

# Parth Pathak

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Computer Science Department  
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## RESEARCH INTERESTS

**Wireless and mobile computing:** high-speed wireless and mobile networks, multi-gigabit wireless networking, Internet-of-Things, RF and mmWave sensing, mobile and wearable sensing, ubiquitous computing, cyber-physical systems

## EDUCATION

- **Ph.D. in Computer Science** (2012)  
North Carolina State University, Raleigh, NC, USA  
Advisor: Rudra Dutta  
Thesis: Designing for Network and Service Continuity in Wireless Networks
- **M.S. in Computer Science** (2010, En Route to Ph.D.)  
North Carolina State University, Raleigh, NC, USA  
Advisor: Rudra Dutta
- **B.E. in Information Technology** (2005)  
Gujarat University, Gujarat, India

## PROFESSIONAL EXPERIENCE AND EMPLOYMENT

- **Associate Professor** (Aug '22 - Present)  
Computer Science Department, Volgenau School of Engineering, George Mason University, Fairfax, VA, USA
- **Assistant Professor** (Aug '16 - July '22)  
Computer Science Department, Volgenau School of Engineering, George Mason University, Fairfax, VA, USA
- **Postdoctoral Research Fellow** (Aug. '12 - July '16)  
Computer Science Department, University of California, Davis, CA, USA  
Mentor: Prasant Mohapatra
- **Research Assistant** (Aug. '08 - July '12)  
Computer Science Department, North Carolina State University, Raleigh, NC, USA
- **Software Intern** (May '08 - Aug. '08)  
Cisco Systems Inc., Wireless Network Business Unit, San Jose, CA, USA
- **Research Intern** (May '06 - Dec. '06)  
Qualcomm Flarion Research Center, Bedminster, NJ, USA

## HONORS AND AWARDS

- **Commonwealth Cyber Initiative (CCI) Fellow** 2023 for project titled “Open-Milli-IoT: An Open Programmable Platform for mmWave Wireless Internet-of-Things”.
- **IDIA Public-Private Partnership (P3) Fellow** 2023 for project titled “Predicting RF Exposure in Today’s Ultra-dense Wireless Networks”.
- **Best Paper Award** at ACM International Conference on Mobile Systems, Applications, and Services (MobiSys) 2022 for work titled “OmniScatter: extreme sensitivity mmWave backscattering using commodity FMCW radar”.
- **NSF CAREER Award** 2021 for the project titled “Unifying mmWave networking and sensing using commodity backscatter”.
- **Best Paper Award** at IEEE International Conference on Data Science and Advanced Analytics (DSAA) 2019 for work titled “Sign Language Recognition Analysis using Multimodal Data”.
- **Excellence in Postdoctoral Research at UC Davis** - Campus-wide award for outstanding postdoctoral research; One of the two recipients of the award for year 2015 selected from 800+ postdocs at UC Davis.
- **Best Paper Award** at IFIP International Networking Conference 2014 for work titled “A First Look at 802.11ac in Action: Energy Efficiency and Interference Characterization”.
- **Best Paper Finalist** at ACM BuildSys 2016 Conference for work titled “MotionSync: Personal Energy Analytics through Motion Tags and Wearable Sensing”.
- **Distinguished member** of technical program committee for IEEE Infocom 2020, 2019, 2018 and 2017.
- Best Poster Award at NC State Graduate Student Seminar 2007 for poster titled “Software-defined Cognitive Radio Networks”.
- Research In Motion (RIM) Graduate Research Fellowship 2011, North Carolina State University.
- Research fellowship for 2008-2010 from Army Research Office (ARO), managed by Secure Open Systems Initiative (SOSI) at NC State University.

## PUBLICATIONS

\_\_\_\_\_ indicates students advised

### BOOKS

1. **Parth Pathak** and Rudra Dutta, “Designing for Network and Service Continuity in Wireless Mesh Networks”, *Springer Science and Business Media*, ISBN 978-1-4614-4626-2, Pages: 222, 2013.

