Dr. Amgoth Tarachand
Professor
Computer Science & Engineering
Indian Institute of Technology (ISM), Dhanbad

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Current Position

- **Professor**, Department of Computer Science & Engineering, Indian Institute of Technology (ISM), Dhanbad, Year: 2026 - Continuing.
- **Co-Founder & Director**, AiThingX, Startup Incubated at Center for Innovation, Incubation and Entrepreneurship (CIIE), IIT ISM Dhanbad, Year: 2021 - Continuing .

Research

Current Research Interests: AI/ML, Edge Intelligence and Fog-Cloud Continuum

- **Edge Intelligence**: Collaborative and Connected Edge Intelligence, Green and Intelligent Edge for Delay-Sensitive IoT Applications.
- **Fog-Cloud Continuum**: Interoperability Issues in Fog-Cloud Infrastructure for IoT Applications, Computation Offloading, Service deployment, VM placements
- **Sensor Networks**: Mobility-based Algorithms, Network Connectivity and restoration, Cross-layer designs, Area and target coverage, energy harvesting and efficiency, and clustering and routing
- **Profile: Google Scholar citations: 5827**

Education

- **Ph.D**, Computer Science & Engineering, IIT (ISM) Dhanbad, Year: 2011-2015.
- **M.Tech**, Computer Science & Engineering, NIT Rourkela, Year: 2004-2006.
- **B.Tech**, Computer Science & Engineering, JNTU Hyderabad, Year: 1998-2002.

Professional Experience

- **Associate Professor**, Department of Computer Science & Engineering, Indian Institute of Technology, Dhanbad, Year: 2021 - 2026.
- **Assistant Professor**, Department of Computer Science & Engineering, Indian Institute of Technology, Dhanbad, Year: 2010 - 2020.
- **Research Fellow**, School of Computer & Information Sciences, University of Hyderabad, Year: 2006 - 2010.

Sponsored Projects (Principal Investigator)

Total External Funding: Rs. 22,540,934.00

- **Anusandhan National Research Foundation (ANRF)**: Dynamic Model Compression and Energy-Efficient Multimodal Scheduling on Edge Device, Sanctioned Amount **Rs. Rs. 45,88,800.00**, Year: 2026 - 2029.

«-» **Wadhwani Innovation Network**: AI-Driven Digital Twins for Proactive Failure Prediction in Mining Assets, Sanctioned Amount **Rs. 76,37,994.00**, Year: 2026 - 2028.

«-» **Massil Technologies**: CREDIBLE: Collaborative and Intelligent Edge for Robust AI in Dynamic and Uncertain Environments, Sanctioned Amount **Rs. 35,43,540.00**, Year: 2025 - 2028.

«-» **DST (SERB), Govt. of India**: Interoperability Issues in Fog-Cloud Infrastructure for IoT Applications: Sanctioned Amount **Rs. 20,82,000.00**, Year: 2019 - 2022

«-» **Shastri Indo-Canadian Institute, Ministry of Education, Govt. of India**: Green and Intelligent Edge for Delay-Sensitive IoT Applications, Sanctioned Amount **Rs. 57,000.00**, Year: 2020 - 2021

«-» **DST (ICPS Division), Govt. of India**: Sensor Networks and IoT, Sanctioned Amount **Rs. 9,00,000.00**, Year: 2019 - 2020

«-» **TexMin, Technology Innovation Hub, IIT, Dhanbad, Sponsored by DST, under NM-ICPS**: Design of Predictive Maintenance System for Mobile Assets in Underground Metal Mines, Sanctioned Amount **Rs. 9,50,000.00**, Year: 2021 - 2022

«-» **TexMin, Technology Innovation Hub, IIT, Dhanbad, Sponsored by DST, Govt. of India under NM-ICPS**: Smart Wearable devices for Safety of Working personnel in Underground Mines, Sanctioned Amount **Rs. 10,00,000.00, Role: Co-PI**, Year: 2021 - 2022

«-» **MSME, Govt. of India**: AI-enabled Solar-based Smart Street Lightning System, Sanctioned Amount **Rs. 20,00,000**, Year: 2021 - 2022

«-» **MSME, Govt. of India**: Solar-based autonomous drones for agriculture and industrial applications, Sanctioned Amount **Rs. 19,40,000**, Year: 2021 - 2022

«-» **TEQIP-II, Govt. of India**: Mobility-based Algorithms for Wireless Sensor Networks, Sanctioned Amount **Rs. 2,00,000**, Year: 2016 - 2017

PhD Supervision

PhD produced: 14, One BEST THESIS AWARD (Dr. Abhishek Hazra)

«-» **Dr. Praveen Kumar D.**, Thesis title: Machine Learning-based Algorithms for Wireless Sensor Networks, Completed: 2021.

Current position: Associate Professor Stockholm University, Sweden

«-» **Dr. Mainak Adhikari**, Thesis title: Design of Scheduling and Load balancing Algorithms for Cloud Computing Environment, Completed: 2020.

