

## **Faculty Profile**



**Ms. T. Archana, M.E., (Ph.D)**  
Assistant Professor (SG)

### **HIGHLIGHTS:**

- Number of Journal Publications: 49
- H-Index: 4
- Project Funding Received: NIL
- Patents Published: 6
- Patents Granted: 1

### **PROFESSIONAL LINKS:**

- Scopus ID: 57203896001
- Scopus Link: <https://www.scopus.com/authid/detail.uri?authorId=57203896001>
- Google Scholar ID: 6nBQDjUAAAAJ
- Anna University Faculty ID: 2122209
- AICTE Faculty ID: 1761681062
- Anna University Supervisor ID:
- LinkedIn: <https://www.linkedin.com/in/ms-t-archana-1bb1a5257/>

### **PROFESSIONAL BACKGROUND:**

- Teaching Experience till date: 16
- Industrial Experience: NIL

### **INTERNATIONAL EXPOSURE:**

- XXXXX
- YYYYYY
- ZZZZZZ.

**AREA OF SPECIALIZATION:**

- Microprocessor And Microcontrollers
- Digital Systems
- Embedded System
- Mems
- Microfluidics

**Ph.Ds AWARDED WITH DETAILS:**

| S:No | Name of Scholar | Title of Thesis                                                         | Year of Completion | Full Time/Part Time |
|------|-----------------|-------------------------------------------------------------------------|--------------------|---------------------|
| 1    | ARCHANA T       | PDMS based Microchannel design for controlled drug delivery application | 2026               | PART TIME           |
|      |                 |                                                                         |                    |                     |

**Ph.Ds GUIDING:**

- Full Time Scholars: NIL
- Part Time Scholars : NIL

**SPONSORED RESEARCH / FUNDING APPLIED / CONSULTANCY:**

NIL

**PATENTS PUBLISHED/GRANTED:**

- T.ARCHANA, N. NACHAMMAI, S.PRAVEENKUMAR, “DRUG DELIVERY DEVICE FOR NEONATAL CARE UNIT”, Application no: 202341058193 A (2023).
- Dr. C. T. KALAIVANI , T.ARCHANA, “FOREIGN OBJECT DEBRIS ON THE AIRPORT RUNWAYS USING CNN BASED MODEL”, Application No: 202341061554 A (2024).
- Dr. C. T. KALAIVANI , T.ARCHANA “: UNDERWATER IMAGE NOISE CANCELLATION USING GAN-CLAHE & NBSP; DEEP LEARNINGMODEL”, Application No: 202341061556 A (2024).
- SRINIVASAN C, HEMA MALINI A, T.ARCHANA ,“MODEL OF SMART DIGITAL PILLS FOR REAL TIME IN BODY LOCALIZATION”, Application No:202341028168 A (2023).
- SRIGITHA S NATH, , T.ARCHANA, “IOT ENABLED MICROWAVE FOR BAKING SYSTEM”, Application No: 406005-01 (2024). **GRANTED**

**COURSES CERTIFIED:**

- Deep Learning – 12 Weeks (Jul–Oct 2025) – Score: 81%
- Introduction to Large Language Models (LLMs) – 12 Weeks (Jul–Oct 2025) – Score: 73%
- Introduction to Machine Learning – 12 Weeks (Jan–Apr 2025) – Score: 64%
- Learning Analytics Tools – 12 Weeks (Jul–Oct 2025) – Score: 76%

- Data Science for Engineers – 8 Weeks (Jul–Sep 2025) – Score: 71%
- Python for Data Science – 4 Weeks (Jan–Feb 2025) – Score: 84%
- Designing Learner-Centric MOOCs – 4 Weeks (Jan–Feb 2023) – Score: 73%
- Accreditation and Outcome-Based Learning – 8 Weeks (Aug–Oct 2022) – Score: 75%
- International Engineering Educator Certification Program – IUCEE
- Served as a Faculty Mentor for the course Entrepreneurial Thinking from January 2022 to June 2022.
- Successfully completed a six-month course in Mentoring offered by the Coimbatore Psychology Foundation in December 2019.
- Successfully completed a six-month course in Student Counselling offered by the Coimbatore Psychology Foundation in November 2014.