## JOURNALS PAPERS (PEER-REVIEWED)

1. Bo Han, **Parth Pathak**, Songqing Chen and Lap-Fai (Craig) Yu, “CoMIC: A Collaborative Mobile Immersive Computing Infrastructure for Conducting Multi-user XR Research”, *IEEE Network*, Pages: 9, Sept. 2022. [Impact Factor = 9.3]
2. Pengfei Hu, Wenhao Li, Yifan Ma, Panneer Selvam Santhalingam, **Parth Pathak**, Hong Li, Huanle Zhang, Guoming Zhang, Xiuzhen Cheng, and Prasant Mohapatra, “Towards Unconstrained Vocabulary Eavesdropping With Mmwave Radar Using GAN”, *IEEE Transactions on Mobile Computing (TMC)*, Pages: 14, Dec. 2022. [Impact Factor = 7.9]
3. Hao Fu, Pengfei Hu, Zizhan Zheng, Aveek Das, **Parth Pathak**, Tianbo Gu, Sencun Zhu, and Prasant Mohapatra, “Towards Automatic Detection of Nonfunctional Sensitive Transmissions in Mobile Applications”, *IEEE Transactions on Mobile Computing (TMC)*, Pages: 16, May 2020. [Impact Factor = 5.1]
4. Pengfei Hu, **Parth Pathak**, Huanle Zhang, Zhicheng Yang, and Prasant Mohapatra, “High Speed LED-to-Camera Communication using Color Shift Keying with Flicker Mitigation”, *IEEE Transactions on Mobile Computing (TMC)*, Pages: 14, April 2019. [Impact Factor = 5.1]
5. Zhicheng Yang, **Parth Pathak**, Yunze Zeng, Xixi Liran and Prasant Mohapatra, “A Vital Sign and Sleep Monitoring Using Millimeter Wave”, *ACM Transactions on Sensor Networks (TOSN)*, Volume 13 Issue 2, Pages: 32, April 2017. [Impact Factor = 3.6]
6. Aveek K. Das, **Parth Pathak**, Chen-Nee Chuah, Prasant Mohapatra, “Privacy-aware Contextual Localization using Network Traffic Analysis”, *Elsevier Computer Networks*, Volume 118, Pages: 13, Feb. 2017. [Impact Factor = 3.1]
7. Yunze Zeng, **Parth Pathak**, Prasant Mohapatra, “Throughput, energy efficiency and interference characterisation of 802.11ac”, *Transactions on Emerging Telecommunications Technologies (ETT)*, Volume 28, Pages: 14, Feb. 2017. [Impact Factor = 1.6]
8. **Parth Pathak**, Xiaotao Feng, Pengfei Hu and Prasant Mohapatra, “Visible Light Communication, Networking and Sensing: A Survey, Potential and Challenges”, *IEEE Communications Surveys and Tutorials (COMSOC-CST)*, Pages: 31, Sept. 2015. [Impact factor = 23.7]
9. Arun Raghuramu, **Parth Pathak**, Hui Zang, Jinyoung Han, Chang Liu, Chen-Nee Chuah, “Uncovering the footprints of malicious traffic in wireless/mobile networks”, *Elsevier Computer Communications (ComCom)*, Volume 95, Pages: 13, Dec. 2016. [Impact Factor: 2.816]
10. Aveek K. Das, **Parth Pathak**, Chen-Nee Chuah, and Prasant Mohapatra, “Characterization of Wireless Multidevice Users”, *ACM Transactions on Internet Technology (TOIT)*, Vol. 16, Pages: 25, Dec. 2016. [Impact Factor = 2.7]
11. **Parth Pathak**, Rudra Dutta, and Prasant Mohapatra, “On Availability-Performability Trade-off in Wireless Mesh Networks”, *IEEE Transactions on Mobile Computing (TMC)*, Vol. 14, Pages: 13, June 2014. [Impact Factor = 5.1]

12. Kefeng Tan, Shraboni Jana, **Parth Pathak**, and Prasant Mohapatra, “On Insider Misbehavior Detection in Cognitive Radio Networks”, *IEEE Network, Special Issue on Security in Cognitive Radio Networks* (Network), Vol. 27, Pages: 6, June 2013. [Impact Factor = 8.8]
13. **Parth Pathak** and Rudra Dutta, “Centrality-based Power Control for Hot-spot Mitigation in Multi-hop Wireless Networks”, *Elsevier Computer Communications* (COMCOM), Vol. 35, Pages: 12, May 2012. [Impact Factor: 2.8]
14. **Parth Pathak** and Rudra Dutta, “A Survey of Network Design Problems and Joint Design Approaches in Wireless Mesh Networks”, *IEEE Communications Surveys and Tutorials* (COMSOC-CST), Vol. 13, Pages: 33, June 2011. [Impact Factor = 23.7]