Current position: Assistant Professor, IISER Thiruvananthapuram

«-» **Dr. Abhishek Hazra**, Thesis title: Design of Algorithms for IoT Applications in Fog-Cloud Infrastructure, Completed: 2022

Current position: Assistant Professor, NIT Agartala, India

«-» **Dr. Dinesh K. Sah**, Thesis title: Algorithms for Cross Layer Design in Wireless Sensor Networks, Completed: 2022

Current position: Post-Doctoral Fellow, University of Oulu, Finland

«-» **Dr. B. Prasannababu**, Thesis title: Energy and Coverage Aware Algorithms for Wireless Sensor Networks. Completed: 2023

Current position: Senior Project Manager, Wipro, Hyderabad

«-» **Dr. Madnesh K. Gupta**, Thesis title: Design of Algorithms for Efficient Management of Virtual Machines in Cloud Computing Environment, Completed: 2022.

Current position: Assistant Professor, NIT Jalandar, India

«-» **Dr. Madann Srinivas.**, Thesis title: Mobility-based Algorithms for Wireless Sensor Networks, Completed: 2022

«-» **Dr. B. Sanjai Prasada Rao**, Thesis title: Design of Energy-Efficient Algorithms for Mobile Wireless Sensor Networks, Completed: 2022.

Current position: Associate Professor, Woxen University, Hyderabad

«-» **Dr. K. Cheena**, Thesis title: Design of Efficient Techniques for Wireless Sensor Networks based Smart Grids, Completed: 2022.

Current position: Assistant Professor, UCE, Kakatiya University, T.S

«-» **Dr. Biswa Mohan Sahoo**, Thesis title: Soft Computing-based Algorithms for Wireless Sensor Networks, Completed: 2022

Current position: Associate Professor, ITS Engineeering College, Greater Noida, U.P

«-» **Dr. Ramesh Kumar**, Thesis title: Algorithms for Connectivity Restoration in Wireless Sensor Networks, Completed: 2022

Current position: Associate Professor, SRM University, A.P

«-» **Dr. Dipak K. Sah**, Thesis title: Algorithms for Energy Harvesting Wireless Sensor Networks, Completed: 2023

Current position: Assistant Professor, GLA University, Mathura, U.P

«-» **Mr. Sai V. Rao**, Thesis title: Integrated Deep Learning Models for Authentication, Recognition, and Compression in Resource-Constrained IoT Surveillance Networks, Completed: 2026

Current position: Post-Doctoral Fellow, Telecom Paris, France

Teaching

2026-2027 NCSC501: Advanced Data Structures & Algorithms

2025-2026 CSO303 and NCSC513: Artificial Intelligence, CSC52107: HPCA, NCSC204: COA Lab, CSC525: Artificial Intelligence, CSC528: Artificial Intelligence Lab, CSD513: Internet of Things

2024-2025 NCSV101: Computer Programming, NCSV101: Computer Programming Lab, NCSC519: Machine Learning, NCSC520: Internet of Things

2023-2024 CSC52107: High Perforance Computer Architecture (HPCA), CSC207: Computer Architecture, CSD513: Internet of Things, CSC205: CO Lab

2022-2023 CSO303: Artificial Intelligence, CSC207 Computer Architecture, CSD513: Internet of Things, CSC205: CO Lab

2021-2022 CSC504: Machine Learning, CSC503: Artificial Intelligence, CSC205: CO Lab

2020-2021 CSC15107: Computer Architecture, CSC16101: Artificial Intelligence

2019-2020 CSC16101: Artificial Intelligence, CSC52107: High Perforance Computer Architecture, CSC15107: Computer Architecture

2018-2019 CSC11101: Computer Programming, CSC15107: Computer Architecture, CSC16101: Artificial Intelligence, CSC52107: HPCA

2017-2018	CSC15107: Computer Architecture, CSM15101: Algorithm Design & Analysis, CSC91101: C Programming, CSE18106: Distributed Systems, CSC52107: HPCA
2016-2017	CSM15101: Algorithm Design & Analysis, CSC15107: Computer Architecture, CSE18106: Distributed Systems, CSC52107: HPCA, CSC11301: C Programming
2015-2016	CSC15107: Computer Architecture, CSM15101: Algorithm Design & Analysis, CSE18106: Distributed Systems, CSM16101: Computer Organization
2014-2015	CSE18106: Distributed Systems, CSC15107: Computer Architecture, CS14102: Algorithm Design & Analysis, CSC52107: HPCA
2013-2014	CS14102: Algorithm Design & Analysis, CSC15107: Computer Architecture, CSE18106: Distributed Systems, CSC52107: HPCA
2012-2013	CSC15107: Computer Architecture, CS14102: Algorithm Design & Analysis, CSE18106: Distributed Systems, CSC52107: HPCA
2011-2012	CSC52107: HPCA, CSC15107: Computer Architecture, CSE18106: Distributed SystemsCS14102: Algorithm Design & Analysis
2010-2011	CSE18106: Distributed Systems, Algorithm Design & Analysis
Lab Courses:	Computer Programming Lab, Algorithm Design & Analysis Lab, Computer Organization Lab

Awards and Achievements

- «-» **Best Thesis Award 2023** to my PhD student Dr. Abhishek Hazra, 2023
- «-» **Shastri Mobility Programme Award 2020** awarded by the Shastri Indo-Canadian Institute, Funded by Ministry of Education (MoE), Government of India, 2020
- «-» **Best Paper Award** at International conference ICECCS 2013
- «-» **Topper** in all India entrance test for PhD admission, conducted by University of Hyderabad, 2007
- «-» **Selected as a Software Engineer for Sasken Technologies, Bangalore** in campus placement at NIT Rourkela, 2006
- «-» **Declared as top 2 % scientists**: Stanford University, Elsevier database, 2021-2025

