

Faculty Profile

Dr. Kumudha Raimond, M.E., Ph.D

Professor,

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Academic Background

Degree	University	Year
Ph.D.	Indian Institute of Technology (IIT), Madras	1998
M.E	Government College of Technology, Coimbatore	1991
B.E	Arulmigu Meenakshi Amman College of Engineering, Madras University	1989

Courses Taught

- Soft Computing
- Machine Learning Techniques
- Big Data Analytics
- Introduction to Data Science
- Advanced Data Mining
- Database Systems
- Advanced Database Systems
- Advanced Operating System
- Distributed Systems
- Computer Architecture
- Artificial Intelligence for Mechanical Systems
- Machine Learning and Data Analytics

Research Interests

- Medical Image Processing
- Satellite Image Processing
- Application of Soft Computing and Machine Learning Techniques in Biomedical, Bioinformatics, Biometrics and Precision Agriculture Applications
- Big Data Analytics
- Biomedical Text Processing
- Watermarking

Most recent Publications

JOURNALS (SCOPUS)

- Offline candidate hand gesture selection and trajectory determination for continuous ethiopian sign language, Abadi Tsegay, Dr. Kumudha Raimond, Journal of Theoretical and Applied Information Technology, Vol.36, No.1, pp. 145-153, 2012, Scopus Indexed
- Optimizing Caching in a Patch Streaming Multimedia-on-Demand System, Dinkisa Aga Bulti and Kumudha Raimond, Journal of Computing Science and Engineering, Vol. 9, No. 3, pp. 134-141, September 2015, Scopus Indexed
- Drought Pattern Investigation Through Processing Normalized Vegetation Index-Based Satellite Images, Taye Tolu Mekonnen, Kumudha Raimond, i-manager's Journal on Pattern Recognition, Vol. 2, No. 3, September - November 2015, Scopus Indexed.
- Investigating the Effects of Security Attacks on the Performance of TCP Variants and Routing Protocols in MANET, Henock Mulugeta, Dereje Hailemariam, Kumudha Raimond, International Journal of Computer Applications in Technology, Vol. 51, No. 3, pp.235-246, May 2015 (IF =0.753)
- TCP-PLDR: A Novel Packet Loss Detection and Response Mechanism for TCP in Mobile Ad Hoc Networks, Henock Mulugeta, Kumudha Raimond, Dereje Hailemariam, Ad Hoc & Sensor Wireless Networks, 2015, Vol.28, No.3-4, pp.183-202, IF-0.478, Scopus Indexed.
- An Overview of Technological Revolution in Satellite Image Analysis, Jenice Aroma. R, Kumudha Raimond, Journal of Engineering Science and Technology Review, 9(4), 2016, 1-5, Scopus Indexed.
- An Empirical Study on the Influence of Image Filters in Effective Closed Contour Extraction of Lakes in Satellite Images, Jenice Aroma. R, Kumudha Raimond, Indian Journal of Science and Technology, 10(5), Feb 2017, Web of Science, Scopus Indexed
- An improvement of the parameterized frequent directions algorithm, Deena P.F., Kumudha Raimond, International Journal of Data Mining and Knowledge Discovery, Data Mining Knowledge Discovery Vol.32, pp.453–482, 2018, Scopus Indexed, IF=2.481.
- Intelligent technique based automatic detection of cervical cancer: A review, Rajapushpam, W.E., Kumudha Raimond, Journal of Advanced Research in Dynamical and Control Systems, 2018, 10 (5), pp. 886-890, Scopus Indexed
- A practical streaming approximate matrix multiplication algorithm, Deena P. Francis, Kumudha Raimond, Journal of King Saud University - Computer and Information Sciences, Sept 2018, Doi:10.1016/j.jksuci.2018.09.010
- Role of reversible image watermarking in medical imaging, (2018) Journal of Advanced Research in Dynamical and Control Systems, Paul, S.T., Kumudha Raimond, 10 (5 Special Issue), 2018, pp.880-885, Scopus Indexed.
- Design of an interactive biomedical text mining framework to recognize real-time drug entities using machine learning algorithms, Chukwuocha, C., Mathu, T., Raimond, K., Procedia Computer Science, Vol. 143, pp. 181-188, Sept 2018, DOI: 10.1016/j.procs.2018.10.374.
- Handwritten signature forgery detection using convolutional neural networks, Jerome Gideon, S., Kandulna, A., Kujur, A.A., Diana, A., Raimond, K., Procedia Computer Science, Vol. 143, pp. 978-987, Sept 2018, Doi:10.1016/j.procs.2018.10.336.