#### CONFERENCE PAPERS (REFEREED)

1. Yoon Chae, Zhenzhe Lin, Kang Min Bae, Song Min Kim, **Parth Pathak**, “mmComb: High-speed mmWave Commodity WiFi Backscatter”, *USENIX Symposium on Networked Systems Design and Implementation* (NSDI), Santa Clara, CA, USA, Pages: 17, April 2024. [Acceptance rate = 17%]
2. Ahmad Kamari, Yoon Chae, **Parth Pathak**, “mmSV: mmWave Vehicular Networking using Street View Imagery in Urban Environments”, *ACM Conference on Mobile Computing and Networking* (MobiCom), Madrid, Spain, Pages: 14, October 2023. [Acceptance rate = 24%]
3. Hansol Ku, Jinyue Song, Ding Zhang, Prasant Mohapatra, **Parth Pathak**, “Characterizing Real-time Radar-assisted Beamforming in mmWave V2V Links”, *IEEE Conference on Sensing, Communication, and Networking* (SECON), Madrid, Spain, Pages: 9, September 2023. [Acceptance rate = 23%]
4. Panneer Selvam Santhalingam, **Parth Pathak**, Huzefa Rangwala, Jana Kosecka, “Synthetic Smartwatch IMU Data Generation from In-the-wild ASL Videos”, *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* (UbiComp/IMWUT), Cancún, Mexico, Pages: 34, October 2023. [Acceptance rate = 21%]
5. Ding Zhang, Panneer Selvam Santhalingam, **Parth Pathak**, Zizhan Zheng, “CoBF: Coordinated Beamforming in Dense mmWave Networks”, *ACM Conference on Measurement and Analysis of Computing Systems* (SigMetrics), Orlando, FL, USA, Pages: 26, June 2023. [Acceptance rate = 20%]
6. Ding Zhang, Puqi Zhou, Bo Han, **Parth Pathak**, “M5: Facilitating Multi-user Volumetric Content Delivery with Multi-lobe Multicast over mmWave”, *ACM Conference on Embedded Networked Sensor Systems* (SenSys), Boston, MA, USA, Pages: 16, November 2022. [Acceptance rate = 24%]
7. Shuai Wang, Jianlin Guo, Pu Wang, Kieran Parsons, Philip Orlik, Yukimasa Nagai, Takenori Sumi, **Parth Pathak**, “X-Disco: Cross-technology Neighbor Discovery”, *IEEE Conference on Sensing, Communication, and Networking* (SECON), Stockholm, Sweden, Pages: 9, September 2022. [Acceptance rate = 26%]
8. Kang Min Bae, Namjo Ahn, Yoon Chae, **Parth Pathak**, Sung-Min Sohn, Song Min Kim,

- “OmniScatter: extreme sensitivity mmWave backscattering using commodity FMCW radar”, *ACM Conference on Mobile Systems, Applications, and Services (MobiSys)*, Portland, OR, USA, Pages: 14, June 2022 [Acceptance rate = 21%, Best Paper Award]
9. Pengfei Hu, Yifan Ma, Panneer Selvam Santhalingam, **Parth Pathak**, Xiuzhen Cheng, “Milliar: Millimeter-wave acoustic eavesdropping with unconstrained vocabulary”, *IEEE Conference on Computer Communications (INFOCOM)*, London, United Kingdom, Pages: 10, June 2022. [Acceptance rate = 20%]
  10. Pengfei Hu, Hui Zhuang, Panneer Selvam Santhalingam, Riccardo Spolaor, **Parth Pathak**, Guoming Zhang, Xiuzhen Cheng, “AccEar: Accelerometer Acoustic Eavesdropping with Unconstrained Vocabulary”, *IEEE Symposium on Security and Privacy (S&P)*, San Francisco, CA, USA, Pages: 17, May 2022. [Acceptance Rate = 14%]
  11. Tianyi Xu, Ding Zhang, **Parth Pathak**, Zizhan Zheng, “Joint ap probing and scheduling: A contextual bandit approach”, *IEEE Military Communications Conference (MILCOM)*, San Diego, CA, USA, Pages: 6, November 2021.
  12. Al Amin Hosain, Panneer Selvam Santhalingam, **Parth Pathak**, Huzefa Rangwala and Jana Kosecka, “Hand Pose Guided 3D Pooling for Word-level Sign Language Recognition”, *Winter Conference on Applications of Computer Vision (WACV)*, virtual conference, Pages: 11, Jan. 2021. [Acceptance rate = 29%]
  13. Al Amin Hosain, Panneer Selvam Santhalingam, **Parth Pathak**, Huzefa Rangwala and Jana Kosecka, “Body Pose and Deep Hand-shape Feature Based American Sign Language Recognition”, *IEEE 7th International Conference on Data Science and Advanced Analytics (DSAA)*, Sydney, Australia (virtual), Pages: 9, Oct. 2020. [Acceptance rate = 26%]
  14. Al Amin Hosain, Panneer Selvam Santhalingam, **Parth Pathak**, Huzefa Rangwala and Jana Kosecka, “FineHand: Learning Hand Shapes for American Sign Language Recognition”, *IEEE 15th International Conference on Automatic Face and Gesture Recognition (FG)*, Buenos Aires, Argentina (virtual), Pages: 8, Nov. 2020.
  15. Panneer Selvam Santhalingam, Al Amin Hosain, Ding Zhang, **Parth Pathak**, Huzefa Rangwala and Raja Kushalnagar, “mmASL: Environment-Independent ASL Gesture Recognition using 60 GHz Millimeter-wave Signals”, *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT/ UbiComp)*, Cancun, Mexico (virtual), Pages: 30, Sept. 2020. [Acceptance rate = 20-25%]
  16. Panneer Selvam Santhalingam, Yuanqi Du, Riley Wilkerson, Al Amin Hosain, Ding Zhang, **Parth Pathak**, Huzefa Rangwala, and Raja Kushalnagar, “Expressive ASL Recognition using Millimeter-wave Wireless Signals”, *IEEE International Conference on Sensing, Communication and Networking (SECON)*, Italy (virtual), Pages: 9, June 2020. [acceptance rate = 27%]
  17. Al Amin Hosain, Panneer Selvam Santhalingam, **Parth Pathak**, Jana Košecká, and Huzefa Rangwala, “Sign Language Recognition Analysis using Multimodal Data”, *IEEE International Conference on Data Science and Advanced Analytics (DSAA)*, Washington DC, USA, Pages: 8, Oct. 2019. [Acceptance Rate = 29%, Best Research Paper]