Patents & Technology Development

- «-» **Tarachand Amgoth**: Helium-Assisted Solar-Powered Quadcopter with Spherical Solar Cell Body for Enhanced Aerial Endurance and Energy Autonomy, Current Patent Status: Submitted., Under the Project Funded by MSME, Govt of India, Project entitled: Solar-based autonomous drones for agriculture and industrial application
- «-» **Dhruvil Patel, Utsav Chabhadiya and Tarachand Amgoth**: Intelligent IoT-Integrated Street Luminaire System with Autonomous Incident Detection and Predictive Maintenance Capabilities, Current Patent Status: Submitted, Under the Project Funded by MSME, Govt of India, Project entitled: AI-enabled Solar-based Smart Street Lightning System
- «-» **Tarun Shrivastava and Tarachand Amgoth**: Asynchronously Adaptive Hierarchical Collaborative Learning System for Dynamic IoT Networks via Granular Contextualization, Current Patent Status: Submitted

«-» **Tarachand Amgoth and Manodipan Sahoo**: Design of Predictive Maintenance System for Mobile Assets in Underground Metal Mines. Under the Project Funded by TexMin, Technology Innovation Hub, IIT ISM, Dhanbad, Sponsored by DST, under NM-ICPS, Project entitled: Design of Predictive Maintenance System for Mobile Assets in Underground Metal Mines

«-» **Manodipan Sahoo and Tarachand Amgoth**: Smart Wearable for Working Personnel in Underground Mines and Hazardous Environment. Under the Project Funded by TexMin, Technology Innovation Hub, IIT ISM, Dhanbad, Sponsored by DST, under NM-ICPS, Project entitled: Smart Wearable devices for Safety of Working personnel in Underground Mines

International Academic & Industrial Collaborations

«-» **Prof. Venkata Dinavahi,** Department of Electrical & Computer Engineering, University of Alberta, Edmonton, Alberta, Canada. Research collaboration: Green and Intelligent Edge for Delay-Sensitive IoT Applications.

«-» **Prof. Schahram Dustdar,** Distributed Systems Group, TU Wien, Austria. Research collaboration: Cooperative Transmission Scheduling and Computation Offloading with Collaboration of Fog and Cloud for Industrial IoT Applications.

«-» **Prof. Mounira Msahl,** Telecom Paris, IP Paris, France. Research collaboration: Edge Computing and Cybersecurity.

«-» **Prof. Rahim Rahmani,** Department of Computer and Systems Sciences at Stockholm University, Sweden. Research collaboration: Edge Intelligence and IoT.

«-» **Dr. Lauri Lovén,** Research group lead, Distributed Artificial Intelligence, Center for Ubiquitous Computing, Faculty of Information Technology and Electrical Engineering, University of Oulu, Finland. Research collaboration: Edge Intelligence.

«-» **Prof. Michail (Michalis) Matthaiou,** Communications Engineering & Signal Processingy, Queen's University Belfast. Northern Ireland, U.K. Research collaboration: 6G and Edge Intelligence.

«-» **Prof. Satish Sreeram Narayana,** Department of Computer Science at University of Tartu, Estonia. Research collaboration: Fog-Cloud Continuum and IoT.

«-» **Massil Techologies, Hyderabad:** Collaborative and Intelligent Edge for Robust AI, Year: 2025-28

«-» **Hindustan Zinc Limited, Jodhpur:** Design of Predictive Maintenance System for Mining Assets, Year 2020-21

Publications

Journals:

1. Dipak K. Sah, N. Mazumdar, Abhishek Hazra, Tarachand Amgoth, "An Efficient Scheduling Approach for Target Coverage in Solar Powered Internet of Things", **IEEE Transactions on Sustainable Computing: Accepted**, 2025.

.

2. M Mallikarjuna and Tarachand Amgoth, "Energy-Aware Unified Data Collection and Energy Replenishment in Consumer Mobile WSNs", **IEEE Transactions on Consumer Electronics: Accepted**, 2025.

.

3. A Sai V. Rao, Tarachand Amgoth, and Ansuman Bhattacharya, "Chronological Archery Algorithm for Image Compression Using Compressive Sensing in IoT–LTE System", **IEEE Transactions on Consumer Electronics: Accepted**, 2024.

4. Abhishek Hazra, M. Adhikari, Dipak K. Sah, Tarachand Amgoth, "Fair Scheduling and Computation Co-Offloading for Industrial Applications in Fog Networks", **IEEE Transactions on Networking and Servive Management**, Vol. 21, pp. 1867-1876, 2024.

5. A. Sai V. Rao, P. K. Roy, Tarachand Amgoth, Ansuman Bhattacharya, "A deep learning-based authentication protocol for IoT-enabled LTE systems", **Future Generation Computer System (Elsevier)**, Vol. 154, pp. 451-464, 2024.

6. A. Sai V, Rao, S. Kainth, A. Bhattacharya, Tarachand Amgoth, "An efficient weapon detection system using NSGCU-DCNN classifier in surveillance", **Expert System with Applications (Elsevier)**, Vol. 255, 2024.

