

Faculty Profile



Dr. A. R. Kalaiarasi, M.E., Ph.D
Professor, EIE

HIGHLIGHTS:

- Number of Journal Publications: 18
- H-Index:03
- Project Funding Received:10,000 (TNSCST)
- Patents Published:4
- Patents Granted:-

PROFESSIONAL LINKS:

- Scopus ID: 54393462300
- Scopus Link: <https://www.scopus.com/authid/detail.uri?authorId=54393462300>
- Google Scholar ID:
<https://scholar.google.com/citations?user=60VVBI4AAAAJ&hl=en>
- Anna University Faculty ID: 2122218
- AICTE Faculty ID: 1-2189171539
- Anna University Supervisor ID: 2530028
- LinkedIn: <https://scholar.google.com/citations?user=60VVBI4AAAAJ&hl=en>

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: 18.6 years
- Industrial Experience: 01

INTERNATIONAL EXPOSURE:

NIL

AREA OF SPECIALIZATION:

- MEMS
- Electrical Drives and Control, Control systems.
- Electric Vehicles
- Smart Grid
- Photovoltaic devices
- IOT

Ph.Ds AWARDED WITH DETAILS:

Nil

Ph.Ds GUIDING:

- Full Time Scholars: Nil
- Part Time Scholars : 02

SPONSORED RESEARCH / FUNDING APPLIED / CONSULTANCY:

- Dr.A.R.Kalaiarasi and M.Kalaiarasi,S.Aarthi S.Charupriya, Design and Modelling of Halogen based Menstrual Waste Dispenser from IEI (India) received Rs.10,000.

JOURNAL PUBLICATIONS:

1. Kalaiarasi A.R et. Al, "IOT Based Smart PV Panel Monitoring System", International Journal of Reconfigurable and Embedded Systems, **International Journal of Reconfigurable and Embedded Systems**, 2024, 13(2), pp. 341–351.
Kalaiarasi A.R et. al, "Microsensor for Cancer Detection and MEMS Actuator for Cancer Therapy", Transactions on Electrical and Electronic Materials, <https://doi.org/10.1007/s42341-022-00421-9> ,Scopus Indexed.
2. Kalaiarasi A.R et. al, "Design, Simulation, and Analysis of Micro/Nanoelectromechanical System Rotational Devices", Hindawi, Journal of Nanomaterials, Volume 2021, Article ID 6244874, pp 1-13. <https://doi.org/10.1155/2021/6244874>(SCI Indexed, Scopus Indexed, Anna university Annexure.
3. Kalaiarasi A.R et. al, "Design and Fabrication of Infrared based Menstrual Waste Dispenser", Eleyon, Engineering Reports,Vol. 1 Iss. 2, PP.83-86, 2018
4. Kalaiarasi A.R et. al, "Design and Development Mems Based Microneedle for Transdermal Drug Delivery System", Eleyon, Engineering Reports,Vol. 1 Iss. 2, PP. 103-110, 2018
5. Kalaiarasi et al. "Design, Analysis and Modelling of Micro Needle for Transdermal Drug Delivery System", Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115, Special Issue 9: June 2017, pp 47-50.
6. Kalaiarasi et. al. "Design and Modelling of MEMS based Piezoelectric and Electrostatic Energy Harvester", Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115, Special Issue 9: June 2017, pp 43-46.
7. Kalaiarasi et. al. "Design of MEMS Based Microneedle for Drug Administration", Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115, Special Issue 9: June 2017, pp 36-38.
8. Kalaiarasi, A.R et. al. "Design and optimization of an Electro thermally Actuated Gripper", International Journal of Innovative Research in Science, engineering and Technology, Vol. 3, Special Issue 3, March 2014. ISSN (Online) : 2319 – 8753
9. Kalaiarasi, A. R. and HosiminThilagar, S. "Modeling and Characterisation of a SOIMUMP's Hybrid Electro Thermal Actuator", Microsystem Technologies, Springer, Vol. 1, No. 1, pp. 113–120, 2013. DOI 10.1007/s00542-012-1566-1, ISSN: 0946-7076. (Reputed Journal listed in Anna University Annexure - I) SCIE
10. Kalaiarasi A. R. and HosiminThilagar, S. "Performance Enhancement of Electrostatically Actuated Microgripper with Modified Shape Fingers for Microassembly", Advanced Materials Research, Vol. 622-623, pp. 1810 -1814, 2013, ISSN:1022-6680. (Reputed Journal and listed in Anna University Annexure - II) UGC listed