Award]

18. Ding Zhang, Panneer Selvam Santhalingam, **Parth Pathak** and Zizhan Zheng, “Characterizing Interference Mitigation Techniques in Dense 60 GHz mmWave WLANs”, *International Conference on Computer Communications and Networks (ICCCN)*, Valencia, Spain, Pages: 9, July 2019. [Acceptance Rate = 28%]
19. Zhicheng Yang, **Parth Pathak**, Mo Sha, Tingting Zhu, Junai Gan, Pengfei Hu, Prasant Mohapatra, “On Feasibility of Estimating Soluble Sugar Content using Millimeter-wave”, *ACM/IEEE Conference on Internet of Things Design and Implementation (IoTDI)*, Montreal, Canada, Pages: 12, April 2019. [Acceptance Rate = 35%]
20. Ding Zhang, Mihir Garude, and **Parth Pathak**, “mmChoir: Exploiting Joint Transmissions for Reliable 60GHz mmWave WLANs”, *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, Los Angeles, USA, Pages: 10, June 2018. [Acceptance Rate = 17%]
21. Zhicheng Yang, **Parth Pathak**, Jianli Pan, Mo Sha and Prasant Mohapatra, “Sense and Deploy: Blockage-aware Deployment of Reliable 60 GHz mmWave WLANs”, *IEEE International Conference on Mobile, Ad-hoc and Sensor Systems (MASS)*, Chengdu, China, Pages: 9, Oct. 2018. [Acceptance Rate = 28%]
22. Aveek K. Das, **Parth Pathak**, Josiah Jee, Chen-Nee Chuah and Prasant Mohapatra, “WiFi-Assisted Non-Intrusive Multi-Modal Estimation of Building Occupancy”, *ACM Conference on Embedded Networked Sensor Systems (SenSys)*, Delft, The Netherlands, Pages: 14, Nov. 2017. [Acceptance Rate = 17%]
23. Pengfei Hu, **Parth Pathak**, Yilin Shen, Hongxia Jin and Prasant Mohapatra, “PCASA: Proximity based Continuous and Secure Authentication of Personal Wearable Devices”, *IEEE International Conference on Sensing, Communication and Networking (SECON)*, San Diego, USA, Pages: 9, June 2017. [Acceptance Rate = 25.8%]
24. Josiah Jee, Aveek Das, **Parth Pathak**, and Prasant Mohapatra, “MotionSync: Personal Energy Analytics through Motion Tags and Wearable Sensing”, *ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys)*, Stanford, USA, Pages: 10, Nov. 2016. [Acceptance Rate = 24%, Best Paper Award Finalist]
25. Zhicheng Yang, **Parth Pathak**, Yunze Zeng, Xixi Liran and Prasant Mohapatra, “Monitoring Vital Signs Using Millimeter Wave”, *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, Paderborn, Germany, Pages: 10, July 2016. [Acceptance Rate = 18%]
26. Hao Fu, Zizhan Zheng, Aveek K. Das, **Parth Pathak**, Pengfei Hu, Prasant Mohapatra, “FlowIntent: Detecting Privacy Leakage from User Intention to Network Traffic Mapping”, *IEEE International Conference on Sensing, Communication and Networking (SECON)*, London, UK, Pages: 9, June 2016. [Acceptance Rate = 26%]
27. Yunze Zeng, **Parth Pathak**, and Prasant Mohapatra, “WiWho: WiFi-based Person Identification in Smart Spaces”, *ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*, Vienna, Austria, Pages: 10, February 2016. [Acceptance Rate = 20%]

