CURRICULUM VITAE

Dr. Arathi T

Associate Professor,
Department of Electronics &
Communication Engineering,
LBS College of Engineering (Govt. of Kerala Undertaking)
E-mail arathit@lbscek.ac.in
Mobile No.: +919495365447

Research Areas

Signal & Image Processing, Wavelet Theory,
Machine learning and Deep learning.

Details of Educational Qualification

Sl. No.	Certificate/Degree	School/College	University	Percentage
1	10^{th}	Kendriya Vidyalaya No.1, Calicut	CBSE	86.8%
2	12^{th}	Kendriya Vidyalaya No.1, Calicut	CBSE	86%
3	B. TECH-ELECTRONICS AND COMMUNICATION	Calicut University	Calicut University	79.68%
4	M.TECH-REMOTE SENSING AND WIRELESS NETWORK	Amrita Vishwa Vidyapeetham University	Calicut University	9.77 (CGPA)

Details of Doctoral Degree (PhD)

Thesis Title	From	To	College/ Institute	University	Final Viva-Voce Date	Degree Awarded Date
DEVELOPMENT OF EFFICIENT ALGORITHMS FOR FUSION AND 3D RECONSTRUCTION OF MRI/CT IMAGES	**01-09-2009**	**09-12-2015**	**AMRITA VISHWA VIDYAPEETHAM, ETTIMADAI, COIMBATORE**	**AMRITA VISHWA VIDYAPEETHAM UNIVERSITY**	**09-12-2015**	**21-08-2016**

Details of teaching experience:

S. No.	Name and Address of Employer	Designation	From	To	Duration	Type of Organization
1	LBS COLLEGE OF ENGINEERING, KASARAGOD	ASSOCIATE PROFESSOR	07-12-2012	IN SERVICE	10YEARS & 4 MONTHS	GOVT. OF KERALA UNDERTAKING
2	MES COLLEGE OF ENGINEERING, KUTTIPURAM	ASSISTANT PROFESSOR	01-06-2011	06-12-2012	1YEAR&6 MONTHS	PRIVATE SELF-FINANCING
3	AMRITA VISHWA VIDYAPEETHAM, COIMBATORE	ASSISTANT PROFESSOR	01-08-2009	31-05-2011	1 YEAR & 10 MONTHS	UNIVERSITY
4	AWH ENGINEERING COLLEGE, CALICUT	LECTURER	22-08-2006	09-12-2006	4 MONTHS	PRIVATE SELF-FINANCING

Total teaching experience as Assistant Professor: 15 YEARS

Research Projects Investigated/Co-Investigated/Executed

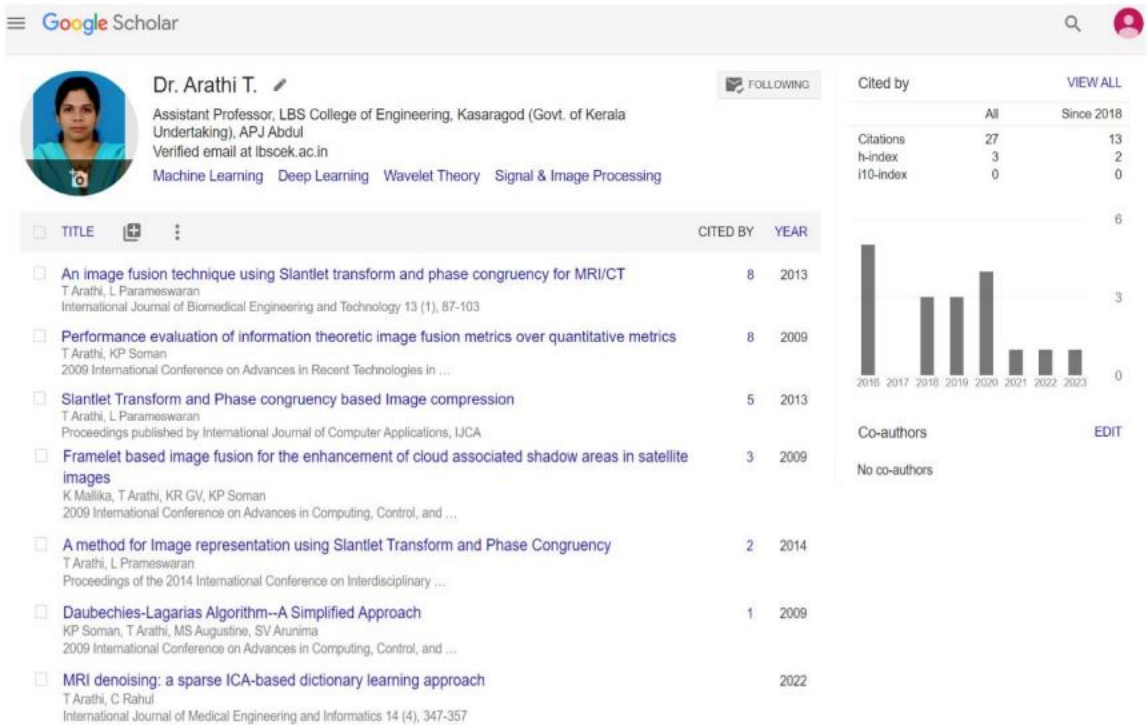
SL NO	Sponsoring Agency	Title of the Project	Period	Amount	Status	Principal Investigator/ Co-investigator
1	CERD APJ Abdul Kalam Technological University -RESEARCH SEED MONEY	Deep Learning based Optimized Computer Aided Detection for Retinal Disease Screening	3 YEARS	1,00,000	COMPLETED	Principal Investigator
2	CENTRE OF EXCELLENCE FOR DISABILITY STUDIES (Govt of Kerala)	Multimodal Neural Machine Translation for Malayalam Sign Language	2 YEARS	4,00,000	ONGOING	Co- Investigator
3	CENTRE OF EXCELLENCE FOR DISABILITY STUDIES-STUDENT PROJECT (Govt of Kerala)	Gesture Recognition Systems for Malayalam Alphabet in Indian Sign Language (ISL) and District Names of Kerala using Deep Learning Model	6 MONTHS	30,000	ONGOING	Co- Investigator

