

Faculty Profile



Ms. A. Hema Malini, M.Tech., (Ph.D)
Assistant Professor (SG)/ECE

HIGHLIGHTS:

- Number of Journal Publications:37
- H-Index:6
- Project Funding Received: NIL
- Patents Published:2
- Patents Granted: 1

PROFESSIONAL LINKS:

- Scopus ID: 57750941600
- Scopus Link: <https://www.scopus.com/authid/detail.uri?authorId=57750941600>
- Google Scholar ID: lerWHAYAAAAJ
- Anna University Faculty ID: 269782
- AICTE Faculty ID: 1-479595425
- Anna University Supervisor ID: NIL
- LinkedIn: <https://www.linkedin.com/in/hema-malini-amirthalingam-280921112/>

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: 18 Years 4 Months
- Industrial Experience: 1 Year

INTERNATIONAL EXPOSURE:

- “Improved Companding Technique for Better PAPR Reduction in OFDM systems” in the International Conference on Advanced Technology in Engineering and Management (ICATEM’19) at Taylor’s School of Engineering, Malaysia on 19th February 2019.

AREA OF SPECIALIZATION:

- Mobile Communication
- Free Space Optical Communication
- Orthogonal Frequency Division Multiplexing(OFDM)

Ph.Ds AWARDED WITH DETAILS: NIL

Ph.Ds GUIDING:NIL

SPONSORED RESEARCH / FUNDING APPLIED / CONSULTANCY: NIL

PATENTS PUBLISHED/GRANTED:

- A System to Detect Battery Explosion in Electric Vehicles (Patent Published 16.06.2023)
- On Steering Driver Health Prediction with Vehicle Autonomous System (Patent Published 29.09.2023)
- Engine Control Unit with An Efficient Cooling System(Design Grant 02.05.2024).

COURSES CERTIFIED:

- Completed NPTEL Online Certification course on “Data Science for Engineers” from January 2026 to March 2026.
- Completed NPTEL Online Certification course on “Introduction to Machine Learning” from January 2026 to April 2026.
- Completed NPTEL Online Certification course on “Mathematical Foundations of Machine Learning” from January 2026 to April 2026.
- Completed NPTEL Online Certification course on “Deep Learning-IIT Ropar” from July 2025 to October 2025.
- Completed NPTEL Online Certification course on “Optical Wireless Communication for Beyond 5G Network and IoT” from January 2025 to April 2025.
- Completed NPTEL Online Certification course on “Ethical Hacking” from July 2023 to October 2023.
- Completed NPTEL Online Certification course on “Privacy and Security in Online Social Media ” from July 2023 to October 2023.
- Completed NPTEL Online Certification course on “Cloud Computing” from January 2023 to April 2023.
- Completed NPTEL Online Certification course on “Introduction to Internet of Things” from July 2022 to October 2022.
- Completed NPTEL Online Certification course on “Accreditation and Outcome Based Learning” from August 2022 to October 2022.
- Completed Online Certification course on “Introduction to Virtual reality” authorized by University of Colorado System and offered through Coursera.(May 2020).
- Completed Online Certification course on “Fundamentals of Network Communication” authorized by University of Colorado System and offered through Coursera.(June 2020).
- Completed IUCEE International Engineering Educator Certification October 2020.
- Completed Six months e-Learning Programme on Basic Psychology, Student Psychology, Counselling Skills, Methods of Counselling Students.(July 2019-December 2019).
- Completed NPTEL Online Certification course on “Principles of Modern CDMA/MIMO/OFDM Wireless Communication” from August 2019 to October 2019.
- Completed NPTEL Online Certification course on “Principles of Signal Estimation for MIMO/OFDM Wireless Communication” from July 2018 to October 2018.
- Completed Business English Certificate Preliminary level(August 2016).

ACHIEVEMENTS AND AWARDS:

- Best Teacher Award for 100% pass rate in the subject Digital Communication and Wireless Communication for the academic year 2017-2018.
- Academic Excellence award for producing Good result in Medical Electronics for the academic year 2015-2016 and 2016-2017.
- Best Teacher Award for 100% pass rate in the subject Cognitive Radio for the academic year 2014-2015.
- Best Teacher Award for 100% pass rate in the subject Electric Circuits and Electron Devices for the academic year 2011-2012.

