

## PROFILE

**Name** : Dr. T.KATHIRVALAVAKUMAR

**Department** : Computer Science

**Designation** : Associate Professor & Head

**Address** : V.H.N.Senthikumara Nadar College, Virudhunagar -626001

**Email** : kathirvalavakumar@yahoo.com

**Mobile** : 9487132819

**Experience in Teaching** : From June 28, 1987 to till date

**Experience in Research** : From 1999 to till date

**Education Qualification** : M.Sc.,PGDCA.,M.Phil.,Ph.D.,

**Titles of Ph.D Dissertation** : Neural Networks: Simultaneous Perturbation with Dynamic Tunneling – Cascade Learning and Certain Improved Backpropagation Algorithms

**Areas of Specialization** : Artificial Neural Networks, Pattern Recognition, Data Mining

**Summer Research Fellowship:** Worked in Indian Institute of Science, Bangalore for Two Months under Government of India sponsor.

**Courses Attended:**

1. Orientation Course: Bharathidasan University, Trichy
2. Refresher Course: i) Jawaharlal University, New Delhi,  
ii) Bharathiar University, Coimbatore  
iii) Gandhigram Rural Institute, Gandhigram, Dindigul

**Project:**

| Major Project Funding Agency  | Minor Project Funding Agency  |
|-------------------------------|-------------------------------|
| Rs. 4,98,000/- UGC, New Delhi | Rs. 1,00,000/- UGC, Hyderabad |

**Funds Received:**

- From UGC to organize State Level Workshop
- TNSCST to organize State level seminar
- TNSCST to organize International conference MIKE 2013
- NAAC to organize National level seminar
- University College CORK, Ireland to organize International conference MIKE 2013
- FEXO, Ireland to organize International conference MIKE 2013

**Conference organized:**

International Conference MIKE 2013, Among 82 participants 10 participants from Foreign Countries and 3 Resource persons From Foreign Countries

**Seminars Organized as Convenor:**

- More than 10 for College staff members
- More than 15 for college students

**Workshop Organized as Convenor:**

- 9 for staff members
- 12 for college Students

**Seminars, Workshops and Conferences Attended:**

- National level : 2 seminars; 1 workshop; 6 conferences
- International level : 7 international conferences

**Papers Presented:** International level Conferences: 18

**Books Published:**

- Book Chapter : ONE Books
- Edited : FIVE
- Monograph : ONE

**Research Publications:**

- International Journals : 50
- National Journals : 2
- Edited Books : 8

**Reviewer in Journals:**

- 18 Scopus indexed journals
- 12 Non Scopus indexed journals

**Research Guidance Data:**

| Degree | Awarded | Submitted | Guiding |
|--------|---------|-----------|---------|
| Ph.D   | 8       | -         | 6       |
| M.Phil | 37      | -         | 2       |

**Titles of the Awarded Ph.D:**

1. Efficient Modified Backpropagation Training Algorithms To Solve Nonlinear Problems.
2. Novel Algorithms for Knowledge Discovery From Neural Networks in Classification Problems.
3. Efficient Face Representation using Wavelet Transformation, DCV, LBP and Recognition using RBF Network.
4. Hybrid Approach of Classification Algorithms and Machine Learning in Data Mining using Artificial Neural Networks.
5. An Efficient Approach For Segmentation and Word Retrieval of Tamil Script Recognition Based on Neural Approach.
6. Fingerprint Image Recognition using Neural Network with Haralick features, Enhanced Algorithms for Image Enhancement, Core Point Detection and Classification
7. Recognition of Dengue Serotypes Using Protein Sequence By Extracting Features By Entropy or Gini-Index and Extracting Rules from Neural Network
8. Multiscale Dimensionality Reduction And Rule Extraction For Web Mining Using Artificial Neural Network

**Invited Lectures:** 69

**Resource Person:**

- International level : 4
- National level : 24
- State level : 26

**Acted as Member in Board of Studies:**

University of Madras, Madurai Kamaraj University, Alagappa University, Manonmaniam Sundaranar University, Mother Teresa Women's University and 14 Autonomous colleges.

**Extension Activities:**

Computer courses for Rural Women Self Help Group, House Wives of Virudhunagar Town, Rural school Teachers, District School Teachers, Orphanage students. Courses on Mushroom cultivation and Vermicomposting for Rural Women Self Help Group.