7. Abhishek Hazra and Tarachand Amgoth, Correct title: CeCO: Cost-Efficient Computation Offloading of IoT Applications in Green Industrial Fog Networks, **IEEE Transactions on Industrial Informatics**, Vol. 9, pp. 6255 - 6263, 2022.

8. Abishek Hazra, Praveen Kumar D., Tarachand Amgoth, and Schahram Dustdar, "Cooperative Transmission Scheduling and Computation Offloading with Collaboration of Fog and Cloud for Industrial IoT Applications", **IEEE Internet of Things Journal**, Vol. 10, pp. 3944 - 3953, 2023.

9. Abishek Hazra, Tarachand Amgoth, Mainak Adhikari, and Satish Srirama Narayana, "A Comprehensive Survey on Interoperability for Industrial IoT: Taxonomy, Standards and Future Directions", **ACM Computing Surveys**, Vol. 55, pp. 9:1 - 9:35, 2023.

10. Abishek and Tarachand Amgoth, Mainak Adhikari, Satish Srirama Narayana, "Collaborative AI-enabled Intelligent Partial Service Provisioning in Green Industrial Fog Networks ", **IEEE Internet of Things Journal**, Vol. 10, pp. 2913 - 2921, 2023.

11. Dinesh Kumar Sah, Korhan Cengiz, and Tarachand Amgoth, "3D Localization and Error Minimization in Underwater Sensor Networks", **ACM Transactions on Sensor Networks**, Vol. 18, pp. 1 - 25, 2022.

12. Abhishek Hazra, Mainak Adhikari, and Tarachand Amgoth, "Intelligent Service Deployment Policy for Next-Generation Industrial Edge Networks.", **IEEE Transactions on Network Science and Engineering**, Vol. 9, pp. 3057 - 3066, 2022.

13. Abhishek Hazra, Tarachand Amgoth, Mainak Adhikari, and Satish Narayana Srirama, "Stackelberg Game for Service Deployment in 6G-aware Fog Networks", **IEEE Internet of Things Journal**, Vol. 8, pp. 5185 - 5193, 2021.

14. Abhishek Hazra, Tarachand Amgoth, Mainak Adhikari, and Satish Narayana Srirama, "Joint Computation Offloading and Scheduling Optimization in IoT-Assisted Fog Networks", **IEEE Transactions on Network Science and Engineering**, Vol. 7, pp. 3266 - 3276, 2021.

15. Praveen Kumar D. and Tarachand Amgoth, "A Survey on Recent Advances in IoT Application Layer Protocols and Scope of Machine Learning for Research Directions", **Digital Communication and Networks (Elsevier)**, Vol. 8, pp. 927 - 744, 2022.

16. Biswa Mohan Sahoo, Hari Mohan Pandey, and Tarachand Amgoth, "A Genetic Algorithm Inspired Optimized Cluster Head Selection Method in Wireless Sensor Network", **Swarm and Evolutionary Computation (Elsevier)**, Vol. 75, pp. 101151, 2022.

17. Dinesh Kumar Sah and Tarachand Amgoth, "Energy Efficient Medium Access Control Protocol for Data Collection in Wireless Sensor Network: A Q-learning approach", **Sustainable Energy Technologies and Assessments (Elsevier)**, Vol. 53, pp. 102530, 2022.

18. Dinesh K Sah, Tarachand Amgoth, K Cengiz, Yasser Alshehri, and Noha Alnazzawi, "TDMA policy to optimize resource utilization in Wireless Sensor Networks using reinforcement learning for ambient environment", **Computer Communications (Elsevier)**, Vol. 195, pp. 162 - 172, 2022.

19. Ramesh Kumar and Tarachand Amgoth, "Reinforcement learning based connectivity restoration in wireless sensor networks", **Applied Intelligence**, Vol. 52, pp. 13214 - 13231, 2022.

20. Praveen Kumar D., Tarachand Amgoth, and A.C.S. Rao, "Delay-aware Data Fusion in Duty-Cycled Wireless Sensor Networks: A Q-learning Approach", **Sustainable computing (Elsevier)**, Vol. 33, pp. 100642, 2022.

21. Mainak Adhikari, Tarachand Amgoth, and Satish Narayana Srirama, "Application Offloading Strategy for Hierarchical Fog Environment through Swarm Optimization", **IEEE Internet of Things Journal**, Vol. 7, pp. 4317 - 4328, 2020.

22. Dipak Kumar Sah and Tarachand Amgoth, "Renewable Energy Harvesting Schemes in Wireless Sensor Networks: A Survey", **Information Fusion (Elsevier)**, Vol. 63, pp. 223 - 247, 2020.

23. Biswa Mohan Sahoo, Hari Mohan Pandey, and Tarachand Amgoth, "GAPSO-H: A Hybrid Approach Towards Optimizing the Cluster Based Routing in Wireless Sensor Network", **Swarm and Evolutionary Computation (Elsevier)**, Vol. 60, pp. 100772, 2021.

24. Sanjai Prasada Rao Banoth, Praveen Kumar D., and Tarachand Amgoth, "Dynamic mobile charger scheduling with partial charging strategy for WSNs using deep-Q-networks", **Neural Computing and Applications**, Vol. 22, pp. 15267 - 15279, 2021.