11. Kalaiarasi A. R. and HosiminThilagar, S. “Closed Form models for Pull-in Voltage of Electrostatically Actuated Cantilever Beams and Comparative Analysis of Cantilevers and Microgripper”, Journal of ELECTRICAL ENGINEERING (Slovak), Vol. 63, No. 4, pp. 242–248, 2012. ISSN: 1335-3632. (Reputed Journal listed in Anna University Annexure - I) SCI
12. HosiminThilagar, S. and Kalaiarasi, A. R. “Design, Simulation and Analysis of Cantilever Sensor for in-Vitro LDL Detection”, Sensors and Transducers, IFSA, Vol. 130, No. 7, pp. 136-141, 2011. ISSN 1726-5479. Scopus Listed from 2011 - 2014

PATENTS PUBLISHED/GRANTED:

- Applied and published a patent title: Smart Monitoring System for Plant Growth Using bot And Controlling through IOT, 202141050604, Dt: 19/11/2021.
- Applied and published a patent title: Seismic Quantification In Comprehensive Recorded Directional Phases: A Machine Learning Workflow For Precedence, 202341021873, Dt: 21/04/2023
- Applied and published a patent title: Identification of lead metal concentration in agricultural soil using IOT & AI based robotic vehicle, 202341072776, Dt: 26/10/2023
- Applied and published a patent title: IoT Based Monitoring System For Coal Mine Using Arduino, 202441051511 A, 19/07/2024

COURSES CERTIFIED:

- Online certified course on “Complete Python Bootcamp : Go from zero to hero in python 3 from Udemy.
- Online certified course on “PLCs by Tata Steel”, from Tata Steel Learning Centre.
- Online certified course on “Industry 4.0 by Tata Steel”, from Tata Steel Learning Centre.
- Online certified course on “Introduction to FPGA Design for Embedded Systems”, from Courseera
- Online certified course on “Hardware Description Languages for FPGA Design” from Courseera
- Online certified course on “Introduction to Internet of things” from NPTEL, **Grade : Elite Silver.**
- Online certified course on “Accreditation And Outcome Based Learning” from NPTEL, **Grade : Elite Silver**

ACHIEVEMENTS AND AWARDS:

- Won Best Paper Award for “Design and Fabrication of Infrared based Menstrual Waste Dispenser”, International Conference on automation and Computing Technologies – (ICACT-18)”held on 17th March,2018.
- Best Faculty award by Saveetha Engineering College 2016-17,2017-18,2015-16

SPECIAL SESSIONS DELIVERED:

Sl.No	Name of the Event	Organized by	Date
1.	Applications in MEMS in Engineering AMIE’2015- A national level Workshop	Dept of EIE, SRM University, Chennai Tamilnadu	24-25 Aug - 2015
2.	Guest lecture on “Sensors and	Dept of EEE, Velammal	08, Aug

	Actuators”	Institute of Technolgy, Chennai Tamilnadu	2016
3.	Sensor designing using Intellisuite - (Online)	Centre for Micro Nano Design and Fabrication (CMNDF), Saveetha Engineering College, Chennai Tamilnadu	26, June 2020
4.	International E-Conference on Science and Technology for environmental enrichment and public Health (STEEP 2020) Conference Session Chair	Easwari Engineering College	30.09.2020
5.	MEMS based Sensors and Actuators for Biomedical Application (Online)	Dept. of ECE, KL University, Andhra Pradesh, India.	5-11-2020
6.	MEMS Sensors and Actuators Using FEM Software	Dept. of ECE, Mailam Engineering College, Tamil Nadu	6-10-2021 to 8-10-2021
7.	Micro-fluidics and Bio-MEMS	Dept. of Biomedical Engineering, EGS Pillay Engineering College, Tamil Nadu	11-12-2021
8.	Mems Sensors and actuators	Dept of ECE, Velammal Engineering College.	12-05-2022
9.	International Technical Conference on “Control in Electric Vehicles and Smart Grid with Renewable Energy Synergies for Sustainable Development" VIT-CES-RES 2024 (SERB Sponsored)	School of Electrical Engineering (SELECT) Vellore Institute of Technology (VIT) Chennai.	10 -05- 2024
10.	Virtual International Conference on Sustainable Smart Cities Integrated with Clean Energy Sources (SCES 2024) Sponsored by Shastri Indo Canadian Institute (SICI)	School of Electrical Engineering (SELECT) Vellore Institute of Technology (VIT) Chennai, Tamil Nadu, India	1 st -2 nd , February, 2024.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED:

Sl.No	Name of the Conference/Training/Workshop	Organized by	Period
1	One day faculty training programme in Labview	Dept of EIE Saveetha Engg. College	28/02/14
2	Signals and Systems Workshop	IIT Kharagpur	02/01/14 to 12/01/14
3	Recent Trends in Controller Design and system Identification’15	Dept of EIE Saveetha Engineering College	20/01/15 and 21/02/15
4	FDP(AU Approved) on Flexible Ac transmission systems (FACTs)	Dept of EEE, Saveetha Engg. College	7 th to 14 th Dec’15
5	One day International Workshop on preparation of Technical articles and research proposal	University College of Engineering Villupuram	4 th January 2016
6	FDP ON INNOVATIONS IN NANO	Jeppiaar Engineering	28/11/2016 to