**Others:**

- Internal Quality Assurance Cell Coordinator: From June 2011 to Till date
- VHNSN College DEAN Curriculum: From 2012 to 2019
- Managing Editor of College Sadhana Research Journal - From 2008 to 2011
- Editor-in Chief of College Sadhana Research Journal - From 2012 to 2017.
- VHNSN college Hostel Warden : Two years
- Residential Superintendent in VHNSN College Hostel - Two and Half years,
- Member in College Autonomous Governing Body From 2012 to Till date.
- Member in College Autonomous Finance Committee From 2012 to Till date

| S.NO | RESEARCH PUBLICATIONS   |
|------|---|
| 1.   | T.Kathirvalavakumar, S.Alagukumar, Classifying Microarray Gene Expression Cancer Data Using Statistical Feature Selection and Machine Learning Methods, Congress on Intelligent Systems, Data Engineering and Communication Technologies, Springer Nature, 63-77, 2022. |
| 2.   | T.Kathirvalavakumar, S.Karthikeyan, Statistical Inference Through Variable Adaptive Threshold Algorithm in Over-Sampling the Imbalanced Data Distribution Problem, Advances in Intelligent Systems and Computing, Springer, 267 – 278, 2022.                            |
| 3.   | T.Kathirvalavakumar, S.Alagukumar, Rajendra Prasath , Compact Associative Classification for Up and Down Regulated Genes using Supervised Discretization and Clustering, MIKE 2021, Springer, 2021.   |
| 4.   | T.Kathirvalavakumar, A.Suriya Priyanka, Rajendra Prasath , Type 2 Diabetes Prediction from the Weighted Data, MIKE 2021, Springer, 2021.  |
| 5.   | T.Kathirvalavakumar, M.Ragunathan, Rajendra Prasath, Enhanced Group Key Distribution protocol for Intra group and inter group communication using Access Control Polynomial , MIKE 2021, Springer, 2021.  |
| 6.   | T.Kathirvalavakumar, S.Karthikeyan, Modified Leader Algorithm for Under-Sampling the Imbalanced dataset for Classification, Intelligent Sustainable Systems, Springer, 107-118, 2021.   |
| 7.   | T.Kathirvalavakumar, S.Karthikeyan, Undersampling binary data using CURE for classification, International Conference on MIKE, NIT, Goa, Springer, 19-22,2019.  |

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| 8.  | T.Kathirvalavakumar, M.Karthigai Selvi, Recognition of Bangla Script Characters – A comparative Study, Journal of Adv. Research in Dynamical and Control Systems, Vol. 11 Special Issue 2019, pp. 372-379.  |
| 9.  | T.Kathirvalavakumar, K.S.Jeyalakshmi, A Survey of State-of-Art of Fingerprint Classification, Journal of Adv. Research in Dynamical and Control Systems, Vol. 11 Special Issue 2019, pp. 1593-1602.   |
| 10. | T.Kathirvalavakumar, P.Pandiselvam, Classification of Dengue Serotypes using Gini-Index-based feature Selection and Rule Extraction from Neural Networks, Journal of Adv. Research in Dynamical and Control Systems, Vol. 11 Special Issue 2019, pp. 1620-1629.                   |
| 11. | T.Kathirvalavakumar, K.Aruna Devi, Automated Blog Classification using Rule Extraction by Reverse Engineering the Neural Network, Journal of Adv. Research in Dynamical and Control Systems, Vol. 11 Special Issue 2019, pp. 1708-1719.   |
| 12. | T. Kathirvalavakumar , K. Aruna Devi, Improved Block Classification Using Multi Stage Dimensionality Reduction Technique, New Trends in Computational Vision and Bio-inspired Computing, Springer Nature, 2018  |
| 13. | T. Kathirvalavakumar , K. Aruna Devi, Two Dimensional Feature Extraction and Blog Classification using Artificial Neural Network, International Journal of Applied Engineering Research ISSN 0973-4562 Volume 13, Number 9 (2018) pp. 6536-6544                                   |
| 14. | T. Kathirvalavakumar, P. Pandiselvam, Classification of Dengue Serotypes Using Protein Sequence Based on Rule Extraction from Neural Network 6th International Conference, MIKE 2018, Cluj-Napoca, Romania, December 20–22, 2018, Proceedings                                     |
| 15. | T. Kathirvalavakumar, K.S. Jeyalakshmi, Fingerprint Image Enhancement Using Steerable Filter in Wavelet Domain, Springer International Publishing AG, part of Springer Nature 2018 A. Abraham et al. (Eds.): ISDA 2017, AISC 736, pp. 315–325, 2018.                              |
| 16. | T. Kathirvalavakumar, K.S. Jeyalakshmi, Fingerprint Image Classification using Singular Points and Orientation Information, International Journal of Engineering Research and Applications (IJERA), vol. 7, no. 9, 2017, pp. 33–42.   |
| 17. | T. Kathirvalavakumar, M. Karthigaiselvi, Efficient Segmentation of Printed Tamil Script into Characters Using Projection and Structure Fourth International Conference on Image Information Processing (ICIIP), Shimla, India, 21-23 Dec. 2017, IEEE                              |
| 18. | T. Kathirvalavakumar, J. Jebakumari Beulah Vasanthi, Face Recognition by RBF with wavelet, DCV and Modified LBP operator face Representation Methods 5th International Conference on MIKE 2017, LNAI 10682, pp. 178–188, 2017. Springer International Publishing Switzerland 2017 |
| 19. | T. Kathirvalavakumar, P. Pandiselvam, Protein Sequence in Classifying Dengue Serotypes, Progress in Advanced Computing and Intelligent Engineering, Proceedings of ICACIE 2017, Volume 1 Advances in Intelligent Systems and Computing 713, Page No: 97-108                       |
| 20. | T. Kathirvalavakumar, P. Pandiselvam, Classification of Dengue Gene Expression Using Entropy-Based Feature Selection and Pruning on Neural Network International Conference on Intelligent Systems Design and Applications ISDA 2017 pp 519-529                                   |
| 21. | T.Kathirvalavakumar, M.Karthigai Selvi, Recognition of Words in Tamil Script Using Neural Network, Int. Journal of Engineering Research and Application, Vol. 7, Issue 3 (Part 6) (2017) pp.62-70.  |
| 22. | T.Kathirvalavakumar, M.Karthigai Selvi, Structural Run Based Feature Vector to Classify Printed Tamil Characters, International Journal of Engineering Research and Application, Vol. 7, Issue 7 (Part 1) (2017) 44-63.   |

