

INDHUMATHI R

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PRESENT POSITION

Assistant Professor, Department of Biomedical Engineering, SRM Institute of Science and Technology, Ramapuram, Chennai from June 2023.

- 6.5 years of Teaching experience as Assistant Professor
- Anna University **gold medalist** (1st rank in M.E Control and Instrumentation Engineering)
- Anna University rank holder (43rd rank in B.E Electronics and Instrumentation Engineering)
- Published **6 papers** in *SCI Indexed and Scopus Indexed Journals*.
- Published **12 papers** in *Scopus Indexed Journals*.
- Have an **h index score 3**.
- Published **two books** intended for the curriculum of Anna University Affiliated institutions.
- Published a **patent** entitled “**IOT and Machine Learning based system for image acquisition Support Vector Machine technique for image processing and identification**” in February 2021.
- Applied a proposal in Science and Engineering Research Board under Core Research Grant under the title “**Detection of Covid-19 using multimodal medical images by employing hybridization of PCNN and GA with Empirical Mode Decomposition**” in February 2021.
- Attended a **6 week online training program in python** conducted by **Intern Shala Trainings**.
- **Editorial Board Member** of MC Medical Sciences Journal.
- **Editorial Board Member** of PriMera Scientific Engineering (PSEN)
- **Reviewer** in Transactions of the Institute of Measurement and Control Journal (SCI indexed)
- **Placement Coordinator** of Dept of Electronics and Instrumentation at Jerusalem College of Engineering.
- Completed **vantage level in British English Certificate** organized by Cambridge University.
- Completed **B.A degree certification in Private Hindi prachar shabha** examinations.

ACADEMIC PROFILE

Course	Institution	University/ Board	Year of passing	% of marks
Ph.D (Electrical and Electronics Engineering)	Anna University		August 2023	
M.E., Control & Instrumentation Engineering	St. Joseph’s College of Engineering	Anna University	2016	9.03
B.E., Electronics and Instrumentation Engineering	Jeppiaar Engineering College	Anna University	2014	8.48
H .S.C	New prince Matriculation Higher Secondary School	State board	2010	92.5
S.S.L.C	New prince Matriculation Higher Secondary School	Matriculation	2008	91.6

RESEARCH ORIENTED SKILLS

Intensively carried out research and data analysis for all the papers that I have submitted and won awards. Data was collected from various sources, consolidated, analyzed using various methods to get the most optimal solution.

AWARDS/ RECOGNITIONS

- Produced 100% result in Discrete Time Systems and Signal Processing for the academic year January 2018-May 2018.
- Felicitated with a certificate of appreciation for producing 92% result in Microprocessors and Microcontrollers for the academic year July 2017- November 2017.
- Felicitated with a certificate of appreciation for producing 97% result in Microprocessors and Microcontrollers for the academic year July 2016- November 2016.
- Won the best research paper award for publishing the paper entitled “Design and Implementation of Heart Rate Monitoring and Integrated Insulin Infusion System” in International Journal of Advanced Research in Management, Architecture, Technology and Engineering (IJARMATE).

ACADEMIC ACHIEVEMENTS

- Felicitated with **Nelson Mandela** award for the academic achievement in M.E ,CIE department at St.Joseph’s College of Engineering, Chennai.
- Anna university **gold medalist** for the academic year 2014-2016 in M.E ,CIE department at St.Joseph’s College of Engineering, Chennai.
- Anna university **rank holder** (43rd rank) for the academic year 2010-2014 in EIE department at Jeppiaar Engineering College, Chennai.
- Won **Distinction Prize** by presenting a paper in the “Science for the society” organized by Nalvidaigal Trust.
- Presented a paper on Blue eye Technology at HCL (Tek Karnival),Velachery.
- Executive committee member of International Society of Automation(ISA) in 2014.

BOOK PUBLICATIONS

- **R.Indhumathi**, T.Abimala, T.V.Narmadha, Biomedical Instrumentation, LAMBERT Academic Publishing, ISBN-978-620-4-20081-1, August 2021.
- **R.Indhumathi**, K.P.Indira, T.Abimala, Ramadevi and Raja, Discrete Time Systems and Signal Processing, IIP Publishers, ISBN-978-1-68576-233-9, 2021.

