Theory Track" co-Chair in IEEE MASS 2020; Publicity co-Chair, IEEE ICPADS'18
- CORE C Conferences: Track Chair on *Privacy and Security in Smart City Environment: A Synergy of IoT, Big Data and Cloud* in IEEE ATC 2016, '15; Track Chair on "Hardware/Software for Internet of Things (IOT)" in IEEE iNIS 2017, '16, '15; Publicity co-Chair in ACM Mobile Health 2016 [with ACM MOBIHOC ▸ RANK: A]; Publicity co-Chair for SDDCS 2016 (with IEEE ICDCS ▸ RANK: A)
- Other unranked conferences and workshops: TPC Chair in ACM Mobile Health 2017 [with ACM MobiHoc ▸ RANK: A], Track Chair on IoT Architecture in IEEE TENSYMP 2015, Track Chair on *Applications of Bio-inspired Techniques to Social Computing* in BIC-TA 2012; General Chair in BSCI 2015 (with ICSOC); Track Chair on *Cyber Physical Society with SOA, BPM and Sensor Networks* in WETICE-2012; Coordinator of Research Promotion Workshop on *Introduction to Graph and Geometric Algorithms*, 6-8 March, 2014, IIT Roorkee.
- Workshops I started as part of other CORE A* / A / B Conferences: IEEE PerAwareCity 2021, '20, '19, '18 [with IEEE PERCOM ▸ RANK: A*]; IEEE WISH'19 [collocated with IEEE COMPSAC 2019: ▸ RANK: B]; IEEE AIST 2017 [collocated with IEEE SmartComp 2017]

Technical Program Committee Membership:

- CORE A / A* Conferences: IEEE ICDCS 2021, '20; IEEE PerCom 2024, '23, '22, '21, '20, '19, '18
- CORE B Conferences: IEEE Globecom (SAC-SN) 2017, 2016; ICDCN Networking Track, 2022, '20, '19, '18, '17, '16, '15, '14; IEEE PIMRC Track on Services, Applications and Business; IEEE ICC 2020
- CORE C Conferences: IEEE ATC 2017
- Other unranked conferences and workshops: IEEE PerFoT 2018; IEEE iSES 2018 (for HW/SW for IoT and Consumer Electronics Track); ACM Mobile Health 2017, '16, '15 (with ACM MohiHoc ▸ RANK: A); DependSys 2017; IEEE Smartcomp 2017; COMSNETS 2021; Social Informatics, 2015, '14, '12; IEEE SocialCom 2014, '13, '12; IEEE Smartcomp '17, '14; Big Data 2015; ACM IMCOM 2015; ICIT 2014; ICCC 2013; KAMIoT 2012 (with IEEE IUCC)

Journal Special Issue Guest Editing:

- Guest editor, Mobiquitous 2021 Special Issue in Mobile Networks and Applications (MONET)
- "5G Wireless with Cognitive Radio and Massive IoT," IETE Technical Review Journal (Taylor and Francis), IETE Technical Review, Volume 34, 2017 - Issue sup1**,** Edited by: Abhishek Roy, Shamik Sengupta, Kai-Kit Wong, *Vaskar Raychoudhury*, Kannan Govindan & Sukhdeep Singh, **Published Online:** 29 Dec 2017

Journal Editorial Board Member:

- Editorial Board Member of the Elsevier Journal-of-Network-and-Computer-Applications (JNCA) (Dec 15, 2016 – Dec 13, 2021).

Coordinator:

- Department of Computer Science and Engineering is hosting Research Promotion Workshop on Introduction to Graph and Geometric Algorithms during 6-8 March 2014 as a part of celebrating 50 years of excellence

Short-term Course:

- Organized a week-long (June 25-29, 2012) AICTE-sponsored short-term course in IIT Roorkee, titled "*Applying Pervasive Computing and Social Networks to Accelerate the Growth of Rural and Urban India*". The course received very positive feedback from the participants.