- An integrated method for improving remodularization in software systems using probability method, Varghese, B.G., Raimond, K , Lovesum, J., International Journal of Innovative Technology and Exploring Engineering Vol. 8, Issue 9, pp. 2662-2668, July 2019.
- A novel approach for automatic remodularization of software systems using extended ant colony optimization algorithm, Varghese R, B.G., Raimond, K., Lovesum, J., Information and Software Technology, Vol. 114, pp.107-120, October 2019.
- NGS short read alignment algorithms and the role of big data and cloud computing, Rexie, J.A.M., Raimond, K., Mythily, M., Kethsy Prabavathy, A., International Journal of Innovative Technology and Exploring Engineering Vol. 8, Issue 9, pp. 967-971, July 2019.
- A novel planar antenna array for a ground-based synthetic aperture radar, Vincent, S., Francis, S.A.J., Raimond, K., Ali, T., Kumar, O.P., Serbian Journal of Electrical Engineering, Vol. 16, Issue. 2, pp. 195-209, June 2019.
- A study of types of sensors used in remote sensing, Vincent, S., Francis, S.A.J., Raimond, K., Kumar, O.P. International Journal of Electronics and Telecommunications, Vol. 65, Issue , pp. 217-228, 2019.
- A fast and accurate explicit kernel map, Deena P.F., Kumudha Raimond, Artificial Intelligence, Volume 50, Issue 3, pp. 647-66, March 2020, IF:3.325.
- Major advancements in kernel function approximation, Deena P.F., Kumudha Raimond, Artificial Intelligence Review, 2020, IF:5.747
- Investigation on Spectral Indices and Soft Classifiers-Based Water Body Segmentation Approaches for Satellite Image Analysis, Aroma, R.J., Raimond, K., Journal of the Indian Society of Remote Sensing, 2020, IF:0.997.

CONFERENCES (SCOPUS)

- Minimizing Error in Tool Wear Estimation using Artificial Neural Network, Kumudha Raimond, IEEE International Conference on Industrial Technology, India, 2006, pp.2049-2054, Scopus Indexed.
- Design and Performance Analysis of Energy Efficient Technique for Wireless Multimedia Sensor Networks using Machine Learning Algorithms, Kibrewerk Akalu, Kumudha Raimond, World Congress on Information and Communication Technologies (WICT 2011), Mumbai, Dec 2011, Scopus Indexed
- Performance improvement of TCP using TCP-DOOR-TS algorithm in mobile ad hoc networks. Henock Mulugeta, Kumudha Raimond, 13th IEEE International Conference on Communication Technology, 2011, Scopus Indexed
- Ethiopian Sign Language Recognition using Artificial Neural Network, Yonas Fantahun, Kumudha Raimond, 10th International Conference on Intelligent Systems Design and Applications, Cairo, November 2010, pp. 995-1000, Scopus Indexed
- Performance of TCP Variants over Proactive and Reactive Routing Protocols in MANET, Henock Mulugeta, Kumudha Raimond, International ACM Conference on Management of Emergent Digital Ecosystems, (MEDES'12), Oct 2012, Scopus Indexed
- Intelligent Land Cover Detection in Multi-Sensor Satellite Images, Jenice Aroma. R, Dr. Kumudha Raimond, Advances in Intelligent Systems and Computing,(18th Online World Conference on Soft Computing in Industrial Applications World Wide Web, 1-12 December 2014), Vol. 864, pp. 118-128, 2019.
- A Review on Availability of Remote Sensing Data, Jenice Aroma. R, Kumudha Raimond, International Conference on IEEE Technological Innovations in ICT for Agriculture and Rural Development, Chennai, July 2015, Scopus Indexed
- Comparison of machine learning techniques for the identification of the stages of Parkinson's disease, Deena. P.F, Kumudha Raimond, International Conference on

Computational Intelligence, Cyber Security and Computational Models, ICC3 2015; Coimbatore; India; December 2015, 412, 247-259, Scopus Indexed