28. Pengfei Hu, **Parth Pathak**, Xiaotao Feng, Hao Fu and Prasant Mohapatra, “ColorBars: Increasing Data Rate of LED-to-Camera Communication using Color Shift Keying”, *ACM International Conference on emerging Networking EXperiments and Technologies* (CoNEXT), Heidelberg, Germany, Pages: 10, Dec. 2015. [Acceptance Rate = 17%]
29. Zhicheng Yang, **Parth Pathak**, Yunze Zeng and Prasant Mohapatra, “Sensor-assisted Codebook-based Beamforming for Mobility Management in 60 GHz WLANs”, *IEEE International Conference on Mobile Ad hoc and Sensor Systems* (MASS), Dallas, TX, USA, Pages: 9, Oct. 2015. [Acceptance Rate = 26%]
30. Muchen Wu, **Parth Pathak** and Prasant Mohapatra, “Monitoring Building Door Events using Barometer Sensor in Smartphones”, *ACM International Joint Conference on Pervasive and Ubiquitous Computing* (UbiComp), Osaka, Japan, Pages: 5, Sept. 2015. [Acceptance Rate = 22%]
31. Muchen Wu, **Parth Pathak** and Prasant Mohapatra, “Enabling Privacy-Preserving First-Person Cameras using Low-Power Sensors”, *IEEE International Conference on Sensing, Communication, and Networking* (SECON), Seattle, WA, USA, Pages: 9, June 2015. [Acceptance Rate = 28%]
32. Aveek Das, **Parth Pathak**, Chen-Nee Chuah and Prasant Mohapatra, “Characterization of Wireless Multi-Device Users”, *IEEE International Conference on Sensing, Communication, and Networking* (SECON), Seattle, WA, USA, Pages: 9, June 2015. [Acceptance Rate = 28%]
33. Li Zhang, **Parth Pathak**, Muchen Wu, Yixin Zhao and Prasant Mohapatra, “AccelWord: Energy Efficient Hotword Detection through Accelerometer”, *ACM International Conference on Mobile Systems, Applications, and Services* (MobiSys), Florence, Italy, May 2015. [Acceptance Rate = 13%]
34. Li Zhang, Chao Xu, **Parth Pathak** and Prasant Mohapatra, “Characterizing Instant Messaging Apps on Smartphones”, *Passive and Active Measurements Conference* (PAM), Springer Pub., New York, NY, USA, Pages: 12, March 2015. [Acceptance Rate = 28%]
35. Yunze Zeng, **Parth Pathak** and Prasant Mohapatra, “A First Look at 802.11ac in Action: Energy Efficiency and Interference Characterization”, *IFIP International Conference on Networking* (Networking), Trondheim, Norway, Pages: 9, June 2014. [Acceptance Rate = 25%. Best Paper Award]
36. Aveek K. Das, **Parth Pathak**, Chen-Nee Chuah and Prasant Mohapatra, “Contextual Localization Through Network Traffic Analysis”, *IEEE International Conference on Computer Communication* (INFOCOM), Toronto, Canada, Pages: 9, May 2014. [Acceptance Rate = 19%]
37. Gaurish Deuskar, **Parth Pathak**, and Rudra Dutta, “Packet Aggregation based Back-pressure Scheduling in Multi-hop Wireless Networks”, *IEEE Wireless Communications and Networking Conference* (WCNC), Paris, France, Pages: 6, April 2012. [Acceptance Rate = 32%]
38. **Parth Pathak**, and Rudra Dutta, “Impact of Power Control on Capacity of TDM-scheduled Wireless Mesh Networks”, *IEEE International Conference on Communications* (ICC),

Kyoto, Japan, Pages: 6, June 2011. [Acceptance Rate = 38%]

39. **Parth Pathak**, and Rudra Dutta, “Using Centrality-based Power Control for Hot-spot Mitigation in Multi-hop Wireless Networks”, *IEEE Global Communications Conference (GlobeCom)*, Miami, FL, USA, Pages: 6, Dec. 2010. [Acceptance Rate = 36%]
40. **Parth Pathak**, and Rudra Dutta, “Impact of Power Control on Relay Load Balancing in Wireless Sensor Networks”, *IEEE Wireless Communications and Networking Conference (WCNC)*, Sydney, Australia, Pages: 6, April 2010. [Acceptance Rate = 37%]
41. Junbum Lim, **Parth Pathak**, M. Pandian, U. Patel, G. Deuskar, A. Danivasa, M.L. Sitchitiu, and R. Dutta, “CentMesh: A Modular and Extensible Wireless Mesh Network Testbed”, *International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom)*, Berlin, Germany, Pages: 3, May 2010.
42. **Parth Pathak**, and Rudra Dutta, “Impact of Power Control on Capacity of Large Scale Wireless Mesh Networks”, *IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS)*, New Delhi, India, Pages: 3, Dec. 2009.
43. Dheeraj Kandula, **Parth Pathak**, and Rudra Dutta, “MF-TCP : Design and Evaluation of TCP for Message Ferry Delay Tolerant Networks”, *Australasian Telecommunication Networks and Applications Conference (ATNAC)*, Canberra, Australia, Pages: 6, Nov. 2009.
44. **Parth Pathak**, Divya Gupta, and Rudra Dutta, “Loner Links Aware Routing and Scheduling in Wireless Mesh Networks”, *IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS)*, Mumbai, India, Pages: 3, Dec. 2008.