Member – *ACM (senior), IEEE (senior).*
Reviewer:

- International Journals including Communications of the ACM, Pervasive and Mobile Computing Journal – Elsevier, International Journal of Information Technology and Decision Making, Multiagent and Grid Systems Journal, Journal of Parallel and Distributed Computing – Elsevier, Journal of Ubiquitous Computing and Intelligence, IEEE Communications Magazine, Ad Hoc Networks – Elsevier, International Journal of Computers and Applications, KSII Transactions on Internet and Information Systems, Journal of Computer Sc. And Technology, International Journal of Signal and Imaging Systems Engineering (IJSISE), Journal of Internet Technology, EURASIP Journal on Wireless Communications and Networking, IEEE Transactions on Systems, Man and Cybernetics, Part A, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Computers, IEEE Transactions on Mobile Computing IEEE Transactions on Reliability, IEEE Transactions on Services Computing, and many others.

- International Conferences and Workshops including ICDCS, ICPP, PERCOM, ICNP, ICC, SRDS, AD HOC NOW, APSCC, CHINACOM, EUC, HiPC, MDM, MP2P, NPC, OPODIS, PRDC, ICDCN, SKG, CCGrid, SCC, FGCN, HPCC, ICPADS, GPC, GLOBECOM, SSS, TrustCom, Mobilware, CCNC, and many others.

Summer Research Visit(s):

- Department of Computer Science (Informatik), Technische Universität Darmstadt, from June 22-July 21, 2015
- Department of Computing, The Hong Kong Polytechnic University, from May 12-June 11, 2014
- Department of Computing, The Hong Kong Polytechnic University, from May 20-July 18, 2013

ADMINISTRATIVE ACTIVITIES (for the Department)

- Graduate Co-director, CSE, MU 2023-24
- Member, Generative AI Committee, CSE, MU 2023-24
- Chair, Scholarships & Awards Committee, CEC, MU 2023-24, 2024-25
- Mentor, three junior faculty members, including two tenure-track
- Member, CEC Strategic Planning Committee, MU, 2022-23
- Member, CSE Undergraduate Committee, MU, 2022-23
- Member, Faculty Search Committee, CSE, MU, 2019, 2020, and 2021
- Member, Faculty Advisory Council, College of Engineering & Computing, MU, 2019, 2021, 2022
- Member, Miami University Centre for Assistive Technology, (MUCATS), since 2018
- Faculty Advisor, Indian Students Association (ISA), MU since 2019
- Departmental Scholarship and Awards Committee, MU, 2020
- CSE Coordinator, Grand Challenge Scholars Program (GCSP) advisory committee, MU, 2019
- (Past) Member, Department Academic Program Committee (DAPC), IIT Roorkee
- (Past)-Member, Department Research Committee (DRC), IIT Roorkee
- (Past)-Member, Department Faculty Search Committee, IIT Roorkee
- (Past) Professor-in-charge, Department Website Maintenance, IIT Roorkee

- (Past) Professor-in-charge, Training and Placement, Dept. of Comp. Sc. & Engg., IIT Roorkee
- (Past) Professor-in-charge, Research Scholar's Lab, Dept. of Comp. Sc. & Engg., IIT Roorkee
- Professor-in-charge, Information Security Lab, Department of Computer Science & Engg., IIT Roorkee (Supported by Ministry of Information & Communication Technology, GoI)
- Professor-in-charge, Network Security Lab, Department of Computer Science & Engg., IIT Roorkee (Supported by CISCO Systems Inc.)

ADMINISTRATIVE ACTIVITIES
(For Government of India)

- Member of the Project Review and Supervisory Group in the fields of *Development of e-content, quality assurance, pedagogy, and regional language* under the National Mission on Education through ICT (NMEICT) funded by the Ministry of Human Resource Development (MHRD), Department of Higher Education (TEL Division), Government of India.
- Expert reviewer of several technical projects submitted for funding by the Science & Engineering Research Board (SERB), under the Department of Science and Technology (DST), Government of India.
- Reviewer of International project proposals submitted for funding by Indo-French Centre for the Promotion of Advanced Research (CEFIPRA), Dept. of Science and Technology (DST), Govt. of India and Institut National de Recherche en Informatique et en Automatique (INRIA) jointly with the Centre National de la Recherche Scientifique of France (CNRS).