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| 23. | T.Kathirvalavakumar, K.Aruna Devi, Improved Term Weighting Technique for Automatic Web Page Classification, Journal of Intelligent Learning Systems and Applications, 8 (2016) 63 – 76.   |
| 24. | T.Kathirvalavakumar, R.Palaniappan, Ensemble Neural Network in Classifying Handwritten Arabic Numerals, Journal of Intelligent Learning Systems and Applications, 8 (2016) 1-8.   |
| 25. | T.Kathirvalavakumar, K. S. Jeyalakshmi, Optimal Core Point Detection Using Multi-scale Principal Component Analysis, MIKE 2015: Springer LNAI series, pp. 194-203.  |
| 26. | T.Kathirvalavakumar, R.Palaniappan: Recognizing Handwritten Arabic Numerals Using Partitioning Approach and KNN Algorithm, MIKE 2015 Springer LNAI Series, pp. 226-234, 2015.   |
| 27. | T.Kathirvalavakumar, K.Kavitha, R.Palaniappan: Efficient Harmful Email identification Using Neural Network, British Journal of Mathematics and Computer Science, 7(2015) 58 - 67.   |
| 28. | T.Kathirvalavakumar, M.Karthigai Selvi, R.Palaniappan: Efficient Hand- written Numeral Recognition System Using Leaders of Separated Digit and RBF Network, MIKE 2014: pp. 135-144, Springer LNAI Series, 2014.   |
| 29. | T.Kathirvalavakumar, M.Gethsiyal Augusta, An Empirical Comparison of Discretization Methods for Neural Classifier, Int. Conf. MIKE 2013, Springer LNAI Series, pp.38-49,2013  |
| 30. | T.Kathirvalavakumar, J.Jebakumari Beulah Vasanthi, Face Representation using Averaged Wavelet, Micro Patterns and Recognition using RBF Network, Int. Conf. MIKE 2013, Springer LNAI Series, P.148-159,2013   |
| 31. | T.Kathirvalavakumar, M.Karthigai Selvi, Efficient Touching Text Line Segmentation in Tamil Script using Horizontal Projection, Int. Conf. MIKE 2013, Springer LNAI Series, P.279-288, 2013  |
| 32. | T.Kathirvalavakumar, M.Gethsiyal Augusta, Pruning Algorithms of Neural Networks – a Comparative Study, Central European Journal of Computer Science, 3(2013) 105-115.   |
| 33. | T.Kathirvalavakumar, J.Jebakumari Beulah Vasanthi, Features Reduction using Wavelet and Discriminative Common Vector and Recognizing Faces using RBF, International Journal of Computer Applications, 74 (2013) 40 - 46.  |
| 34. | T.Kathirvalavakumar, J.Jebakumari Beulah Vasanthi, Face Recognition Based on Wavelet Packet Coefficients and Radial Basis Function Neural Networks, Journal of Intelligent Learning Systems and Applications, 5 (2013) 115 - 122. SPRINGER  |
| 35. | T.Kathirvalavakumar, E.Ponmalar, Self Organizing Map and wavelet based Image Compression, International Journal of Machine Learning and Cybernetics, 4 (2013) 319 - 326. SPRINGER   |
| 36. | T.Kathirvalavakumar, M.Gethsiyal Augusta, A new discretization algorithm based on range coefficient of dispersion and skewness for neural networks classifier, Applied Soft Computing, 12 (2012) 619-625. ELSEVIER  |
| 37. | T.Kathirvalavakumar, Jebakumari Beulah Vasanthi Jeyasingh, Face Representation Using Combined Method of Gabor Filters, Wavelet Transformation and DCV and Recognition Using RBF, Journal of Intelligent Learning Systems and Applications, 4 (2012) 266 – 273.  |
| 38. | T.Kathirvalavakumar, M.Gethsiyal Augusta, Rule extraction from neural networks – A comparative Study, Proceedings of the International Conference on Pattern Recognition, Informatics and Medical Engineering, IEEE, March 21-23, 2012.   |
| 39. | T.Kathirvalavakumar, S.JeyaseeliSubavathi, Modified backpropagation Algorithm with Adaptive Learning Rate Based on Differential Errors and differential Functional Constraints, Proceedings of the International Conference on Pattern Recognition, Informatics and Medical Engineering, IEEE, March 21 - 23, 2012. |

