

Faculty Profile

Dr. J. Anitha, M.E., Ph.D

Associate Professor,

Department of Computer Science and Engineering

anitha_j@karunya.edu



Academic Background

Degree	University	Year
Ph.D	Karunya University	2016
M.E	Manonmanium Sundarnar University	2006
B.E	Manonmanium Sundarnar University	2004

Courses Taught

- Object Oriented Programming
- Programming in Java
- Object Oriented Programming in C++
- C# and .NET Programming
- Programming for problem solving
- Introduction to Data Science
- ASP.NET Programming
- Web Technology
- Web Services
- Multimedia Systems and Design
- Unix Architecture
- Object Oriented Analysis and Design
- Requirement Engineering
- Introduction to System Administration
- Distributed Systems

Research Interests

- Computer Vision and Image Processing
- Medical Image Analysis
- Machine learning and Deep Learning
- Video Image Analysis

Most recent Publications

Journals:

- **Anitha, J.**, Immanuel Alex Pandian, S., Akila Agnes, S., “An efficient multilevel color image thresholding based on modified whale optimization algorithm”, *Expert Systems with Applications*, 2021, [IF-6.954]
- Agnes, S.A., **Anitha, J.**, Solomon, A.A., “Automatic Chest CT Image Findings of Novel Coronavirus Pneumonia (COVID-19) Using U-Net Based Convolutional Neural Network”, *Journal of Information Technology Management*, 12, pp. 22-35.
- Akila Agnes, S., **Anitha, J.**, Dinesh Peter, J., “Automatic lung segmentation in low-dose chest CT scans using convolutional deep and wide network (CDWN)”, *Neural Computing and Applications*, 2020, 32(20), pp. 15845-15855S. (Springer Verlag) [IF-4.213]
- Akila Agnes, **J. Anitha**, Pandian, S. Immanuel Alex Pandian, J. Dinesh Peter, "Classification of Mammogram Images Using Multiscale all Convolutional Neural Network (MA-CNN)" *Journal of Medical Systems*, 2020. (Springer) [IF-3.058]
- Akila Agnes, S., **Anitha, J.**, Appraisal of deep-learning techniques on computer-aided lung cancer diagnosis with computed tomography screening, *Journal of Medical Physics*, 2020, 45(2), pp. 98-106.
- Agnes, S.A., **Anitha, J.**, “3D lung segmentation on CT images using region-based method”, *International Journal of Advanced Trends in Computer Science and Engineering*, 2019.
- S. Akila Agnes, **J. Anitha**, “Automatic Lung Cancer Detection in Low-Dose Lung CTs Using Transfer Learning”, *Journal of Advanced Research in Dynamical and Control Systems*, 10(7), pp. 195-201, 2018. (Institute of Advanced Scientific Research, Inc.)
- **J. Anitha**, J. Dinesh Peter, S. Immanuel Alex Pandian, “A Dual Stage Adaptive Thresholding (DuSAT) for Automatic Mass Detection in Mammograms”, *Computer Methods and Programs in Biomedicine*, Vol. 138, pp. 93–104, January 2017. (Elsevier) [IF-2.503]
- S. Immanuel Alex Pandian, G. Josemin Bala, Maya K. Kuriakose, **Anitha. J.**, “A Hierarchical Algorithm with Fast Convergence Spiral Search Pattern for Block Matching in Motion Estimation”, *International Journal of Computational Vision and Robotics*, Vol. 6, No. 4, pp. 435-449, 2016. (Inderscience)

- **J. Anitha**, J. Dinesh Peter, "A Multiresolution Ripplet Transform for Breast Cancer Diagnosis in Digital Mammograms", Recent Patents on Computer Science, Vol. 9, Issue. 3, pp. 195 - 202, 2016. (Bentham Science)
- **J. Anitha**, J. Dinesh Peter, "Mammogram Segmentation using Maximal Cell Strength Updation in Cellular Automata", Medical and Biological Engineering and Computing, Vol. 53, Issue 8, pp 737-749, August 2015. (Springer) [IF-1.916]

Conferences:

- Akshai, K.P., **Anitha, J.**, "Plant disease classification using deep learning", 3rd International Conference on Signal Processing and Communication, ICSPC 2021, pp. 407-411.
- Akila Agnes, S., Alex Pandian.S, I., **Anitha, J.**, Solomon. A, A., "Classification of Lung nodules using Convolutional long short-term Neural Network", Proceedings - 5th International Conference on Computing Methodologies and Communication, ICCMC 2021, pp. 1349-1353.
- Bruntha, P.M., Neebha, T.M., Dhanasekar, S., (...), Kumar, S.N., **Anitha, J.**, "Lung Nodule Classification using Shallow CNNs and Deep Transfer Learning CNNs", 7th International Conference on Advanced Computing and Communication Systems, ICACCS 2021, pp. 1474-1478.
- Anitha, J., Akila Agnes, S., Immanuel Alex Pandian, S., "Self-supervised representation learning framework for remote crop monitoring using sparse autoencoder", Advances in Intelligent Systems and Computing, 2021, 1167, pp. 219-227.
- Akila Agnes, S., **Anitha, J.**, "Automatic 2D Lung Nodule Patch Classification using Deep Neural Networks", Proceedings of the 4th International Conference on Inventive Systems and Control, ICISC 2020, 2020, pp. 500-504.
- Bruntha, P.M., Pandian, S.I.A., **Anitha, J.**, Mohan, P., Dhanasekar, S, "Local Ternary Co-occurrence Patterns based Lung Nodules Detection", 6th International Conference on Advanced Computing and Communication Systems, ICACCS 2020, Coimbatore.
- Emmanuel, K.S., Mathuram, C., Priyadarshi, A.R., George, R.A., **Anitha, J.**, "A Beginners Guide to Procedural Terrain Modelling Techniques", 2nd International Conference on Signal Processing and Communication, ICSPC 2019, Coimbatore.
- Saketh Reddy, T., Saathwik Reddy, D., Nithin Nihar, A., Samuel Sumanth, M., Anitha, J, "Comparitive Analysis on Transformation based Watermarking", 2nd International Conference on Signal Processing and Communication, ICSPC 2019, Coimbatore.
- Immanuel Alex Pandian, S., **Anitha, J.**, "An Efficient Predictive and Intelligent based Motion Estimation in Video Coding", 2nd International Conference on Signal Processing and Communication, ICSPC 2019, Coimbatore.
- Rex Fiona, **J. Anitha**, "Automated Detection of Plant Diseases and Crop Analysis in Agriculture using Image Processing Techniques: A Survey", 3rd IEEE International Conference on Electrical, Computer and Communication Technologies, 20-02-2019 to 22-02-2019, SVS College of Engineering, Coimbatore.