#### WORKSHOP PAPERS (REFEREED)

1. Ahmad Kamari, Nan Wu, Hemant Kumar Narsani, Bo Han, **Parth Pathak**, “Environment-driven mmWave Beamforming for Multi-user Immersive Applications”, *ACM Workshop on Mobile Immersive Computing, Networking, and Systems (ImmerCom)*, Madrid, Spain, Pages: 7, October 2023.
2. Ding Zhang, Panneer Selvam Santhalingam, **Parth Pathak**, Zizhan Zheng, “Networked beamforming in dense mmWave WLANs”, *ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, Tempe, AZ, USA, Pages: 7, March 2022. [Acceptance rate = 41%]
3. Ding Zhang, Bo Han, **Parth Pathak**, Haoliang Wang, “Innovating Multi-user Volumetric Video Streaming through Cross-layer Design”, *ACM Workshop on Hot Topics in Networks (HotNets)*, Virtual, Pages: 7, October 2021. [Acceptance rate = 30%]
4. Ding Zhang, Bo Han, **Parth Pathak**, and Haoliang Wang, “Innovating Multi-user Volumetric Video Streaming over mmWave through Cross-layer Design”, *ACM Workshop on Hot Topics in Networks (HotNets)*, Virtual, Pages: 8, Nov. 2021. [Acceptance Rate = 30%]
5. Yoon Chae, Kang Min Bae, **Parth Pathak**, Song Min Kim, “On the Feasibility of Millimeter-wave Backscatter using Commodity 802.11ad 60 GHz Radios”, *ACM Work-*



*shop on Wireless Network Testbeds, Experimental evaluation & Characterization (WinTECH)*, collocated with ACM MobiCom, London (virtual), Pages: 8, Sept. 2020.

6. Pengfei Hu, **Parth Pathak**, Aavek Das, Zhicheng Yang and Prasant Mohapatra, “PLiFi: Hybrid WiFi-VLC Networking using Power Lines”, *ACM Workshop on Visible Light Communication Systems (VLCS)*, collocated with MobiCom 2016, New York, USA, Pages: 6, Oct. 2016.
7. Aavek Das, **Parth Pathak**, Chen-Nee Chuah and Prasant Mohapatra, “Uncovering Privacy Leakage in BLE Network Traffic of Wearable Fitness Trackers”, *ACM International Workshop on Mobile Computing Systems and Applications (HotMobile)*, St. Augustine, FL, USA, Pages: 6, Feb. 2016. [Acceptance Rate = 33%]
8. Chao Xu, **Parth Pathak** and Prasant Mohapatra, “Finger-writing with Smartwatch: A Case for Finger and Hand Gesture Recognition using Smartwatch”, *ACM Workshop on Hot Topics in Mobile Computing Systems and Applications (HotMobile)*, Santa Fe, NM, USA, Pages: 6, February 2015. [Acceptance Rate = 27%]
9. Yunze Zeng, **Parth Pathak**, Chao Xu and Prasant Mohapatra, “Your AP Knows How You Move: Fine-grained Device Motion Recognition through WiFi”, *ACM Workshop on Hot Topics in Wireless (HotWireless)*, Maui, HI, USA (co-located with Mobicom 2014), Pages: 6, Sept. 2014.

#### INVITED PAPERS

1. Ningning Cheng, Shaxun Chen, **Parth Pathak**, Prasant Mohapatra, “Long-term Privacy Profiling through Smartphone Sensors”, *International Workshop on Social Sensing (SocialSens)*, co-located with IEEE MASS 2015, Dallas, TX, USA, Pages: 6, October 2015.
2. Christopher Buckley, **Parth Pathak**, Aavek Das, Chen-Nee Chuah and Prasant Mohapatra, “AnonAD: Privacy-aware Micro-targeted Mobile Advertisements without Proxies”, *IEEE International Conference on Computer Communications and Networks (ICCCN)*, Las Vegas, NV, USA, Pages: 9, August 2015.
3. Yunze Zeng, **Parth Pathak** and Prasant Mohapatra, “Analyzing Shopper’s Behavior through WiFi Signals”, *ACM Workshop on Physical Analytics (WPA)* collocated with MobiSys 2015, Florence, Italy, Pages: 6, May 2015.

#### POSTERS, ABSTRACTS, AND DEMOS

1. Yuanqi Du, Nguyen Dang, Riley Wilkerson, **Parth Pathak**, Huzefa Rangwala and Jana Kosecka, “American Sign Language Recognition Using an FMCW Wireless Sensor (Student Abstract)”, *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, New York, USA, Feb. 2020.
2. Yixin Zhao, **Parth Pathak**, Chao Xu and Prasant Mohapatra, “Demo: Finger and Hand Gesture Recognition using Smartwatch”, *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, Florence, Italy, May 2015.
3. **Parth Pathak**, Sankalp Nimbhorkar and Rudra Dutta, “Poster: Channel Width Assignment using Relative Backlog: Extending Back-pressure to Physical Layer”, *ACM Inter-*

*national Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc), Hilton Head Island, SC, USA, June 2012.*

## PATENTS

1. Prasant Mohapatra, Parth Pathak and Yunze Zeng, “WiFi-based person-identification technique for use in smart spaces”, US Patent No. US10045717B2, patent issued on 08/14/2018.
2. Prasant Mohapatra, Li Zhang, Parth Pathak and Muchen Wu, “Energy-efficient, accelerometer-based hotword detection to launch a voice-control system”, US Patent App. 15/498,835, US Patent No. US10347249B2, patent issued on 07/09/2019.