PATENT PUBLISHED

- IOT and Machine Learning based system for image acquisition Support Vector Machine technique for image processing and identification in February 2021.

PROPOSALS APPLIED

- Applied a proposal in Science and Engineering Research Board under Core Research Grant under the title “**Detection of Covid-19 using multimodal medical images by employing hybridization of PCNN and GA with Empirical Mode Decomposition**” in February 2021.

INTERNSHIPS ATTENDED

- Attended a 6 week online training program with python conducted by Intern Shala Trainings.

JOURNAL PUBLICATIONS

S.NO	PAPER TITLE	JOURNAL NAME	VOLUME& ISSUE
1.	Hybrid pixel based method for multimodal medical image fusion based on integration of PCNN and GA using EMD	Microprocessors and Microsystems	Volume 94, 104665, ISSN 0141-9331,2022 (IF:3.5)
2.	A Comprehensive Study of Image Fusion Techniques and their applications	Signal and Image Processing Techniques for the Development of Intelligent Healthcare Systems , Springer Nature	DOI 978-981-15-6141-2_8, 2021.
3.	Hybrid Pixel-Based Method for Multimodal Medical Image Fusion Based on Integration of Pulse-Coupled Neural Network (PCNN) and Genetic Algorithm (GA)	Advances in Machine Learning and Computational Intelligence, Springer Nature	DOI 978-981-15-5243-4_82
4	Impact of average, maximum and energy fusion rules on the performance of DWT, SWT & NSCT based fusion on bio-medical images	Research Journal of Pharmaceutical, Biological and Chemical Sciences	Vol 9(5), pp.815-821, Sept 2018
5	Design and Implementation of Heart Rate Monitoring and Integrated Insulin Infusion System	International Journal of Advanced Research in Management, Architecture, Technology and Engineering (IJARMATE)	Vol 3, Special Issue 13, March 2017
6	Performance Evaluation of Gradient based PCNN for Fusion of Medical Images	Research Journal of Pharmacy and Technology (RJPT)	ISSN: 0974-3618 , Vol: 9(9) September 2016
7	A literature review on image fusion techniques for biomedical images	Research Journal of Pharmaceutical, Biological and Chemical Sciences	Vol 7(2), Page no.1371, March-April 2016
8	Impact on quality metrics by adapting DWT, SWT methods in fusion of PET and CT images	International Journal of Pharmacy and Technology	Vol.7,Issue no.2, Sep 2015
9	A Survey on Image Fusion Techniques for Medical Applications	Research Journal of Pharmaceutical, Biological and Chemical Sciences	Pg no.562, ISSN:0975-8585, 2015
10	Pixel based Medical Image Fusion Techniques using Discrete Wavelet Transform and Stationary Wavelet Transform	Indian Journal of Science and Technology	Vol 8, Oct 2015
11	A low-cost extendable framework for smart car security system	International Journal of Pharmacy and Technology	Vol. 7, Issue No.1 8342-8349, July 2015
12	Multi-modal medical image fusion and local texture analysis using Stationary Wavelet Transform	International Journal for Reasearch and Development in Engineering	Pp 443-445, 2014.

CONFERENCE PUBLICATIONS

- **Hybrid pixel based method** for multimodal medical image fusion based on Integration of Pulse Coupled Neural Network (PCNN) and Genetic Algorithm (GA)” has been accepted in Modelling, Simulation & Intelligent Computing (MoSICom 2020) Conference which was held at BITS Pilani, Dubai Campus on 29-31 Jan 2020.
- **Impact of daubechies, symlet and biorthogonal wavelets** on the Performance of DWT based multimodal medical image fusion in International Conference on Science, Technology, Engineering and Management (ICONSTEM’16) (IEEE).
- **Comparison between Fuzzy Logic Controller and Neuro Fuzzy controller** for DC motor Speed control with load disturbance in 2016 International Conference on Innovations in information Embedded and Communication Systems (ICIIECS’16) (IEEE).
- **Enhanced medical image fusion of PET and CT** using Non Subsampled Contourlet transform in IEEE , ICCPCT 2015 conference, 978-1-4799-7074-2/15 (IEEE).
- Presented a paper entitled “Design and Implementation of Heart Rate Monitoring and Integrated Insulin Infusion System” in the International Conference on Emerging Trends in Science, Engineering and Technology (ICETSET’2017).
- Presented a paper entitled” A survey on efficient image fusion technique” in the National Conference on Computing Technologies Today and Beyond (NCCTTB’16) held at RMK College of Engineering and Technology, Chennai.
- Presented a paper entitled “ A microcontroller based multi-function Solar tracking system “ in a National Conference held at St. Joseph College of Engineering, 2013.
Won 2nd prize by presenting a paper in TESLA’13 held at Francis Xavier college, Tirunelveli.