25. Biswa Mohan Sahoo, Tarachand Amgoth, and Hari Mohan Pandey,"Particle Swarm Optimization Based Energy Efficient Clustering and Sink Mobility in Heterogeneous Wireless Sensor Network", **Ad Hoc Networks (Elsevier)**, Vol. 106, pp. 102237, 2020.

26. Mainak Adhikari, Tarachand Amgoth, and Satish Narayana Srirama, "Multi-Objective Scheduling Strategy for Scientific Workflows in Cloud Environment: A Firefly-based Approach", **Applied Soft Computing (Elsevier)**, Vol. 93, pp. 106411, 2020.

27. Praveen Kumar D., Tarachand Amgoth, and Chandra Sekhar Annavarapu, "Machine learning algorithms for wireless sensor networks: A survey", **Information Fusion (Elsevier)**, Vol. 49, pp. 1 - 25, 2019.

28. Mainak Adhikari, Tarachand Amgoth, and Satish Narayana Srirama, "A Survey on Scheduling Strategies for Workflows in Cloud Environment and Emerging Trends", **ACM Computing Survey**, Vol. 52, 2019.

29. Mainak Adhikari and Sudharsan Nandy, and Tarachand Amgoth, "Meta heuristic-based task deployment mechanism for load balancing in IaaS cloud", **Journal of Network and Computer Applications (Elsevier)**, Vol. 128, pp.64-77, 2018.

30. Mainak Adhikari and Tarachand Amgoth, "An intelligent water drops-based workflow scheduling for IaaS cloud", **Applied Soft Computing (Elsevier)**, Vol. 77, pp. 547-566, 2019.

31. Mainak Adhikari and Tarachand Amgoth, "Heuristic-based load balancing algorithm for IaaS cloudHeuristic-based load balancing algorithm for IaaS cloud", **Future Generation Computing Systems (Elsevier)**, Vol. 81, pp. 156-165, 2018.

32. Praveen Kumar D., Tarachand Amgoth, Chandra Sekhar Annavarapu, "ACO-based mobile sink path determination for wireless sensor networks under non-uniform data constraints", **Applied Soft Computing (Elsevier)**, Vol. 68, pp. 528-540, 2018.

33. Dinesh Kumar Sah and Tarachand Amgoth, "Parametric survey on cross-layer designs for wireless sensor networks", **Computer Science Review (Elsevier)**, Vol. 27, pp. 112-134, 2018.

34. Madnesh K. Gupta and Tarachand Amgoth, "Power and resource-aware virtual machine placement for IaaS cloud", **Sustainable Computing (Elsevier)**, Vol. 19, pp. 50-62, 2018.

35. Dinesh K Sah, K Cengiz, PK Donta, VN Inukollu, Tarachand Amgoth "EDGF: Empirical dataset generation framework for wireless sensor networks", **Computer Communications(Elsevier)**, Vol. 23, pp. 8932 - 8940, 2022.

36. Dipak Kumar Sah and Tarachand Amgoth, "Harvested Energy Prediction Technique for Solar-Powered Wireless Sensor Networks", **IEEE Sensors Journal**, Vol. 22, pp. 8663 - 8671, 2022.

37. Abhishek Hazra, Tarachand Amgoth, M. Adhikari, and Satish Narayana Srirama, "Fog Computing for Energy-efficient Data Offloading of IoT Applications in Industrial Sensor Networks", **IEEE Sensors Journal**, Vol. 22, pp. 8663 - 8671, 2022.

38. Ramesh Kumar, Debjit Das, and Tarachand Amgoth, "Obstacle-aware connectivity establishment in wireless sensor networks", **IEEE Sensors Journal**, Vol. 21, pp. 5543 - 5552, 2020.

39. Praveen Kumar D. B. Sanjai Prasada Rao, Tarachand Amgoth, A.C.S. Rao, and Silpamayee, "Data collection and path determination strategies for mobile sink in 3D WSNs", **IEEE Sensors Journal**, Vol. 20, pp. 2224 - 2233, 2020.

40. Abishek and Tarachand Amgoth, Mainak Adhikari, Satish Srirama Narayana, "Fog Computing for Next-Generation Internet of Things: Architecture, Challenges and Future Trends", **Computer Science Review (Elsevier)**, Vol. 48, pp. 100549, 2023.

41. M. Mallikarjuna and Tarachand Amgoth, "A hybrid charging scheme for efficient operation in wireless sensor network", **Wireless Networks (SpringerNature)**, Vol. 31, pp. 1301 - 1320, 2025.

42. Dipak Kumar Sah and Tarachand Amgoth, "An Energy Efficient Coverage Aware Algorithm in Energy Harvesting Wireless Sensor Networks", **Wireless Networks (SpringerNature)**, Vol. 26, pp. 4723 - 4737, 2020.

43. Madana Srinivas and Tarachand Amgoth, "Data Acquisition in large-scale Wireless Sensor Networks using Multiple Mobile Sinks: A Hierarchical Clustering Approach", **Wireless Networks**, Vol. 28, pp. 603 - 619, 2022.

44. Sanjai Prasada Rao, Praveen Kumar D. and Tarachand Amgoth, "Target-aware distributed coverage and connectivity algorithm for wireless sensor networks", **Wireless Networks (SpringerNature)**, Vol. 29, pp. 1815 - 1830, 2023.