## RESEARCH GRANTS

1. **GMU: ORIEI** “Ubiquitous Sign Language Recognition and Interactions using WiFi”
  - PI: Parth Pathak, Co-PI: Huzefa Rangwala
  - External Collaborator: Kenneth DeHaan (Gallaudet)
  - Grant amount: \$100,000
  - Duration: 01/2023 - 12/2024
2. **GMU: IDIA-P3** “Predicting RF Exposure in Today’s Ultradense Wireless Networks”
  - PI: Parth Pathak
  - External Collaborator: AT&T Research Labs
  - Grant amount: \$75,000
  - Duration: 08/2023 - 7/2025
3. **NSF: SaTC-2318796** “CORE: Medium: Securing Next G Millimeter-Wave Communication in Programmable RF Environments with Reconfigurable Intelligent Surface (SECURIS)”
  - PI: Kai Zeng, Co-PI: Parth Pathak, Vijay Shah
  - External Collaborators: Jacek Kibilda (VT), Georgios Trichopoulos (ASU)
  - Grant amount: \$800,000
  - Duration: 07/2023 - 06/2026
4. **DoD: DURIP** “Airborne and Vehicular Millimeter-wave Wireless Networking”
  - PI: Parth Pathak, Co-PI: Robert Simon
  - Grant amount: \$260,260
  - Duration: 01/2023 - 12/2025
5. **ARO:** “Millimeter-wave Networking in Transient Topologies”
  - PI: Parth Pathak
  - External Collaborator: Prasant Mohapatra (UC Davis)
  - Grant amount: \$207,014
  - Duration: 08/2022 - 12/2024
6. **CCI: Fellows** “Open-Milli-IoT: An Open Programmable Platform for mmWave Wireless Internet of Things”
  - PI: Parth Pathak, Co-PI: Vijay Shah, Jacek Kibilda (VT)

- Grant amount: \$50,000
  - Duration: 05/2023 - 05/2024
7. **NSF: CNS-2045885** “CAREER: Unifying Millimeter-wave Networking and Sensing using Commodity Backscatter”
    - PI: Parth Pathak
    - Grant amount: \$577,075
    - Duration: 10/2021 - 9/2026
  8. **NSF: CCRI-2235049** “Collaborative Research: CCRI: New: CoMIC: A Collaborative Mobile Immersive Computing Research Infrastructure for Multi-user XR”
    - PI: Bo Han, Co-PI: Parth Pathak, Songqing Chen, Lap-Fai (Craig) Yu
    - External Collaborator: Amitabh Varshney (UMD)
    - Grant amount: \$1,500,000
    - Duration: 01/2023 - 12/2025
  9. **CCI:** “DoS Attack-Resilient Initial Access for mmWave/THz based NextG Communications”
    - PI: Vijay Shah, Co-PI: Parth Pathak, Kai Zeng, Jacek Kibilda (VT)
    - Grant amount: \$50,000
    - Duration: 01/2022 - 12/2023
  10. **GMU:IDIA** “Smart music intervention program for older adults with cognitive impairment: A protocol development”
    - PI: Emily Ihara, Co-PI: Huzefa Rangwala, Parth Pathak, Y. Alicia Hong, Catherine Tompkins, Megumi Inoue
    - Grant amount: \$40,000
    - Duration: 08/2021 - 12/2023
  11. **NSF: IUCRC** “ IUCRC Planning Grant George Mason University: Center for Wireless Innovation Towards Secure, Pervasive, Efficient and Resilient Next G Networks (WISPER)”
    - PI: Brian Mark, Co-PI: Parth Pathak, Vijay Shah, Duminda Wijesekera, Kai Zeng
    - Grant amount: \$20,000
    - Duration: 08/2022 - 08/2023
  12. **NSF: CNS-1815945** “NeTS: Small: Collaborative Research: Reliable 60 GHz WLANs through Coordination: Measurement, Modeling and Optimization”
    - PI: Parth Pathak, Collaborative grant with Zizhan Zheng (Tulane University)
    - Grant amount: \$499,028
    - Duration: 10/2018 - 9/2022
  13. **NSF: CNS-1730083** “II-New: 60 GHz Millimeter-Wave Testbed for Multi-Gigabit Wireless Networking”
    - PI: Parth Pathak, Co-PIs: Robert Simon, Brian Mark, Zhi Tian
    - Grant amount: \$843,718
    - Duration: 10/2017 - 9/2022
  14. **GMU:** “Summer Impact Undergraduate Research: Multi-modal Sign Language Recognition”