CITATIONS

S.NO	TITLE OF THE PAPER	CITED BY	YEAR
1	A comprehensive study of image fusion techniques and their applications	2	2021
2	Hybrid Pixel-Based Method for Multimodal Medical Image Fusion Based on Integration of Pulse-Coupled Neural Network (PCNN) and Genetic Algorithm (GA)	2	2021
3	Impact Of Average, Maximum And Energy Fusion Rules On The Performance Of DWT, SWT and NSCT Based Fusion On Bio-Medical Images	1	2018
4	Performance evaluation of gradient based PCNN for fusion of medical images	1	2016
5	Pixel based medical image fusion techniques using discretewavelet transform and stationary wavelet transform	10	2015
6	Enhanced medical image fusion of PET and CT using Nonsubsampled Contourlet Transform	4	2015
7	Multi Scale Decomposition and Local Texture Analysis Based Multi Modality Medical Image Fusion	1	2014

WORKSHOPS and FDPS ATTENDED

- Attended a Three days Faculty Development Program on “ Understanding Data Analytics with real life cases” held at St.Joseph’s college of Engineering on 28th May-30th May 2020.
- Attended a webinar on “ Design and Development of High Power Audio Amplifier for Real Time Applications” held at Jerusalem College of Engineering on 29th May 2020.
- Attended a webinar on “Basic Instrumentation in Petroleum Refinery” held at St.Joseph’s college of Engineering on 13th June 2020.
- Attended a webinar on “ Importance of Laser technology in modern world” held at Bannari Amman Institute of Technology on 16th June 2020.
- Attended a webinar on “ Career growth in oil and gas industries” held at Bannari Amman Institute

of Technology on 4th July 2020.

- Attended a Short Term Training Programme on "Recent Trends in Computational Intelligence for Healthcare Monitoring Systems- II" held at Bannari Amman Institute of Technology between 23-28th November 2020.
- Participated in a 2 days workshop on PCB design conducted by Profilic System & Technologies Pvt.Ltd held at Jerusalem College of Engineering.
- Participated in a 5 day workshop on Embedded systems conducted by Insystronics Technologies held at St.Joseph's college of Engineering.
- Underwent an inplant training at HCL & Integral Coach Factory.
- Organized a two days National Level Technical Workshop on Signal & Image processing using MATLAB & LABVIEW at Jeppiaar Engineering College, Chennai.
- Organized a Workshop on Fundamental & Research Application of Virtual Instrumentation using LABVIEW, Chennai.
- Attended a Anna University sponsored Faculty Development Programme on "**Circuit Theory**" conducted at Jerusalem College of Engineering , Chennai.
- Attended a Faculty Development Programme on "**Instructional design & delivery Systems**" conducted by NITTTR at Jerusalem College of Engineering , Chennai.
- Attended a Anna University sponsored Faculty Development Programme on "**Time Management**" conducted by ICT academy of Tamil Nadu at Dhanraj Baid Jain College , Chennai.
- Attended a Anna University sponsored Faculty Development Programme on "**Power Electronics for Renewable Energy**" at Tagore Engineering College , Chennai.

VALUE ADDED COURSES

- Completed vantage level in British English Certificate organized by Cambridge University.

EXTRA CURRICULAR ACTIVITIES

- Actively participated in Various college symposiums.
- Won National Prize in a Karate Tournament
- Completed 9 levels in Private Hindi examination.