4	CERD APJ Abdul Kalam Technological University-RESEARCH SEED MONEY	Sign Language Identification for Malayalam	3 YEARS	2,00,000	APPLIED	Co- Investigator
5	Science and Engineering Research Board-State University Research Excellence (SERB-SURE)	Non-invasive detection of Lymphoedema	3 YEARS	30.00 Lakh	APPLIED	Principal Investigator

Posts Held at University level

Sl. No.	Post Held	Period
1.	Member of the 'Board of Studies – Research', APJ Abdul Kalam Technological University.	Since January 2021
2.	Reviewer – 3rd year Engineering Books of Diploma, under AICTE.	Since January 2023

Google Scholar Citations



Courses Handled

- Signals & Systems
- Digital Signal Processing
- Digital Image Processing
- Wavelet Theory
- Machine Learning
- Microprocessors & Microcontrollers
- Digital Communication
- Information Theory & Coding
- Advanced Digital Signal Processing
- Entrepreneurship

Student Projects Guided

Doctoral Committee Member of Ph.D. Student

Name of Student	Area of Research	Ongoing
Shabna Salam	Private Key Preservation of Data using Block Chain	Ongoing

Ph.D. Student Guided

Name of Student	Area of Research	Ongoing
Prathima	Multimodal NLP	Ongoing

PG Students Guided

Sl. No.	Name of Scholar	Title of Thesis	Year of Awarding M.Tech Degree	Co-Guide	Status
1	Laxmipriya K	A vector quantization and moment-based filtering method for lung cancer detection	2016	Nil	Completed
2	Aathira K	Automated Reversible Data Hiding with Contrast Enhancement of Ultrasound Images	2016	Nil	Completed
3	Sujitha P	Sparse Image Denoising in Ultrasound Images	2017	Nil	Completed

4	Archana	Sparse Transform based Online Video Denoising in Ultrasound Images	2017	Nil	Completed
5	Sruthi T	Brain Image Segmentation using Convolutional Neural Networks	2018	Nil	Completed
6	Nikhila Kamal	An Optimized CAD System for Retinal Disease Screening.	2019	Nil	Completed
7	Shahma	Deep Learning Based Image Security for Medical Imaging	2023	Nil	Ongoing

UG Students Guided (2015 Onwards)