SPECIAL SESSIONS DELIVERED:

Delivered Guest Lecture in Linear Integrated Circuits at Velammal Engineering College.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED:

- Six days online ATAL FDP on “Innovative Medical Healthcare using Augmented Reality and Virtual Reality”, at Gnanamani College of Technology from 20th January to 25th January 2025.
- Six days online ATAL FDP on “mmWave Technologies”, at Vivekanand Education Society's Institute of Technology from 13th January to 18th January 2025.
- Six days online ATAL FDP on “Recent trends in 5G/6G Wireless Communication”, at Samskruti College of Engineering and Technology from 6th January to 11th January 2025.
- Eight days online FDP on " Research Methodology and Pedagogy of Writing, Project Funding" at Mohamed Sathak A.J. College of Engineering from 29th January to 6th February 2024.
- One Week online FDP on "Recent Trends in Artificial Intelligence" at Bhupal Nobel's University from 22nd January to 27th January 2024.
- Seven days online FDP on " Latest Trends and Techniques in Software Engineering: An Industry Perspective" at Christ (Deemed to be University) from 20th January to 27th January 2024.
- Two days workshop on” CADENCE EDA Tools”, at Saveetha Engineering College on 11th and 12th January 2024.
- Completed the industrial training program on "Implementation of Internet of Things" conducted by TripleM Infotech Solutions Ltd from 17th July 2023 to 24th July 2023.
- Five days online FDP on “The Trends of Research and Development of Electronics and Communication Area” organized by National Institute of Technology, ATAL from 17th January to 21th January 2022.
- Six days FDTP on "Wireless Communication" at Sri Venkateswara College of Engineering from 2-12-2019 to 7-12-2019.
- IEEE National Workshop on RF Component Measurement using VNA @8GHz on 7th September 2019 at Saveetha Engineering College.
- Attended IEEE Photonics Society Sponsored three days National Seminar Cum Workshop on Frontiers in Photonics and Optical Communication-SCWFPOC 2019 on 24th -26th September 2019 at Saveetha Engineering College.

- DSTSERB Sponsored National Seminar on “Control Strategy Prediction Between Conventional and Intelligent Controller” at Saveetha Engineering College from 18th to 24th April 2018.
- One day FDP on” Skill Development in Research,Projects and Patent Filing” at Saveetha Engineering college on 17th February 2018.
- Two Days National Level Seminar on” Technological Evolution in Sensor Equipment for Medical Application”,at Nandha Engineering college from 8th February 2018 to 9th February 2018.
- Two week AICTE approved FDP on “Foundation Program in ICT for Education-FDP101x”, organised by IIT Bombay from 3rd August to 7th September 2017.
- Two week AICTE approved FDP on “Pedagogy for online and Blended teaching-Learning Process –FDP201x”, organised by IIT Bombay from 14th September to 12th October 2017.
- One day FDP on ‘Insights into Research’ conducted by SRM University, on June 29,2017.
- Two Week ISTE STTP CMOS, Mixed Signal and Radio Frequency VLSI Design by IIT Kharagpur, sponsored by NMEICT, MHRD from January 30 ,2016 to February 4,2017.
- Two days FDP on “The Internet of Things” using Raspberry PI conducted by Pantech at Sree Sastha Institute of Engineering and Technology, Chennai on 3rd and 4th November 2016.
- Five days FDTP on “VLSI Design”, at SNN college of Engineering on 04th to 8th January 2016.
- One day workshop on” Queuing Theory”, at Saveetha Engineering College on 27th November 2015.
- ISTE –STTP on “Technical Communication For Scientists And Engineers” Organised by IIT Bombay at Saveetha Engineering College from 8th October 2015 to 18th November 2015.
- Two week ISTE Workshop on “Computer Networking” ,Organized by IIT Bombay at Saveetha Engineering College from 30th June to 5th July 2014.
- Two week ISTE Workshop on ” Signals and Systems” , Organised by IIT Kharagpur at Saveetha Engineering College from 2nd to 12th January 2014.
- Seven days FDP on ” Linear Integrated Circuits” at Karpa Vinayaga college of Engineering and Technology from 2nd to 8th December 2013.
- Seven days FDP on ” Mobile Communication”, at Saveetha engineering College from 26th June to 3rd July 2013.
- Two Day ISTE Workshop on Aakash for Education organized by IIT Bombay at Saveetha Engineering College on 10th and 11th November 2012.
- Five days workshop on “Mission 10X”, at Saveetha Engineering College from 14th to 18th May 2012.
- Two days FDP on “Pspice & NS-2”, at saveetha school of Engineering on 10th and 11th November 2010.
- One day workshop on “Microsystem Packaging”, at Saveetha Engineering College on 14th July 2009.
- Regional Level Faculty Workshop on “Matlab Programming” at Saveetha Engineering College on 19th July 2008.