- Empirical evaluation of Kernel PCA approximation methods in classification tasks, Deena. P.F, Kumudha Raimond, International Conference on IoT, Data Science and Security, PSG Tech Coimbatore, Jan 2017.
- A random Fourier features based streaming algorithm for anomaly detection in large datasets, Deena. P.F, Kumudha Raimond, International Conference on Big data and Cloud Computing, Advances in Intelligent Systems and Computing, Vol 645, pp. 209-217, Apr 2017, DOI: 10.1007/978-981-10-7200-0_18.
- Optimization of gain and return loss of a 2×6 planar coaxial cavity horn antenna array for MELISSA, Vincent, S., Francis, S.A.J. Kumar, O.P., Raimond, K, IEEE International Conference on Antenna Innovations and Modern Technologies for Ground, Aircraft and Satellite Applications, iAIM 2017, pp. 1-4, Nov 2017, DOI: 10.1109/IAIM.2017.8402612.
- Identification of dockage in paddy using multiclass SVM, Vithu, P., Anitha, J., Raimond, K., Moses, J.A., IEEE International Conference on Signal Processing and Communication, ICSPC 2017, pp. 389-393, July 2017, DOI: 10.1109/CSPC.2017.8305876.
- Artificial neural network based prediction of monthly global solar radiation in Indian stations, D Shruthi; M. S. P. Subathra; Jagriti Kumari; Kumudha Raimond, IEEE International Conference on Signal Processing and Communication, ICSPC 2017, pp. 410-414, July 2017, DOI: 10.1109/CSPC.2017.8305880.
- A novel two-tier paradigm for labeling water bodies in supervised satellite image classification, R. Jenice Aroma, Kumudha Raimond, IEEE International Conference on Signal Processing and Communication, ICSPC 2017, pp.384-388, July 2017, DOI:10.1109/CSPC.2017.8305875.
- Evolution of Methods for NGS Short Read Alignment and Analysis of the NGS Sequences for Medical Applications, Rexie, J.A.M., Raimond, K., Lecture Notes in Computational Vision and Biomechanics book series (LNCVB), Vol.31, pp.135-142, July 2018, Doi: 10.1007/978-3-030-04061-1_13.
- A hassle-free shopping experience for the visually impaired: An assistive technology application, Paul, S.T., Raimond, K., Lecture Notes in Computational Vision and Biomechanics, Vol. 31, pp. 207-217, July 2018, Doi: 10.1007/978-3-030-04061-1_21.
- Recovery of a failed antenna element using genetic algorithm and particle swarm optimization for MELISSA, Vincent, S., John Francis, S.A., Kumar, O.P., Raimond, K., Communications in Computer and Information Science, 4th International Symposium on Signal Processing and Intelligent Recognition Systems, SIRS 2018, Vol. 968, pp. 217-228, Sept 2018, Doi: 10.1007/978-981-13-5758-9_19.
- A Comparative Performance Evaluation of Beamforming Techniques for a 2x6 Coaxial Cavity Horn Antenna Array for MELISSA, Vincent S., Francis S. A. J., Kumar O. P., Raimond K., Lecture Notes in Electrical Engineering series, 1st International Conference on Engineering Vibration, Communication and Information Processing (ICoEVCI-2018), India, Vol. 478, pp. 65-74, Mar 2018.
- An IoT-Enabled Hadoop-Based Data Analytics and Prediction Framework for a Pollution-Free Smart-Township and an Asthma-Free Generation, Paul, S.T., Raimond, K., Kanaga, G.M., International Conference on Big data and Cloud Computing, ICBCC 2018, Advances in Intelligent Systems and Computing book series, Vol.750, pp 577-587, Mar 2018, DOI: 10.1007/978-981-13-1882-5_51.
- A Wavelet Transform Applied Spectral Index for Effective Water Body Extraction from Moderate-Resolution Satellite Images, R. Jenice Aroma, Kumudha Raimond, Remote Sensing and Digital Image Processing, Vol. 24, pp. 255-274, Nov 2019.
- Application of Image Fusion Approaches for Image Differencing in Satellite Image, R. Jenice Aroma, Kumudha Raimond, Advances in Intelligent Systems and Computing, Vol.766, pp. 283-292, 2020.

- Kumudha Raimond, B Anish, Jobel Jose, Siril Abraham, Sujitha Juliet, Babu Rao G, Abraham Chandy, Sunitha G, Gnanaraj J, “Smart Screening For Cervical Cancer With Non Medical Personnel: A Low Cost Digital Coloposcopy And Automated Analysis Technique”, from October 2017, Seed Money Funding from Harvard University.
- Dr. E. Grace Mary Kanaga, Dr. Kumudha Raimond, Dr. J. Anitha, Dr. Thomas George, “Design And Development Of An Adaptive Brain Computer Interface (BCI) Based Assistive Tool For Paralytic People”, DST-ICPS, India.
- Dr.Kumudha Raimond, Mr. John Livingston, “Multispectral Uav Based System To Predict Crop Health And Stress Level For Precision Agriculture”, Short term research grant for faculty, Karunya Institute of Technology and Sciences, 2017.

Memberships in Professional societies

- 2011 Senior Member of International Association of Computer Science and Information Technology (IACSIT)
- 2010 Member of Machine Intelligence Research Lab: Scientific Network for Innovation and Research Excellence
- 2018 Member, Institution of Engineers (India)

Significant achievements:

- Received “Hats of Award”: August 2002 from the Steam turbine technology leaders, General Electric for leading the group in development and release of Phase III of Steam Turbine Remote Monitoring and Diagnostics Fleet Metrics.
- Best Researcher Award: 2013, Department of CSE, Karunya Institute of Technology and Sciences