Sl. No	Research Degree	Name of Students	Title of the Project	Year of award	Co-guide	Status
1	B.Tech	Anusha P, Sreekesh T Sreya V.C, Vishal Paul	Early myocardial infarction detection using wavelet transform	2015	Nil	Completed
2	B.Tech	Bhavya K, Neeraja P Soumya VS, Swetha C	Solution to cocktail party problem using blind source separation	2016	Nil	Completed
3	B.Tech	Anisha Ganesh, Shinod C Sreena P, Sreejith P	PC based automatic wireless electricity binning system	2016	Nil	Completed
4	B.Tech	Abdul Labeeb B Agenesh K	Mini Refrigerator	2017	Nil	Completed
6	B.Tech	Abhilash Krishnan Rajlin V. R	RF text messaging	2018	Nil	Completed
7	B.Tech	Navna P Nambiar Nivedya Divakaran	Quiz priority system	2018	Nil	Completed
8	B.Tech	Ajayjith K.J Arunkumar N, Bennet Roy, Deepak R Nath	Automatic vehicle headlight adjustment system	2019	Nil	Completed
9	B.Tech	Fathimath Shamnaz P. M Fathimath Asmeera B. K	Alcohol detection with engine locking and tracking system	2019	Nil	Completed
10	B.Tech	Ayshath Lubaba K. A Masaroora K. R	Ultrasonic blind walking stick	2021	Nil	Completed
11	B.Tech	Theertha M Subhasree P. V	Automatic light control and bi-directional visitor counter	2021	Nil	Completed
12	B.Tech	Anagha V, Arun P Sneha B B, Swathi B	MEMS Technology Assisted Digital Classroom	2023	Nil	Ongoing
13	B.Tech	Ramseena, Afreena Shirin Nafeesa Nabha, Nadha	Block Chain based Content Protection	2023	Nil	Ongoing

Publications

Journal Publications (Only SCI and Scopus Indexed)

1. Rahul, C., Arathi, T., Lakshmi S Panicker., R Gopikakumari., "Morphology & Word Sense Disambiguation Embedded Multimodal Neural Machine Translation System Between Sanskrit and Malayalam." Biomedical Signal Processing Control, Science Direct, Elsevier, ISSN:1746-8094, 2023.
2. Rahul, C., Arathi, T., "Morphology Analyzer for Sanskrit and Malayalam Languages using Deep Learning." Journal of Intelligent & Fuzzy Systems, (May 2023) (SCIE).
3. Arathi, T., and C. Rahul. "MRI denoising: a sparse ICA-based dictionary learning approach." International Journal of Medical Engineering and Informatics 14.4 (2022): 347-357.
4. Arathi, T., and C. Rahul. "Effective Utilization of Multi Median Variance Independent Component Analysis on Medical Image Denoising." International Journal of Medical Engineering and Informatics, Inderscience Publishers (2021).
5. Archana, K., and T. Arathi. "Sparse transform based online video denoising using block-matching and ICA." Solid State Technology 63.3 (2020): 4134-4145.
6. Arathi, T., and L. Parameswaran. "Image reconstruction from 2D stack of MRI/CT to 3D using shapelets." Int. J. Eng. Technology (IJET) 6 (2014): 2595-2603.
7. Arathi, T., and Latha Parameswaran. "An image fusion technique using Slantlet transform and phase congruency for MRI/CT." International Journal of Biomedical Engineering and Technology 13.1 (2013): 87-103.
8. Sreedevi, V. P., T. Arathi, and K. P. Soman. "Lifting Factorization in Maple." International Journal of Recent Trends in Engineering 1.1 (2009): 123.

Submitted

1. Arathi T, Sobita Ahila S, "Deep Learning Based Security on Medical Data Against Online Attacks", Journal of Soft Computing. (SCI).

Conference Publications (2017-2022) (Only Scopus Indexed)

1. Arathi, T., and Latha Prameswaran. "A method for Image representation using Slantlet Transform and Phase Congruency." Proceedings of the 2014 International Conference on Interdisciplinary Advances in Applied Computing. 2014.
2. Arathi, T., and Latha Parameswaran. "Image representation method based on Complex Wavelet Transform and Phase Congruency, with Automatic Threshold Selection." Recent Advances in Biology, Medical Physics, Medical Physics, Medical Chemistry, Biochemistry and Biomedical Engineering (2013): 19.
3. Arathi, T., and Latha Parameswaran. "Slantlet Transform and Phase congruency-based Image compression." Proceedings published by International Journal of Computer Applications, IJCA. 2013.
4. Arathi, T., Latha Parameswaran, and K. P. Soman. "A study of reconstruction algorithms in computerized tomographic images." Proceedings of the 1st Amrita ACM-W Celebration on Women in Computing in India. 2010. 1-4.
5. Arathi, T., K. P. Soman, and Latha Parameswaran. "Spline Biorthogonal Wavelet Design." Information and Communication Technologies: International Conference, ICT 2010, Kochi, Kerala, India, September 7-9, 2010. Proceedings. Springer Berlin Heidelberg, 2010.
6. Soman, K. P, Arathi T, "Performance Measures for Fusion of Multiple Input Images." 2009

International Conference on Advances in Computing, Control, and Telecommunication Technologies. IEEE, 2009.