PROFESSIONAL MEMBERSHIPS:

- **The Indian Society For Technical Education (ISTE)** Life Member No:109080

OTHER DETAILS :

Workshop/FDP Organized:

- Organized Online Workshop on "Internet of Things" from 13th to 17th July 2020.
- Organized Online Workshop on "Artificial Intelligence in Healthcare" on 9th July 2020.
- Organized Online Workshop on “Building Your Own Computer Controlled Robots” from 13th to 17th May 2020.
- Organized Workshop on "IoT - Arduino" at Saveetha Engineering College on 6th and 7th September 2019.
- Organized Workshop on “Advances in Antenna Theory and Design” at Saveetha Engineering college on 15th March 2018.
- Organized Guest Lecture on Career Opportunities and Personality Development on 27th July 2015.
- Organized Guest Lecture in Linear Integrated Circuits on 26th February 2014.

Journal Publications:

- Aravind, T. & **Hema Malini A** & Kalaivani, C.T. & Archana, T., 2026. "Transformer-based power forecasting and federated learning-driven fault detection with a quantum-inspired solar power optimization in smart grids," Energy, Elsevier, vol. 361(C).
- **Hema Malini A**, Selvi, M., Archana, T & Aravind, T, “Integrated resilience-enhanced OFDM-FSO system with spatiotemporal equalization and beam steering compensation under atmospheric turbulence,” Eur. Phys. J. Plus **141**, 256 (2026). <https://doi.org/10.1140/epjp/s13360-026-07439-5>.
- Kalaivani. C T, Swathi. S, Ranjitha. C and **Hema Malini A**, "Machine Learning and Deep Learning for Antenna Design Optimization: A Structured Survey and Comparative Study," 2026 1st International Conference on AI, Data Science, Cyber Security and Smart Manufacturing for Sustainable Development (ICADCS), Gwalior, India, 2026, pp. 1-6, doi: 10.1109/ICADCS70036.2026.11583756.
- **Hema Malini A**, Kalaivani. C. T., Archana. T, Devan. L and Lokeshwaran. K, "Smart Conversational System for Air Pollution Awareness and Precaution Recommendation," 2026 7th International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), Tirunelveli, India, 2026, pp. 2043-2048, doi: 10.1109/ICICV68925.2026.11554651.
- Praveen. G, P. Narendra, T. Archana, Kalaivani. C T, **Hema Malini A** and T. Vaishnavi, "Hybrid RF/Optical Wireless Sensor Networks with Self-Adaptive Energy Harvesting and Load Balancing," 2026 Second International Conference on Multi-Agent Systems for Collaborative Intelligence (ICMSCI), Erode, India, 2026, pp. 1199-1205, doi: 10.1109/ICMSCI67830.2026.11469376.