45. Prasannababu and Tarachand Amgoth, "Joint Mobile Wireless Energy Transmitter and Data Collector for Rechargeable Wireless Sensor Networks", **Wireless Networks(SpringerNature)**, Vol. 28, pp. 3563 - 3576, 2022.

46. Praveen Kumar D. B. Sanjai Prasada Rao, Tarachand Amgoth, A.C.S. Rao, and Silpamayee, "Data collection and path determination strategies for mobile sink in 3D WSNs", **IEEE Sensors Journal** , Vol. 20, pp. 2224 - 2233, 2020.

47. Dipak Kumar Sah and Tarachand Amgoth, "A Novel Efficient Clustering Protocol for Energy Harvesting in Wireless Sensor Networks", **Wireless Networks (SpringerNature)**, Vol. 26, pp. 4723 - 4727, 2020.

48. Ramesh Kumar and Tarachand Amgoth, "Adaptive cluster-based relay node placement for disjoint wireless sensor networks", **Wireless Networks (SpringerNature)**, Vol. 26, pp. 651 - 666, 2020.

49. Madnesh K. Gupta and Tarachand Amgoth, "Resource-aware virtual machine placement algorithm for IaaS cloud", **The Journal of Supercomputing (SpringerNature)**, Vol. 74, pp. 122 - 140, 2018.

50. Tarachand Amgoth and Prasanta K. Jana, "Energy-aware routing algorithm for wireless sensor networks", **Computers & Electrical Engineering (Elsevier)**, Vol. 41, pp. 357 - 367, 2015.

51. Mainak Adhikari, Tarachand Amgoth, and Satish Narayana Srirama, "A Comprehensive Survey on Nature-Inspired Algorithms and Their Applications in Edge Computing: Challenges and Future Directions", **Software: Practice and Experience**, Vol. 52, pp. 1004 - 1034, 2022.

52. Praveen Kumar D., Tarachand Amgoth, and S. N. Srirama, "iCoCoA: intelligent congestion control algorithm for CoAP using deep reinforcement learning", J. of Ambient Intelligence & Humanized Comp., Vol. 14, pp. 2951 - 2966, 2023.

53. Praveen Kumar D., Tarachand Amgoth, Chandra Sekhar Annavarapu, "An Extended ACO-based Mobile Sink Path Determination in Wireless Sensor Networks", J. of Ambient Intelligence & Humanized Computing, Vol. 12, pp. 8991 - 9006, 2021.

54. Madana Srinivas and Tarachand Amgoth, "Delay Tolerant Charging Scheduling By Multiple Mobile Chargers In Wireless Sensor Network Using Hybrid GSFO", J. of Ambient Intelligence & Humanized Computing, Vol. 14, pp. 16063 - 16079, 2021.

55. Prasannababu and Tarachand Amgoth, "Adaptive SSO Based Node Selection For Partial Charging In Wireless Sensor Network", Peer-to-Peer Networks and Applications (SpringerNature), Vol.10, pp. 66 - 78, 2021.

56. Tarachand Amgoth and Prasanta K. Jana, "Coverage-hole detection and restoration algorithm for wireless sensor networks", Peer-to-Peer Networks and Applications (SpringerNature), Vol.10, pp.66 - 78, 2017.
57. Tarachand Amgoth and Prasanta K. Jana, "Efficient Overlay Construction for Wireless Sensor Networks", Wireless Personal Communications (SpringerNature), Vol. 86, pp. 959 - 973, 2016.
58. Tarachand Amgoth and Prasanta K. Jana, "Energy and coverage-aware routing algorithm for wireless sensor networks", Wireless Personal Communications (SpringerNature), Vol. 81, pp. 531 - 544, 2015.
59. Sunil Kumar, Dheeraj Kumar, Praveen Kumar Donta and Tarachand Amgoth, "Land Subsidence Monitoring and Prediction using Modified PSInSAR and Recurrent Neural Networks", Stochastic Environmental Research and Risk Assessment: Accepted, 2021.
60. Korra Cheena and Tarachand Amgoth, and Gauri Shankar, "Proportional-integral-derivative controller-based self-healing of distribution system using wireless sensor networks in smart grid", International Journal of Communication System (Wiley): Accepted, 2022.
61. Madana Srinivas and Tarachand Amgoth, "EE-hHHSS: Energy Efficient Wireless Sensor Network with Mobile Sink Strategy Using Hybrid Harris Hawk- Salp Swarm Optimization Algorithm", International Journal of Communication System (Wiley): Accepted, 2020.

Conference:

1. Sai V. Rao, Tarachand Amgoth, A. Bhattacharya, "Dynamic Query Vision Transformers and Hierarchical Latent Compression: Advancing Real Time Surveillance systems", ETTIS 2025.
2. M Mathada, Tarachand Amgoth, "An Integrated Mobility-Oriented Wireless Charging Scheme for Wireless Sensor Network", AIIoT 2024.
3. A Hazra, M Adhikari, Tarachand Amgoth, "Dynamic service deployment strategy using reinforcement learning in edge networks", IC3SIS 2022.
4. Madana Srinivas, Praveen Kumar Donta, Tarachand Amgoth, Dynamic service deployment strategy using reinforcement learning in edge networks, OCIT 2021.
5. DK Sah, N Mazumdar, P Pal, T Amgoth, "A Comprehensive Study of Solar Energy Harvesting System in Wireless Sensor Networks", UPCON 2022.
6. Ramesh Kumar and Tarachand Amgoth, "Delaunay tetrahedron based connectivity approach for 3D wireless sensor networks", MISP 2022.
7. Dipak K. Sah and Tarachand Amgoth, "Target coverage area in energy harvesting wireless sensor networks", ICPCCT 2022.
8. Ramesh Kumar and Tarachand Amgoth, "Deployment of sensor nodes for connectivity restoration and coverage maximization in WSNs", WiSPNET 2021.
9. Madana Srinivas, Praveen Kumar Donta and Tarachand Amgoth, "Efficient Algorithms for Point and Area Sweep–Coverage in Wireless Sensor Networks", WiSPNET 2021.
10. Madana Srinivas, Praveen Kumar Donta and Tarachand Amgoth, "Finding the Minimum Number of Mobile Sinks for Data Collection in Wireless Sensor Networks", COMNETSAT 2020.