## ACHIEVEMENTS AND AWARDS:

- Published 49 Scopus-indexed research papers
- Achieved h-index of 8
- Published in high-impact international journals including:
  - Journal of King Saud University – Science (IF 3.6)
  - Journal of Materials Science: Materials in Electronics (IF 2.9)
  - International Journal on Interactive Design and Manufacturing (IF 2.5)
- NPTEL Domain Certification in Data Science (Computer Science)  
Awarded for successful completion of a structured set of NPTEL-certified courses in Data Science under the SWAYAM initiative
- NPTEL Believer Award – NPTEL (SWAYAM)  
Recognized for successfully completing multiple NPTEL-certified courses through proctored examinations.
- IGIP International Engineering Educator Certification (Ing.Paed.IGIP)

International Society for Engineering Pedagogy, Vienna, Austria | December 2022

Awarded the prestigious *IGIP International Engineering Educator* certification upon successful completion of the accredited engineering pedagogy program, recognizing international standards in engineering education, curriculum design, and outcome-based teaching methodology.

- Received *Certificate of Appreciation* from Indo Universal Collaboration for Engineering Education (IUCEE Foundation) for serving as Faculty Mentor in the IUCEE NEP Program – “Entrepreneurial Thinking” (Jan–June 2022)
- Served as core organizing committee member for 10 International conferences.
- Served as Conference Coordinator for three International Overseas Conferences.

## SPECIAL SESSIONS DELIVERED:

- NIL

## CONFERENCES/SEMINARS/WORKSHOPS ATTENDED:

- Kalaivani Ravisundar; Nadar Akila P. Mohan; **T. Archana**; R. Renugadevi; M. Rohini; V. Rosemitta (2024). Wireless sensor network based smart greenhouse by using internet of things. ARTIFICIAL INTELLIGENT SYSTEMS FOR SUSTAINABLE SOLUTIONS
- **T. Archana**; C. T. Kalaivani; C. Nachammai (2024). Analysis of multi-parameter in underground mines for miners safety monitoring system based on wireless sensor technology. ARTIFICIAL INTELLIGENT SYSTEMS FOR SUSTAINABLE SOLUTIONS, Melvisharam, India
- **Archana, T.**, Nachammai, N., Praveenkumar (2023). PDMS based microchannel design for intraocular drug delivery system. COMPUTATIONAL ENGINEERING AND MACHINE LEARNING ALGORITHMS, 17–18 November 2022, Kollam, Kerala
- Anish, S. R, A. Hema Malini, and **T. Archana** (2023). Enhancing Surveillance Systems with YOLO Algorithm for Real-Time Object Detection and Tracking. 2nd International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, DOI: 10.1109/ICACRS58579.2023.10404710
- V. Sandhiya, J. Sandhiya, A. Hema Malini, and **T. Archana** (2023). Enhanced Accuracy in

Underwater Communication Prediction Utilizing LSTM Over RNN for Improved Efficiency. 2nd International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, DOI: 10.1109/ICACRS58579.2023.10405129

- S. Kishore, S. Sumanth, **T. Archana**, A. Hema Malini, G. Saranya (2023). IoT-Enabled Emergency Medical Service Alert System for Smart Cities. 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** (2023). Solar Powered Virtual Climatology Information System for Modern Airports. 9th International Conference on Smart Structures and Systems (ICSSS), Chennai, India, DOI: 10.1109/ICSSS58085.2023.10407090
- **Archana, T.**, Nachammai, N.Praveenkumar (2023). PDMS based microchannel design for intraocular drug delivery system. Kollam, Kerala, DOI: <https://doi.org/10.1063/5.0171025>
- Saranya, G., Sivamangai, N. M., Indhumathi, G., Naveenkumar, R., Nithya, S., & **Archana, T.** (2023). Parameter Analysis Review on Multiple Quantum Well based InGaN/GaN Light Emitting Diode. 9th International Conference on Smart Structures and Systems (ICSSS)
- **Archana, T.**, Karunya, I., Krithika, R., & Subiksha, V. (2023). Design And Optimization Of Microchannel For Neonatal. International Conference on Computer Communication and Informatics (ICCCI)
- T, P. Dimple, **Archana, T.**, P. Balu, and P. Jude, (2023). An Experimental model of Smart Digital Pills for real time in-body localization. International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering (ICECONF), Chennai, India, DOI: 10.1109/ICECONF57129.2023.10083540
- V. P. Sriram, D. Kamalakkannan, **T. Archana**, A. Gopatoti, B. Swapna, and A. S. Yadav (2022). Design of Voice based Virtual Assistant using Internet of Things. International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), Trichy, India, DOI: 10.1109/ICAISS55157.2022.10010805
- M. Vanitha, C. S. Joice, M. Selvi, **T. Archana**, and S. Kavitha (2022). Secured IoT based Smart Vehicle Tracking System. Sixth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), Dharan, Nepal, DOI: 10.1109/I-SMAC55078.2022.9987279.
- D. Jaganathan, **T. Archana**, S. Saranya, and S. Srinivasan (2022). Performance Assessment of Routing Protocols in an Internet of Things by communicating in a Wireless Sensor Networks. 6th International Conference on Intelligent Computing and Control Systems (ICICCS), Madurai, India