- Vignesh. M, Rubesh. V, Archana. T, H. **Hema Malini A** and Kalaivani. C. T, "Energy-Aware Topology Reconfiguration using Bio-Inspired Algorithms in Large-Scale Heterogeneous Wireless Sensor Networks," 2026 International Conference on AI-Driven Smart Systems and Ubiquitous Computing (ICAUC), Pathum Thani, Thailand, 2026, pp. 264-270, doi: 10.1109/ICAUC68182.2026.11440968.
- Kalaivani. C T., **Hema Malini A.**, Archana T, Radhakrishnan. T and Krishna. M, "AtmosFlux-NetX: A Multimodal Spatio-Temporal Fusion Model for Ultra-Fine Air Pollution Reconstruction," 2026 7th International Conference on Mobile Computing and Sustainable Informatics (ICMCSI), 2026, pp. 518-525, doi: 10.1109/ICMCSI67283.2026.11412854.
- Jayasurya, R., Kirankumar, K., Archana, T., **Hema Malini, A.** (2026). "Integrating Transfer Learning and CNN for Object Detection in Autonomous Vehicles," International Conference on Power Electronics and Renewable Energy Systems. ICPERES 2024. Lecture Notes in Electrical Engineering, vol 1465. Springer, Singapore. https://doi.org/10.1007/978-981-95-0207-3_24
- Vishwa, S., Mohammed Habees, J., Archana, T., **Hema Malini, A.** (2026). "Design and Simulation of QAM Modulator and Demodulator for 5G Wireless Systems," International Conference on Power Electronics and Renewable Energy Systems. ICPERES 2024. Lecture Notes in Electrical Engineering, vol 1465. Springer, Singapore. https://doi.org/10.1007/978-981-95-0207-3_33
- Archana, T., Aravind, T., **Hema Malini A**, Kalaivani. C T., "Energy-Aware Adaptive Obstacle Avoidance Based on Meta-Reinforcement Learning with Segmentation for UAV Trajectory Planning," Int. Journal of Aeronautical and Space Sciences. Vol.27, 598–618 (2026). <https://doi.org/10.1007/s42405-025-00950-6>
- **Hema Malini A**, Elakkiya Sri. A. U and Sivasankari. S, "Health Anomaly Detection in Livestock Using UWB-Based Gait Stability Index (GSI)," 2025 International Conference on Emerging Research in Computational Science (ICERCS), Coimbatore, India, 2025, pp. 1-7, doi: 10.1109/ICERCS65898.2025.11580766.
- C. T. Kalaivani, **A. Hema Malini**, T. Archana, M. Krishna and T. Radhakrishnan, "Enhanced Vehicle Detection in Dense Urban Traffic Using an Optimized YOLO Framework," 2025 10th International Conference on Smart Structures and Systems (ICSSS), Chennai, India, 2025, pp. 1-7, doi: 10.1109/ICSSS66939.2025.11346128.
- **Hema Malini A**, Lokeshwaran. K and Devan. L, "Neuro-Semantic Federated Meta-Optimization Framework for Quantum-Assisted Predictive Cognition in Self-Evolving Cyber-Physical Infrastructures," 2025 4th International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, 2025, pp. 1228-1237, doi: 10.1109/ICACRS67045.2025.11324373.
- **Hema Malini A** and G. k, "Fundus Analysis for Point-of-Care Triage Automated Detection with Deep Residual Neural Networks Model Enhancing Eye Diagnosis," 2025 4th International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, 2025, pp. 1127-1132, doi: 10.1109/ICACRS67045.2025.11324327.
- T. Archana, **Hema Malini A**, S. S. Nath, D. B. Prakash, R. K. Kumar and S. Kumaran, "A CNN-LSTM Framework for Real-Time Dissolved Oxygen Prediction in Aquaculture Systems," 2025 7th International Conference on Inventive Material Science and

Applications (ICIMA), Namakkal, India, 2025, pp. 1343-1348, doi: 10.1109/ICIMA64861.2025.11074185.

- P. Kousalya, M. Lavanya, T. Archana and **Hema Malini A**, "A Robust System for Data and Image Privacy Using AES Algorithm," 2025 6th International Conference on Inventive Research in Computing Applications (ICIRCA), Coimbatore, India, 2025, pp. 641-646, doi: 10.1109/ICIRCA65293.2025.11089517.
- **Hema Malini A**, M. V. B. P. Reddy and B. V. R. V. Reddy, "An IoT-Enabled Intelligent Biofloc Monitoring Framework for Aquaculture with Machine Learning," 2025 6th International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), Tirunelveli, India, 2025, pp. 1726-1732, doi: 10.1109/ICICV64824.2025.11085880.
- **Hema Malini A**, B. P. Babu and K. S. Logesh, "Enhancing Autonomous Vehicle Navigation: Traffic Police Hand Gesture Recognition for Self-Driving Cars in India using MoveNet Thunder," 2025 6th International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), Tirunelveli, India, 2025, pp. 1708-1715, doi: 10.1109/ICICV64824.2025.11086072.
- T. Archana, **Hema Malini A**, R. Kishore Kumar, D. B. Prakash, S. Kumaran and S. S. Nath, "Smart Factory Integration with IIoT and Machine Learning for Optimized Manufacturing," 2025 5th International Conference on Trends in Material Science and Inventive Materials (ICTMIM), Kanyakumari, India, 2025, pp. 1243-1248, doi: 10.1109/ICTMIM65579.2025.10988051.
- Janaki K, Srinivasan C, **Hema Malini A**, "FPGA-enhanced system-on-chip for finger vein-based biometric system using novel DL model", Integration Volume 98, September 2024, 102231. <https://doi.org/10.1016/j.vlsi.2024.102231>.
- **A Hema Malini**, K S Logesh and B Praveen Babu, "Conveyor based Kinetic Energy Conservation using Dynamo-Driven Rollers", 2024 3rd International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, DOI: 10.1109/ICACRS62842.2024.10841684.
- **Hema Malini A**, Archana T, Rohini M, Lakshana D and Jayashree P, "Automated Tomato Classification using CNN-ELM with Enhanced Whale Optimization for Grading", 2024 3rd International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, DOI: 10.1109/ICACRS62842.2024.10841684.
- **A. Hema Malini**, M.Selvi, "Dual-Discriminator Conditional Generative Adversarial Network-based LDPC-Coded OFDM Free-Space OCS for Improving BER Analysis", IETE Journal of Research, 2024, DOI 10.1080/03772063.2024.2434590.(Scopus, AU Annexure)
- V. Sandhiya, J. Sandhiya, **A. Hema Malini**, and T. Archana, "Enhanced Accuracy in Underwater Communication Prediction Utilizing LSTM Over RNN for Improved Efficiency", 2023 2nd International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, DOI: 10.1109/ICACRS58579.2023.10405129.
- Anish, S. R, **A. Hema Malini**, and T. Archana, "Enhancing Surveillance Systems with YOLO Algorithm for Real-Time Object Detection and Tracking", 2023 2nd International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, DOI: 10.1109/ICACRS58579.2023.10404710.