	SCIENCE AND ENGINEERING	college	2/12/2016
7	Two days faculty training programme in Industrial Automation Using LabVIEW	Dept of EIE Saveetha Engineering College	21 st &22 nd June 2018
8	Indian technology Congress 2018, Technology First	Indian technology Congress - 2018,Bengaluru	05,06 September 2018
9	Two week FDP(AU Approved) on IC 8451-Control Systems	Dept of EIE Velammal Engineering College	26 th November to 8 th December 2018
10	Two Week DST-NIMA sponsored FDP on Recent Trends in Controllers for Renewable Energy Systems	School of Electrical Engineering (SELECT),VIT, Chennai	19 th Nov to 1 st Dec 2018
11	ATAL FDP –Implementation of Industry 4.0 & its Challenges	AICTE-ATAL New Horizon College of Engineering, Bangalore	5-7-2021 to 9-7-2021
12	ATAL FDP - Lab on Chip	AICTE-ATAL, Rajalakshmi Engineering College, Tamilnadu	12-7-2021 to 16-7-2021
13	ATAL FDP -3D PRINTING DESIGN AND TECHNOLOGY	AICTE-ATAL, NIT Silachar	19-7-2021 to 23-7-2021
14	ATAL FDP – Physics of Nanoelectronics	AICTE-ATAL, IIT Kanpur	02-8-2021 to 06-8-2021
15	Recent Advancements in Electrical Engineering: A Research Perspective	School of Electrical Engineering (SELECT),VIT, Chennai	26-7-2021 to 30-07-2021
16	AICTE-UHV, “Inculcating Universal Human Values in Technical Education”	AICTE	16-8-2021 to 20-08-2021
17	Introduction to Graphical system design using Labview	School of Electrical Engineering (SELECT),VIT, Chennai	30-10-2021
18	Climate change mitigation and Energy conservation.	School of Electrical Engineering (SELECT),VIT, Chennai	20-11-2021
19	IPR-PATENTING PROCEDURES-AN OVERVIEW	Department of Mechanical Engineering, Sree Vidyanikethan Engineering College, Tirupati.	30-09-2021
20	Online UHV Refresher 1 FDP	AICTE	21st February,

			2022 to 25th February, 2022
21	Recent Advancements in Electrical Engineering - A Research Perspective Series - II	School of Electrical Engineering (SELECT),VIT, Chennai	12.09.22 to 16.09.22
22	FPGA Based Controllers for Electrical Engineering Applications –STTP, DST PURSE Sponsored.	SRM IST	22.08.22 to 26.08.22
23	Overview of IPR & Patent Filing Procedures	Saveetha Engg. College	27.08.22
24	Effective Proposal Writing for Funded Projects	Saveetha Engg. College	26.08.22
25	Electric Vehicle Technology Challenges and Opportunities - STTP	SITE, Andhra Pradesh	19/12/2022 to 23/12/22
26	Advanced Green Computing Technology in Healthcare	Dept of Bio-Med, SEC, Chennai	26/12/22 to 30/12/22
27	Exploring the Future endeavours in Biomedical Technology.	Easwari Engineering College, Dept of Bio-Med	1 week 18-01-2023 to 24.01.2023

International Conference:

1. Kalaiarasi A.R et. al, “Design and Development of Land Rover for Disaster Management”, 2023 Innovations in Power and Advanced Computing Technologies, i-PACT 2023, 2023,IEEE Conference, Scopus Indexed.
2. Kalaiarasi A.R et. al, “Footstep power generator using piezoelectric techniques”, *AIP Conf. Proc.* 2946, 030006 (2023),<https://doi.org/10.1063/5.0178065>, 3rd International Conference On Robotics, Intelligent Automation And Control Technologies (RIACT2022). **Scopus Indexed.**
3. Kalaiarasi et al, “Validation of Snap-Through Voltages of Electrostatically Actuated Devices with Closed Form Equations”, *Proceedings of IEEE InC4 2023 - 2023 IEEE International Conference on Contemporary Computing and Communications*, 2023, **Scopus Indexed, IEEE Conference**
4. Kalaiarasi et al, “IOT based hazardous gas detection and Control”, PECCON 22, held on May 5-6, 2022, VIT Chennai. **Scopus Indexed, IEEE Conference**
5. Kalaiarasi et al, “IOT based smart Waste Management System”, VIT-CES-RES, held on 7-8th Oct 2021,VIT Chennai. **Scopus Indexed, Book Chapter Published.**
6. Kalaiarasi et al. “Design and Fabrication of Infrared based Menstrual Waste Dispenser”, International Conference on automation and Computing Technologies – (ICACT-18)”held on 17th March,2018. - **Best Paper Award**
7. Kalaiarasi et al. “Design and Development of Mems Based Microneedle for Transdermal Drug Delivery System”, International Conference on automation and Computing Technologies – (ICACT-18)”held on 17th March,2018.