## PROFESSIONAL MEMBERSHIPS:

- IETE Life Member
- Indian Society of Technical Education (ISTE) Life Member

## OTHER DETAILS (If any):

## JOURNAL PUBLICATIONS

1. **Archana, T.**, Sasidevi, J., Kumar, C. V., Sasikala, G., Nunna, P. K., & Upadhyay, S. (2026). Rational design of  $\text{ZnCo}_2\text{O}_4/\text{g-C}_3\text{N}_4$  heterostructures toward high-performance  $\text{CO}_2$  gas sensing. *Research on Chemical Intermediates*, 52(10), 7065–7086.  
<https://doi.org/10.1007/s11164-026-06105-w>
2. Aravind, T., Malini, A. H., 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*, 361, Article 141961.  
<https://doi.org/10.1016/j.energy.2026.141961>
- 3.

4. **Archana, T.**, Aravind, T., & Kalaivani, C. T. (2026). EABAC-IoT: Decentralized multi-agent scheduling and optimization for heterogeneous IoT networks. *Computer Networks*, 288, Article 112597. <https://doi.org/10.1016/j.comnet.2026.112597>
5. Hema Malini, A., Selvi, M., **Archana, T.**, & Aravind, T. (2026). Integrated resilience-enhanced OFDM-FSO system with spatiotemporal equalization and beam steering compensation under atmospheric turbulence. *The European Physical Journal Plus*, 141(3), Article 256. <https://doi.org/10.1140/epjp/s13360-026-07439-5>
6. **Archana, T.**, Nachammai, N., Praveen Kumar, S., & Kumaran, S. (2025). Numerical modeling of a PDMS-based microfluidic channel for precision drug delivery system. *Digest Journal of Nanomaterials and Biostructures*, 20(4), 1639–1663. <https://doi.org/10.15251/DJNB.2025.204.1639>
7. **Archana, T.**, Aravind, T., Malini, A. H., et al. (2026). Energy-aware adaptive obstacle avoidance based on meta-reinforcement learning with segmentation for UAV trajectory planning. *International Journal of Aeronautical and Space Sciences*, 27, 598–618. <https://doi.org/10.1007/s42405-025-00950-6>
8. Kalaiselvi, B. J., Suruthy, R., Pandi, V. S., **Archana, T.**, et al. (2026). Spin-tailoring of  $\text{ZnFe}_2\text{O}_4$  via vanadium and cerium doping for quantum dot-sensitised solar cell applications. *Journal of Materials Science: Materials in Electronics*, 37, Article 81. <https://doi.org/10.1007/s10854-025-16509-w>
9. Kumar Saidala, R., **Archana, T.**, Paul, A., Kumar Reddy, N., Sathish, T., Al-Kahtani, A. A., Prakash, C., Shahazad, M., Sehgal, S. S., & Yusuf, M. (2024). Surface properties enhancements by optimizing synthesizing parameters of  $\text{AA8026} + \text{Zr}_2\text{O}_3/\text{TiO}_2$  hybrid composite. *Journal of King Saud University – Science*, 36(7), Article 103266. <https://doi.org/10.1016/j.jksus.2024.103266>
10. **Thiruvarasamoorthy, A.**, Nachammai, N., & Praveenkumar, S. (2024). Optimizing microchannel aspect ratios for enhanced neonatal intravenous drug delivery systems. *International Journal on Interactive Design and Manufacturing*, 1–8. <https://doi.org/10.1007/s12008-024-01927-7>
11. **Thiruvarasamoorthy, A.**, Nachammai, N., & Praveenkumar, S. (2024). Optimizing microfluidic channel design with high-performance materials for safe neonatal drug delivery. *Recent Advances in Drug Delivery and Formulation*, 18(4), 294–303. <https://doi.org/10.2174/0126673878292962240718055526>
12. **Archana, T.**, Nath, S. S., & Praveenkumar, S. (2020). Development of robotic arms through hand gesture recognition using Leap Motion sensor. *Journal of Computational and Theoretical Nanoscience*, 17(4), 1889–1893.
13. **Thiruvarasamoorthy, A.**, Kumar, K. A., & Hema, A. (2017). Delay depreciation and power efficient carry look-ahead adder using CMOS. *Journal of Chemical and Pharmaceutical Sciences*.
14. Karthick, S., **Thiruvarasamoorthy, A.**, & Prakasam, R. (2015). Area minimized FFT architecture using split radix algorithm for length  $L = \text{radix-3}$  and  $\text{radix-2BX3C}$ . *ARPJ Journal of Engineering and Applied Sciences*, 10, 4588–4594.