7. Mallika, K, Arathi T, "Framelet based image fusion for the enhancement of cloud associated shadow areas in satellite images." 2009 International Conference on Advances in Computing, Control, and Telecommunication Technologies. IEEE, 2009.
8. Soman, K. P, Arathi T, "Daubechies-Lagarias Algorithm--A Simplified Approach." 2009 International Conference on Advances in Computing, Control, and Telecommunication Technologies. IEEE, 2009.
9. Arathi, T., and K. P. Soman. "Performance evaluation of information theoretic image fusion metrics over quantitative metrics." 2009 International Conference on Advances in Recent Technologies in Communication and Computing. IEEE, 2009.
10. Arathi, T., and K. P. Soman. "An Intriguing Property of Scaling Function in Wavelet Theory and its Verification Using Daubechies-Lagarias Algorithm." 2009 International Conference on Advances in Recent Technologies in Communication and Computing. IEEE, 2009.

Academic Outreach Activities

Sl. No.	Details of Workshops/STTP	Session Handled	Year
1	APJ Abdul Kalam Technological University sponsored FDP on Deep Learning.	Optimizers for Neural Networks	2023
2	Talk at Government Polytechnic College, Periya.	An Insight into Neural Networks	2019
3	Talk at Government Polytechnic College, Periya.	Introduction to Machine Learning	2017
4	IETE sponsored workshop on ‘Wavelets and its Applications’, Amrita University	Fundamentals of wavelets	2016
5	IETE sponsored workshop on ‘Wavelets and its Applications’, CEN, Amrita.	Applications of Wavelets in Image Processing	2016
5	STTP in ‘VLSI Design and Signal Processing’, LBS College of Engineering, Kasaragod.	Fundamentals of Linear Algebra for Signal and Image Processing	2016
6	National workshop on ‘Computer Vision and Image Processing’, Amrita Vishwa Vidyapeetham University.	Wavelet Families	2014
7	4rth Edition of the National workshop on ‘Computer Vision and Image Processing’, Amrita Vishwa Vidyapeetham University.	Review of Mathematical Foundations for Image Processing	2010
8	Workshop on ‘Image Processing and MATLAB Programming’, Amrita Vishwa Vidyapeetham University.	MATLAB – Image Processing Toolbox	2010
9	Workshop on Image Processing Techniques, CEN, Amrita University.	Image Fusion	2009

Research Contribution to Society

- My Ph.D work on Image fusion and 3D reconstruction of MRI/CT Images is being used in a toolkit, by the doctors at AIMS hospital Cochin, Kerala, for analysis and diagnosis using PET/MRI/CT Images.

- I am a visiting faculty at Government Polytechnic College, Periya, Kasaragod, where I take classes for Diploma students and make them familiar with the latest trends in the areas of Machine Learning and Artificial Intelligence and motivate them to take up Engineering and pursue their careers in the field of AI.

- LBS College of Engineering is the mentor institute for integration of Arecanut leaf products manufacturing units in Kasaragod district. I am the In-charge of the committee set up for mentoring the same.

Achievements

- University First rank for M.Tech.

- My Ph.D work has obtained appreciation from the renowned radiologist, Dr. Krishna Kiran, at Dr. Shaji's MRI & Medical Research Centre, Calicut.

- Resource person at various workshops.

- Best paper award at the 2nd edition of Amrita International Conference for Women in Computing.

References

1st Referee		**2nd Referee**	
Name	Dr. K P. Soman	**Name**	Dr. Latha Parameswaran
Position	Professor and Head, Centre for Excellence in Computational Engineering and Networking (CEN)	**Position**	Professor and Director
Address	Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham University, Ettimadai, Coimbatore.	**Address**	PSGR Krishnammal College for Women, Coimbatore
E-Mail ID	kp_soman@cb.amrita.edu	**E-Mail ID**	p_latha@cb.amrita.edu
Phone No.	+919994329496	**Phone No.**	+919443140934

Declaration

I hereby declare that the above – said information is true and correct to the best of my knowledge.

Station: Kasaragod Arathi T

Date 14-03-2024