11. Biswa Mohan Sahoo, Tarachand Amgoth, and Hari Mohan Pandey, "A Modified Whale Optimization Based Energy Improvement Clustering for Wireless Sensor Networks", CONFLUENCE 2021.
12. Praveen Kumar D., Tarachand Amgoth, Chandra Sekhar Annavarapu, "Scheduled Virtual Machine Placement in IaaS Cloud: A MPSO Approach", IEMTRONICS 2020.
13. Biswa Mohan Sahoo, Tarachand Amgoth, and Hari Mohan Pandey, "Enhancing the network performance of wireless sensor networks on meta-heuristic approach: Grey Wolf Optimization", ICAAAIML 2020.
14. Madnesh K. Gupta, Ankit Jain, and Tarachand Amgoth, "Congestion-aware Data Acquisition with Q-learning for Wireless Sensor Networks", ICIIP 2019.
15. MK Gupta, Tarachand Amgoth, "Scheduled Virtual Machine Placement in IaaS Cloud: A MPSO Approach", ICIIP 2019.
16. Divya Singh and Tarachand Amgoth, "Joint Wireless Charging and Data Collection using Mobile Element for Rechargeable WSNs", GUCON 2019.
17. Shubham Vaishnav and Tarachand Amgoth, "Mobile Charger Scheduling using Partial Charging Strategy for Rechargeable WSNs", GUCON 2019.
18. Mainak Adhikari and Tarachand Amgoth, "Multi-Objective Accelerated Particle Swarm Optimization Technique for Scientific workflows in IaaS cloud", ISII 2018.
19. Madnesh K. Gupta and Tarachand Amgoth, "On-demand Virtual Machine Placement in Infrastructure Cloud", ICACCI 2018.
20. Madnesh K. Gupta and Tarachand Amgoth, "QoS-aware Virtual Machine Placement for Infrastructure Cloud", GUCON 2018.
21. Mainak Adhikari and Tarachand Amgoth, "An Enhanced Dynamic Load Balancing mechanism for task deployment in IaaS cloud", GUCON 2018.
22. Mainak Adhikari and Tarachand Amgoth, "Deadline-aware scheduling for scientific workflows in IaaS cloud", ICSICCS 2018.
23. Madnesh K. Gupta and Tarachand Amgoth, "Resource-aware algorithm for virtual machine placement in cloud environment", IC3 2016.
24. Mainak Adhikari and Tarachand Amgoth, "Efficient algorithm for workflow scheduling in cloud computing environment", IC3 2016.
25. Tarachand Amgoth and Prasanta K. Jana, "Energy-Aware Multi-level Routing Algorithm for Two-Tier Wireless Sensor Networks, ICDCIT 2014.
26. Tarachand Amgoth and Prasanta K. Jana, "EDCP: Efficient distributed clustering protocol for large-scale wireless sensor networks", ICECCS, 2013
27. Tarachand Amgoth and Prasanta K. Jana, "BDCP: A backoff-based distributed clustering protocol for wireless sensor networks", ICACCI 2013.
28. Tarachand Amgoth, V Kumar, A Raj, A Kumar, and Prasanta K. Jana, "An energy efficient load balancing algorithm for cluster-based sensor networks", INDICON 2012.

Short-Term Courses/FDPs/EDPs

Funding: **Total Revenue Generated Rs. 32,86,247.00:**

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: January - June 2025

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: July - December 2024

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: January - June 2024

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: July - December 2023

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: January - June 2023

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: January - June 2022

«-» Course Coordinator, *Knowledge Partner* Applied Cloud Computing, TCSiON, Year: July - December 2021

«-» Course Coordinator, *A Two-Week FDP on Sensor Networks and Internet of Things* , Year: 2019

«-» Course Co-Coordinator, *One Week National Training Programme on Wireless Sensor Networks* , Year: 2019

«-» Course Co-Coordinator, *A Short Term Course on Wireless Sensor Networks and Internet of Things* , Year: 2019

«-» Course Coordinator, *A Short Term Course on Wireless Sensor Networks with Recent Trends* , Year: 2019

«-» Course Coordinator, *A Short Term Course on Wireless Network Protocols & Algorithms* , Year:2019

«-» Course Co-Coordinator, *A Short Term Course on Advanced Algorithms & their Applications* , Year: 2019

Keynote Speaker /Invited Talks /Expert Lectures /Session Chair

«-» Keynote Speaker, *International Conference on Data Science, Machine Learning & Applications*, MBU, A.P, Year: 2024