- S. Immanuel Alex, **J. Anitha**, “An Unvarying Orthogonal Search with Small Triangle Pattern for Video Coding”, 2nd International Conference on Smart Computing and Informatics, 27-01-2018 to 28-01-2018, PV Siddhartha Institute of Technology, Vijayawada.

Book chapters:

- M. Bhuvaneshwari, E. Grace Mary Kanaga, **J. Anitha**, Kumudha Raimond, and S. Thomas George, “A comprehensive review on deep learning techniques for a BCI-based communication system” book chapter in titled with the book “Demystifying Big Data, Machine Learning, and Deep Learning for Healthcare Analytics”, 2021, pp. 131-158.
- E.Grace Mary Kanaga, **J.Anitha**, D.Sujitha Juliet, “4D medical image analysis: a systematic study on applications, challenges, and future research directions” book chapter in titled with the book “Advanced Machine Vision Paradigms for Medical Image Analysis”, Hybrid Computational Intelligence for Pattern Analysis and Understanding, 2021, Pages 97-130.
- **J.Anitha**, I-HsienTing, S. AkilaAgnes, S. Immanuel Alex Pandian, R.V.Belfin, “Social media data analytics using feature engineering” book chapter in titled with the book “Systems Simulation and Modeling for Cloud Computing and Big Data Applications”. Advances in ubiquitous sensing applications for healthcare, 2020, Pages 29-59.
- S. Akila Agnes, **J. Anitha**, “Analyzing the Effect of Optimization Strategies in Deep Convolutional Neural Network” book chapter in titled with the book "Nature inspired optimization techniques for image processing applications". Book series title: Intelligent Systems Reference Library, Volume 150, 2019, Pages 235-253. (Scopus)

Projects Guided

- Plant Leaf Disease Classification Using Deep Learning
- Using AI & Procedural Generation in Video Games
- Medical Image Steganography using DWT in NROI
- IOT based aquarium monitoring system
- Color Image Segmentation with multiobjective function and optimization algorithm
- Image segmentation using multiobjective genetic fuzzy clustering algorithm
- A Novel Colour Image Digital Watermarking in DCT Domain using Inter-Block Coefficient Correlation
- Mammogram mass segmentation and detection using multiresolution analysis and genetic algorithms
- Segmentation of Moving Objects from a Moving Background
- Directional and FIR-IIR filters for Image Compression
- A New Technique for Removing Forensically Detectable Traces of Digital Image Enhancement

- Automatic Image Segmentation with Iterated Region Merging
- Region and Boundary based Contour Tracking by Segmenting the Foreground Objects
- Breast Mass Contour Segmentation Algorithm for Digital Mammograms
- An Optimized Feature Selection Method for Classification of Mammograms
- An Improved Artificial Bee Colony Algorithm for Block Matching Motion Estimation
- A Hybrid Scheme for Mass Detection and Classification in Mammogram
- An automated segmentation using kernel based fuzzy level set
- A Novel Approach for Video Reconstruction and Quality Enhancement
- A better approach to filter out junk images using fuzzy C-means

Memberships in Professional societies

- Life time Membership in Computer Society of India (CSI)

Significant achievements:

- University 6th Rank in B.E Information Technology.
- Working as a CO-PI for the DST funded project for the worth of 40Lakhs, titled “Design and Development of an Adaptive Brain Computer Interface (BCI) based Assistive Tool for Paralytic People”.
- Completed a consultancy project titled “Automation Software for Material Handling” for Karunya Central Stores, Karunya University for the amount of Rs. 25000.
- Completed summer industry internship in Conevo Technologies Private Limited, Chennai, from 10-05-2019 to 07-06-2019 with the fellowship amount of Rs. 30,000.
- Provided a technical support to the research project titled “Development of a Machine Vision System for Quality Evaluation of Paddy” carried out by IICPT, Thanjavur.
- Received Best Paper Award in 2nd International Conference on Signal Processing and Communication, KITS, Karunya Nagar, 29-3-2019, 30-3-2019.
- Received Best paper award in the International Conference on Signal Processing and Communication (ICSPC’17) conducted by ECE Department, Karunya University on 29-07-2017.
- Received a Young Woman Educator & Scholar Award in 4th Women's Day Awards '2017 by National Foundation for Entrepreneurship Development (NFED) on 08-03-2017.
- Received “Outstanding Reviewer Recognition” for Computer and Electrical Engineering (Elsevier) in December 2017.
- Completed Swayam NPTEL Online course on Problem solving through Programming In C with Elite Silver (Topper) certificate. (12 weeks course)

- Completed Swayam NPTEL Online course on Introduction to Internet of Things with Elite Silver (Topper) certificate. (12 weeks course)
- Completed Swayam NPTEL Online course on Python for Data Science with Elite Silver certificate. (4 weeks course)