Dr. Ambigavathi M

Guest Faculty
Indian Institute of Information Technology Una.
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Research Interests

I am broadly interested in designing communication protocols, system prototypes, and novel techniques that interact with the physical world to sense, collect, store, aggregate, communicate, process, and analyse data closer to the user or device, at the edge of the network.

Education

2014 – 2019: Ph.D. in Computer Science and Engineering (Full Time, CGPA: 8.83)
Institute: CEG Campus, Anna University, Chennai-25, Tamil Nadu, India.
Thesis: Priority based MAC Protocols for Critical Data Transmission in Wireless Body Area Network
Funding: UGC National Fellowship – 23 Lakhs
Advisor: Dr. D. Sridharan, Director of Centre for Entrance Examination and Professor, Department of Electronics and Communication Engineering, CEG Campus, Anna University, Chennai-25.

2010 – 2012: M.E in Computer Science and Engineering (Full Time, CGPA: 9.09)
University: Anna University, Chennai-25, Tamil Nadu, India.
Thesis: Trust Level Management in Mobile Adhoc Networks
Received Gold Medal and Secured Overall University 3rd Rank

2006 – 2010: B.E in Computer Science and Engineering (Full Time, Marks in %: 80.16)
University: Anna University, Chennai-25, Tamil Nadu, India.
Thesis: Digital Water Marking in Peer-to-Peer Networks

2003 – 2005: Secondary and Higher Secondary (Marks in %: 85.20), GHSS, Tamil Nadu, India.

Awards, Achievements and Honors

- Received National Fellowship (2014-2019) with Contingency Grants (Rs. 23 Lakhs) from UGC.
- Recipient of Best Paper Award (2018), NIT Rourkela.
- Best Poster Award Nominee in IWRM 2018, Anna University.
- Awarded Gold Medal (2012) for the best academic performance among overall PG students, Anna University.
- Secured 3rd University Rank among 716 Candidates (2012).
- Received 1 lakh case prize for the first place secured in university examinations held during the academic year 2010-2011.

Professional and Research Activities

2021 – **Present:** Guest Faculty, IIIT Una, Himachal Pradesh -177 209.
2019 – **Present:** Independent Research Collaboration
Collaborators: Dr. Mohammad Hammoudeh (MMU, UK). Dr. Ayon Chakraborty (IITM), Dr. Mainak Adhikari (TU, Estonia), and Dr. Punit Rathore (IISc, Bangalore)

Memberships

- ACM Professional and Women Membership (ID: 3678659)
- Member of IEEE (ID: 93734239)
- Life member of ISTE (ID: LM127056)
- Life member of CSI (ID: 2010001041)

Journal Reviewer

- IEEE Transactions on Network and Service Management
- IEEE Internet of Things Journal
- IEEE Transaction on Vehicular Technology
- IEEE Journal of Biomedical and Health Informatics
- IEEE Internet of Things Journal Magazine
- IEEE Access

Short-term/FDPs/Workshops

— Python for Artificial Intelligence and Machine Learning, NIT Warangal, September 2021.

— Design Principles for Next Generation Embedded Computing Systems, in collaboration with the university of Catania, Italy and IIT Guwahati, July 2021.

— From e-Learning to e-Training: A Comprehensive Guide for All Your Administrative Work, Sponsored by MHRD, University of Delhi, May 2020.

— Managing Online Classes and Co-Creating MOOCs, Sponsored by MHRD, Ramanujan College, Delhi, June 2020.

— Artificial Intelligence for ALL, IIITDM Chennai, 2019.

Publications

- Google Scholar Citations: **201**
- H-index: **09**
- i10 index: **08**
- Scopus ID: **56884785700**
- Orcid ID: **0000-0002-2501-7349**
- Web of Science Research ID**: O-9062-2018**
- Vidwan ID: **145405**

International Journals:

1. Ambigavathi Munusamy, Mainak Adhikari, and Brijesh K Chaurasia, “Zippy Random-Access Protocol for Critical Communication Networks” IEEE Internet of Things Journal, 2022. (Under Review).
2. Mainak Adhikari, Ambigavathi Munusamy, Abhishek Hazra, Varun Menon, Vijay Anavangot, Deepak Puthal, “Security and Privacy in Edge-centric Intelligent Internet of Vehicles: Issues and Remedies”, IEEE Consumer Electronics Magazine, 2021. (**IF**: 3.789)
3. Ambigavathi Munusamy, Mainak Adhikari, Mohammad Ayoub Khan, Varun G Menon, Sathish Narayana Srirama, Linss T. Alex, Mohammad R. Khosravi, “Edge-centric Secure Service Provisioning in IoT-Enabled Maritime Transportation Systems”, IEEE Transaction on Intelligent Transport Systems, 2021. (**IF**: 6.492)
4. Mainak Adhikari, Ambigavathi Munusamy, Neeraj Kumar, and Sathish Narayana Srirama, “Cybertwin-driven Resource Provisioning for IoE Applications at 6G-enabled Edge Networks”, IEEE Transaction on Industrial Informatics, 2021. (**IF:** 10.215)
5. Mainak Adhikari, M. Ambigavathi, Varun G Menon, and Mohammad Hammoudeh, “Random Forest for Data Aggregation to Monitor and Predict COVID-19 using Edge Networks”, IEEE Internet of Things Magazine, vol.2 no.2, pp.40-44, 2021.
6. M. Ambigavathi, Mainak Adhikari, Venki Balasubramaniam, Varun Menon, Danda Rawat, and Sathish Narayana Srirama, “Service Deployment Strategy for Predictive Analysis of FinTech IoT Applications in Edge Networks”, IEEE Journal of Internet of Things, ISSN: 2327-4662, 2021. (**IF:** 9.471)
7. Mainak Adhikari and M. Ambigavathi, “iCovidCare: Intelligent Healthcare Monitoring System for COVID-19 Patients using Feature Selection and Ensemble Random Forest Model in Edge Networks”, Elsevier Internet of Things, Vol.14, 100385, 2021.
8. M. Ambigavathi and Dr. D. Sridharan, “Traffic Priority based Channel Assignment Technique for Critical Data Transmission in Wireless Body Area Network”, Springer Journal of Medical Systems, ISSN: 0148-5598, Vol.42:206, pp.1-19, 2018. (**IF:** 4.460)
9. M. Ambigavathi and Dr. D. Sridharan, “Energy Efficient and Load Balanced Priority Queue Algorithm for Wireless Body Sensor Network,” Elsevier Journal of Future Generation Computer Systems, ISSN: 0167-739X, Vol.88, pp. 586-593, 2018. (**IF:** 7.187)
10. M. Ambigavathi and Dr. D. Sridharan, "Critical Data Transmission using PTR Scheme for Wireless Body Area Network", International Journal of Advanced Technology in Engineering and Science (IJATES), ISSN: 2348-7550, Vol.5 no.6, pp.140- 151, 2017. (**IF:** 5.6)
11. M. Ambigavathi and Dr. D. Sridharan, "Intensifying Remote Healthcare Monitoring System using Internet of Things", International Journal of Advanced Research in Science and Engineering (IJARSE), ISSN: 2319-8346, Vol.6 no.9, pp.176- 186, 2017. (**IF:** 6.1)
12. M. Ambigavathi and Dr. D. Sridharan, "Priority-based Energy Efficient Data Transmission Using Cooperative Virtual MIMO Technique in Wireless Body Area Network", International Journal of Innovation and Scientific Research (IJISR), ISSN: 2351-8014, Vol.24 no.2, pp.417-422, 2016. (**IF:** 2.988).
13. M. Ambigavathi and Dr. D. Sridharan, "Energy and Delay Aware Data Link Layer Protocols for Wireless Body Area Network", International Journal of Research in IT and Management (IJRIM), ISSN: 2231-4334, Vol.6 no.7, pp. 184-199, 2016. (**IF**: 6.661).

14. M. Ambigavathi and Dr. D. Sridharan, "Research Challenges of IEEE 802.15.6 Standard for Wireless Body Area Networks", International Journal of Applied Engineering Research (IJAER), ISSN: 0973-4562, Vol.10 no.55, Pp.1846-1849, 2015. (**IF**: 0.14)

International Conferences:

1. M. Ambigavathi and Dr. D. Sridharan, "Analysis of Clustering Algorithms for Healthcare Data Set", 4th International Conference on Advances in Computing and Data Sciences (ICACDS), University of Malta, Valletta, April 24- 25, 2020.
2. M. Ambigavathi and Dr. D. Sridharan, "Big Data Analytics in Healthcare", 10th IEEE International Conference on Advance Computing (ICOAC), Madras Institute of technology, Chennai, India, December, pp.no. 269-276, 2018.
3. M. Ambigavathi and Dr. D. Sridharan, "Saturation Throughput Analysis of IEEE 802.15.6 under Ideal Transmission Channel Condition", Elsevier International Conference on Computational Intelligence and IoT (ICCIIoT), National Institute of Technology, Agartala, India, December, Vol.2, No.4, pp.no. 790-798, 2018.
4. M. Ambigavathi and Dr. D. Sridharan, "FCAAC: A Fast Channel Assignment Algorithm for Critical Data Transmission in Wireless Body Area Network", 6th International Conference on Advanced Computing, Networking, and Informatics (ICACNI), National Institute of Technology, Rourkela, India, 06-08 June 2018. (Presented)
5. M. Ambigavathi and Dr. D. Sridharan, "CEBANet: Cloud Enabled Body Area Network for Smart Healthcare Delivery System", IEEE International Conference on Computing, Communication and Drastic Innovations in Energy Thrive (IC3DIET), University College of Engineering, Panruti, India, pp.no.226-230, February-March 2018.
6. M. Ambigavathi and Dr. D. Sridharan, "TPS-MAC: Traffic Priority-Aware Slot Allocation Medium Access Control Protocol for Wireless Body Area Network", International workshop on Recent Materials for Healthcare and Industrial Applications (IWRM), CEG Campus, Anna University, Chennai, India, pp.no.40, January 2018.
7. M. Ambigavathi and Dr. D. Sridharan, "IoFCw: IoT based Fog Enabled Cloud Assisted Wireless Body Area Network: A Survey", International Conference on Frontiers in Engineering, Applied Sciences and Technology, NIT Trichy, pp.226-230, March 2017.
8. M. Ambigavathi and Dr. D. Sridharan, "A Review of Channel Access Techniques in Wireless Body Area Network," IEEE 2nd International Conference on Recent Trends and Challenges in Computational Models (ICRTCCM), University College of Engineering, Tindivanam, India, pp.1-5, February 2017.
9. M. Ambigavathi and Dr. D. Sridharan, "Challenges of Energy Efficient and Priority Based MAC Protocols in Wireless Body Area Network," IEEE 4th International Conference on Design and Manufacturing (IConDM), Indian Institute of Information Technology Design and Management, Kancheepuram, India, pp.90-94, December 2016.
10. M. Ambigavathi and Dr. D. Sridharan, "A Novel Priority Based Virtual Scheduling Algorithm for Wireless Body Sensor Network," 2nd International Conference on Signal Processing, Control and Data Analytics (ICSCD), organized by International Society for Scientific Research and Development (ISSRD), San Diego, USA, pp.59-67, August 2016.

11. M. Ambigavathi and Dr. D. Sridharan, “Priority Based AODV Routing Protocol for Critical Data in Wireless Body Area Network,” IEEE 3rd International Conference on Signal Processing, Communication and Networking (ICSCN), Madras Institute of Technology, Chrompet, India, ISBN: 978-1-4673- 6822-3, pp.1-5, March 2015.

Book Chapters

1. **M. Ambigavathi** and Dr. D. Sridharan, “Packet Error Probability Model for IEEE 802.15.6 MAC Protocol in Wireless Body Area Network”, 2020, Book Title, Series Title: Advances in Intelligent Systems and Computing, Publisher: Springer Singapore, Print ISBN: 978-981-10-8617-6, Online ISBN: 978- 981-13-8618-3, Vol., 1382, pp. 481-493.
2. **M. Ambigavathi** and Dr. D. Sridharan, “A Survey on Big Data in Healthcare Applications”, 2019, Book Title: Intelligent Communication, Control and Devices”, Series Title: Advances in Intelligent Systems and Computing, Publisher: Springer Singapore, Print ISBN: 978-981-13-8617-6, Online ISBN: 978-981-13-8618-3, Vol. 989, pp. 755- 763.
3. **M. Ambigavathi** and Dr. D. Sridharan, “Low-Delay Channel Access Technique for Critical Data Transmission in Wireless Body Area Network”, 2018, Book title: Advances in Computing and Data Sciences, Series Title: Communications in Computer and Information Science, Publisher: Springer Singapore, Print ISBN: 978-981-13-1809-2, Online ISBN: 978-981-13-1810-8, Vol.905, pp. 144–153.
4. **M. Ambigavathi** and Dr. D. Sridharan, “An Effective Dynamic Time Slot Allocation Scheme for Wireless Body Area Network”, 2018, Book Title: Lecturer Notes in Electrical Engineering, Series Title: Wireless Communication Networks and Internet of Things, Publisher: Springer Singapore, Print ISBN: 978-981-10-8662-5, Online ISBN: 978-981-10-8663-2, Vol. 493, pp. 123-130.
5. **M. Ambigavathi** and Dr. D. Sridharan, “Energy-Aware Data Aggregation Techniques in Wireless Sensor Network”, 2017, Book Title: Lecturer Notes in Electrical Engineering, Series Title: Advances in Power Systems and Energy Management, Publisher: Springer Singapore, Print ISBN: 978-981-10-4393-2, Online ISBN: 978-981-10-4394-9, Vol. 436, pp. 165-173.