«-» Session Chair, *RAIT 2025*, IIT ISM, Dhanbad, Year: 2025

«-» Expert Lectures, *Mastering AI and Emerging Technologies - Design and Build Intelligent Solutions*, IIT Dhanbad Certificate Programme Year: 2025

«-» Expert Lecture, *Unlocking the Potential of AI and IoT Integration*, Artificial Intelligence & Internet of Things: From Theory to Practice, MMTTC, IIT Patna, 2025

«-» Expert Lecture, *Driving Efficiency and Innovations for AI and IoT Integrations*, Artificial Intelligence & Internet of Things: The 4th Industrial Revolution, MMTTC, IIT Patna, 2025

«-» Expert Lecture, *AI Foundation for Geospatial Intelligence: From Core Concepts of AI to Applications for Sustainable Resources & Disaster Resilience*, Geospatial Intelligence for Natural Resources Mnagement and Disaster Mitigation. GIAN, IIT ISM Dhanbad, 2025

«-» Expert Lecture, *Neural Networks*, Two-Day Workshop on "Quantum Computing and Data Analytics. NMREC, Hyderabad, 2025

«-» Expert Lecture, *Driving Efficiency and Innovations for AI and IoT Integrations and Case Studies*, AI Innovations in Computer Vision, IoT, and Medical Imaging, E&ICT, NIT Warangal, 2025

«-» Expert Lecture, *Driving Efficiency and Innovations for AI and IoT Integrations and Case Studies*, Recent Trends in Computer Vision, IoT, and Medical Imaging: Applications and Research Perspectives, E&ICT, NIT Warangal, 2025

«-» Expert Lecture, *Driving Efficiency and Innovations for AI and IoT Integrations and Case Studies*, AI Innovations in Computer Vision, Medical Imaging and IOT: Emerging Trends and Research Perspectives, E & ICT, NIT Warangal, 2024.

«-» Expert Lecture, *Driving Efficiency and Innovations for AI and IoT Integrations and Case Studies*, AI/ML for Signal Processing & IoT Applications, E & ICT, NIT Warangal, 2024.

«-» Expert Lecture, *Driving Efficiency and Innovations for AI and IoT Integrations and Case Studies*, AI/ML for IoT & Computer Vision Applications, E & ICT, NIT Warangal, 2024.

Roles and Responsibilities

Institute Level:

1 Member, Executive Committee of TexMin Hub, Technology Innovation Hub (TIH), IIT, Dhanbad, Sponsored by DST, Govt. of India under NM-ICPS, 2023 - 2026

2 Member, Executive Committee of TexMin Hub, Technology Innovation Hub (TIH), IIT, Dhanbad, Sponsored by DST, Govt. of India under NM-ICPS, 2021 - 2023

3 Internship Coordinator, Institute Innovation Council 3.0 committee for the year 2020-21, IIT Dhanbad

4 Domain-Specific Coordinator, AI & Data Analytics, Technology Innovation Hub (TIH), IIT, Dhanbad, Sponsored by DST, Govt. of India under NM-ICPS, 2020 - continuing

5 Member, Naresh Vashisth Centre for Tinkering & Innovation, IIT Dhanbad, 2020 - continuing

6 Committee Member, Developing a multi-institutional, one-year blended Post-Graduate Diploma program for developing leaders for the Energy Resources industry, 2020 - continuing

7 Faculty Coordinator for Grand Challenge 2020, Sponsored by CIIE, IIT Dhanbad

8 SPOC for Smart Indian Hackathon (SIH), 2020

9 Faculty Coordinator for HackFest 2023, HackFest 2020, HackFest 2019

10 Faculty Coordinator for Organizing Samsung Innovation Award 2020 at IIT Dhanbad

11 Member Organizing Committee, IIT ISM Foundation Day, 2015 and 2017

12 Hostel Warden, Sapphire Hostel : 2013 and 2014

Department Level:

1 Chairman, Departmental Grievance Redressal Committee, July 2026 - Continuing

2 Member, Departmental Faculty Selection Committee, 2024 - Continuing

3 Faculty In charge, Departmental Website & Social Media, 2024-Continuing

4 Sponsorship Chair, RAIT 2025

5 Convener, Departmental Undergraduate Courses, 2022-Continuing

6 Departmental IT Coordinator, 2020

7 Faculty In charge, Training & Placement 2020 - Continuing

8 Faculty In charge, Computer Science & Engineering Society (CSES): 2011 to 2020

9 Faculty In charge, Innovation & Entrepreneurship, Department of Computer Science & Engineering.

10 Faculty In charge, Artificial Intelligence & Cyber Physical Systems Lab, Hardware Lab.

11 Member, Departmental Faculty Selection Committee, 2019 - 2021

12 Member, Departmental Undergraduate Courses, 2019- 2021

13 Member, Departmental NBA work, 2014-2016

14 Organizing Committee, International Conference RAIT 2012, 2014, 2016 and 2018

15 Faculty Coordinator, Udbhav (Annual Day): 2019, 2018, 2017, 2016, 2014, 2013, Confluence (Alumni Meet): 2017, 2016, 2014,

16 Faculty Advisor: Pre-final year DD (CSE). 2013-2019

Personnel Details

POB	Kothagudem, Telangana, India
DOB	07.11.1980
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