8. A.R.Kalaiarasi and S.HosiminThilagar, "Design and Modeling of Electrostatically Actuated Microgripper", 8th International Conference on Mechatronic and Embedded Systems and Applications (MESA), IEEE/ASME, 2012, July 8-10, Suzhou, China.
9. A.R.Kalaiarasi and S.HosiminThilagar, "Performance Enhancement of Electrostatically actuated Microgripper with Modified Fingers for Microassembly", International Conference on Manufacturing Science and Technology, ICMST 2012, August 18-19, New Delhi, India.
10. A.R.Kalaiarasi et al. (2012) "Design and analysis of a Tunable Optical Filter using MEMS technology", International Conference on Advances in Communication technology (ICACT'12), TamilNadu, India.
11. A.R.Kalaiarasi et al. (2012) "MEMS –Based Wide Range Tunable Fabry Perot Filter", IEEE International Conference on Advances in Engineering, Science and Management (IEEE-ICAESM 2012).
12. A.R.Kalaiarasi (2011) "Design and Finite Element analysis of Electro thermal actuators", in COMSOL 2011 conference, Bangalore 2011.
13. A.R.Kalaiarasi (2011) "Design and analysis of MEMS gold coated cantilever piezoresistive sensor for Bio-sensing applications", in TIMA conference, Chennai, January 2011.
14. A.R.Kalaiarasi (2010) "Closed form models of cantilever beam's pull-in voltage and their comparative analysis", in International Conference on power, control and Embedded systems", Chennai, December 2010.

National Conference:

1. A.R. Kalaiarasi et al, (2019), "Design and Simulation of Microneedle using MEMS", 7th National Conference on Trends in Instrumentation and Automation, organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on March 29th, 2019.
2. A.R.Kalaiarasi and S.HosiminThilagar, (2012) "Optimised Shape Microgripper For Enhanced Displacement", National Conference on Smart Materials, Structures and Systems, Organised by ISSS, September 2012,21-22, Coimbatore, India.
3. A.R.Kalaiarasiet. al (April 2011), "Design and analysis of modified finger shaped microgripper", INCOS'11, at Kalasalingam University , April 2011.
4. A.R.Kalaiarasi et al (Feb 2011) "Microgripper: State of the Art" in RTMT National conference, Feb 2011.
5. A.R. Kalaiarasi et al (2007) "Fault detection of Induction motor using MCSA Implemented in ADSP 2181",proceedings of NATIONAL CONFERENCE of Recent trends in Instrumentation and signal processing, Chennai, October 2007.
6. A.R. Kalaiarasi (2006), "INCIPIENT FAULT DETECTION OF INDUCTION MOTOR USING CURRENT SIGNATURE ANALYSIS", Proceedings of National Conference On Recent Trends In Power Systems And Drives (NCRTPSD – 2006) Chennai, APRIL 2006.

PROFESSIONAL MEMBERSHIPS:

- Life Membership The Institution of Engineer(s) India - AM1234261

OTHER DETAILS (If any):

Software Knowledge :

- ❖ Full Expertise in MEMS software tools CoventorWare, IntelliSuite, and COMSOL.

- ❖ Complete knowledge of using Tanner L-Edit, and Clewin Layout software, MATLAB & SIMULINK
- ❖ Exposure in Verilog,VHDL to teach UG and PG Student. **Possessing a Good knowledge of Programming in C and C++**

MEMS Fabrication experience

- SOI MUMPs Based electro thermally actuated gripper and Electrostatic energy harvester has been fabricated under NPMASS Programme. (2014)
- Electrostatically actuated Microgripper using SOI wafer **project has been completed, at IISc** during April 2013.
- **Microgripper** design which can be fabricated through **PolyMUMPs** process in MEMSCAP Inc, USA,.has been completed. (2013)
- Mems based Electrothermal Actuator has been fabricated using SOI-MUMPS process, in MEMSCAP Inc, USA, and characterized in IISc. (2012)
- During the Hands on training at IISc Bangalore, MEMS Cantilevers and AFM tips are fabricated.(2011)
- Good experience in MASK file preparation in accordance with MEMSCAP Inc., USA.(.GDS,CIF etc.,)