- S. Kishore, S. Sumanth, T. Archana, **A. Hema Malini**, G. Saranya, “IoT-Enabled Emergency Medical Service Alert System for Smart Cities”, 2023 9th International Conference on Smart Structures and Systems (ICSSS), Chennai, India, DOI: 10.1109/ICSSS58085.2023.10407705.
- Rupashri D, Saranya H, **A. Hema Malini**, and T. Archana, “Solar Powered Virtual Climatology Information System for Modern Airports”, 2023 9th International Conference on Smart Structures and Systems (ICSSS), Chennai, India, DOI: 10.1109/ICSSS58085.2023.10407090.
- M. Vanitha, K. Arunkumar, **A. Hema Malini**, A. Yaswanth, “A smart IOT based black-box system for automobiles”, Journal of Physics: Conference Series, 2023, 2484(1), 012052.
- **A Hema Malini**, S Mohith, B Siva Prasad, K S Chandu Kumar, “Efficiency and Computation of WiMAX OFDM using Millimeter Wave and Smart Antennas” 5th International Conference on Smart Systems and Inventive Technology, ICSSIT 2023. DOI: 10.1109/ICSSIT55814.2023.10060978.
- **A. Hema Malini**, Sudarshan. G, Satesh Kumar. G, Sumanth. G “Non - Contact Heart Rate Monitoring System using Deep Learning Techniques”, IDCIoT 2023 - International Conference on Intelligent Data Communication Technologies and Internet of Things, 2023, pp. 483–486. DOI: 10.1109/IDCIoT56793.2023.10053467.
- **A. Hema Malini**, Yashwanth G, Yellamrajujithendra, Venkataramana Y, “An Efficient and Robust Breast Cancer Detection in Mammogram Image using Improved Threshold Extraction Method”, International Conference on Automation, Computing and Renewable Systems, ICACRS 2022, pp. 1188–1193. DOI: 10.1109/ICACRS55517.2022.10029210.
- **A. Hema Malini**, M. Selvi, “BER Performance Analysis of OFDM Based Free Space Optical Communication System using μ -Law and A-Law Methods”, 2022 13th International Conference on Computing Communication and Networking Technologies, ICCCNT 2022, DOI: 10.1109/ICCCNT54827.2022.9984229.
- K Naresh Kumar Thapa, **A Hema Malini**, Kalaimani A, Sathiyandrakumar Srinivasan, “A Comprehensive Analysis for Implementing IoT on LTE Systems”, International Conference on Applied Artificial Intelligence and Computing, ICAAIC 2022. DOI: 10.1109/ICAAIC53929.2022.9793086
- **A. Hema Malini**, M.D. Praveen, P. Suresh Babu, P. Prudhvi Sai,” Sand Theft Prevention Using RSSI based Relative Positioning and Tracking System”, 8th International Conference on Smart Structures and Systems, ICSSS 2022. DOI: 10.1109/ICSSS54381.2022.9782300
- K. Anitha, G. Keerthiga, **A. Hema Malini**, “Plant Health Monitoring System Through Image Processing and Defects Overcoming Through Embedded System” in International Journal of Recent Technology and Engineering (IJRTE) Volume 8, Issue 1, May 2019, Page No: 406-408. ISSN No: 2277-3878.
- **A. Hema Malini**, D. Fercy Filona Selvi, “Congestion Adaptive Routing Technique for 2D NOC”, in International Journal of Applied Engineering Research, Volume 10, Number 7 and 2015, ISSN: 0973-4562.
- S. Tamilselvan, **A. Hema Malini**, K. Manivannan, “Performance analysis of fast handoff algorithms using Local averaging technique in Cellular Networks”, in 1st International