- |                   |                    |
|-------------------|--------------------|
| 2. Jingyuan Zhang | Ph.D. in CS, 2022  |
| 3. Al Amin Hosain | Ph.D. in CS, 2021  |
| 4. Reem Albarrack | Ph.D. in IT, 2020  |
| 5. Abhishek Roy   | Ph.D. in CS, 2021  |
| 6. Hanke Cheng    | Ph.D. in ECE, 2020 |
| 7. Arda Gumusalan | Ph.D. in CS, 2019  |
| 8. Haoliang Wang  | Ph.D. in CS, 2019  |
- **Master Research Mentee**

|                     |                                    |
|---------------------|------------------------------------|
| 1. Pranav Nachnekar | MS, CS, Spring 2022 – Spring 2023  |
| 2. Mihir Garude     | MS, ECE, Spring 2017 – Summer 2018 |
  - **Undergraduate Research Mentees**

|                      |   |
|----------------------|---|
| 1. Carlos Verastegui | NSF REU Fellowship, 2020-2021   |
| 2. Yuanqi Du         | NSF REU Fellowship, 2019-2020   |
| 3. Jesse McCandlish  | Provost Summer Impact Project, 2019<br><u>Awarded Mason Senior of the Year 2020</u> |
| 4. Ariana Havens     | Provost Summer Impact Project, 2019   |
| 5. Allison Dockum    | Provost Summer Impact Project, 2019   |
| 6. Dong Young Huh    | Provost Summer Impact Project, 2019   |
| 7. Frederick Olson   | Provost Summer Impact Project, 2019   |
| 8. Nguyen Dang       | Provost Summer Impact Project, 2019   |
| 9. Riley Wilkerson   | Provost Summer Impact Project, 2019   |
| 10. Sai Gurrapu      | Provost Summer Impact Project, 2019   |
  - **High School Students**

|                           |                                    |
|---------------------------|------------------------------------|
| 1. Mihir Kulshreshtha     | Mason ASSIP, Summer 2023           |
| 2. Avni Damani            | Mason ASSIP, Summer 2023           |
| 3. Shlok Pathak           | Mason ASSIP, Summer 2022           |
| 4. Raghav Tirumale        | Mason ASSIP, Summer 2022           |
| 5. Aishwarya Chakravarthy | Mason ASSIP, Summer 2021           |
| 6. Raffu Khondaker        | Mason ASSIP, Summer 2021           |
| 7. Sammy Kee              | Mason ASSIP, Summer 2021           |
| 8. Arisa Chue             | Summer Impact Project, Summer 2019 |

## SERVICE

### UNIVERSITY, COLLEGE AND DEPARTMENT SERVICE

At George Mason University

- Computer Science Ph.D. Admissions Committee 2017, 2019, 2020, 2021, 2022, 2023
- Computer Science M.Sc. Admissions Committee 2018, 2019, 2020, 2021, 2022
- Computer Science Tenure-Track Recruitment Committee 2020, 2022

## PROFESSIONAL SERVICE

○ **Conference/Workshop Organization**

- Technical Program Committee Vice-chair of Information System, IEEE Conference on Computer Communication (INFOCOM) 2023
- Publicity chair, International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MobiHoc) 2023
- Program chair, 3rd ACM Workshop on Millimeter-Wave Networks and Sensing Systems (mmNets) 2019, co-located with ACM MobiCom 2019
- Publicity chair, IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) 2014

○ **Conference/Workshop Technical Program Committee**

- IEEE International Conference on Computer Communications (INFOCOM) 2017-2024
- ACM International Workshop on Wireless Network Testbeds, Experimental evaluation and CHaracterization (WinTech) 2017, 2019-2021
- IEEE International Conference on Mobile Ad-Hoc and Smart Systems (MASS) 2018-2023
- IEEE Military Communications Conference (MILCOM) 2023
- IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) 2017-2023
- IEEE Wireless Communications and Networking Conference (WCNC) 2012-2014, 2016-2019, 2021-2023
- IEEE Winter Conference on Applications of Computer Vision (WACV) 2021-2022
- ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp) 2018 - 2023
- ACM Workshop on Millimeter Wave Networks and Sensing Systems (mmNets) 2018-2023
- International Conference on Computer Communications and Networks (ICCCN) 2018-2023
- IEEE Global Communication Conference (GlobeCom) 2013, 2018 -2023
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communication (PIMRC) 2011-2012

○ **Journal Reviewing**

- IEEE Transactions on Mobile Computing (TMC), 2015-2023
- IEEE/ACM Transactions on Networking (ToN), 2016-2023
- ACM Transactions on Internet of Things (TIoT) 2022
- Elsevier Pervasive and Mobile Computing (PMC) 2020

- IEEE Communication Society Surveys and Tutorials (CST), 2019, 2021
- IEEE JSAC Special Issue on Millimeter-wave Networking 2019
- ACM Journal on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2017-2023
- IEEE Transactions on Wireless Communications (TWC), 2017, 2019, 2020-2022
- ACM SIGMOBILE Mobile Computing and Communications Review (MC2R), 2015
- IEEE Transactions on Vehicular Technology (TVT), 2016
- Elsevier Computer Networks, 2014-2016
- Elsevier Ad-Hoc networks, 2015-2016
- **Grant Proposal Review**
  - National Science Foundation (NSF) review panelist 2017-2023.