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| 40. | T.Kathirvalavakumar, M.Gethsiyal Augusta, Reverse Engineering the Neural Networks for Rule Extraction in Classification Problems, Neural Processing Letters, 35 (2012) 131-150. SPRINGER   |
| 41. | T. Kathirvalavakumar, R. Palaniappan, Modified Run-Length Encoding Method and Distance Algorithm to Classify Run-Length Encoded Binary Data, LNCS Series, Springer, (2011) 271 - 280.  |
| 42. | T.Kathirvalavakumar, S.JeyaseeliSubavathi, Adaptive Modified backpropagation Algorithm based on Differential Errors, International Journal of Computer Science, Engineering and Applications, 1 (2011) 21 – 34.  |
| 43. | T.Kathirvalavakumar, M.Gethsiyal Augusta, A Novel Pruning Algorithm for Optimizing Feedforward Neural Network of Classification Problems, Neural Processing Letters, 34 (2011) 241-258. SPRINGER   |
| 44. | T.Kathirvalavakumar, S.Jeyaseeli Subavathi, A New Weight Initialization Method using Cauchy's inequality based on Sensitivity Analysis, Journal of Intelligent Learning Systems and Applications, 3 (2011), 242 – 248. SPRINGER  |
| 45. | T.Kathirvalavakumar, S.Jeyaseeli Subavathi, Modified Backpropagation Training Algorithm With Functional Constraints, International Conference on Communication and Signal Processing ICCOS, March 2011, 722 - 728.   |
| 46. | T.Kathirvalavakumar, E.Ponmalar, K-means Clustering and Wavelet Based Image Processing, International Journal of Advanced Research in Computer Science, 2 (2011) 288 – 293.  |
| 47. | T.Kathirvalavakumar, M.Gethsiyal Augusta, A New Discretization and Pattern selection method For Classification in Data Mining Using Feedforward Neural Networks, International Journal of Advanced Research in Computer Science, 2 (2011) 615-620.                                 |
| 48. | T.Kathirvalavakumar, R.Palaniappan: Modied Run-length Encoding method and Distance Algorithm to Classify Run-length Encoded Binary Data, ICLICC 2011, pp 271-280, Springer Lecture Notes.  |
| 49. | T.Kathirvalavakumar, M.Gethsiyal Augusta, A Novel method for Pruning Irrelevant Hidden Neurons of Feedforward Neural Network, Proceedings of the International Conference on Emerging Trends in Mathematics and Computer Applications, (2010), 579 – 584.                          |
| 50. | T.Kathirvalavakumar, S.Jeyaseeli Subavathi, An efficient Backpropagation Algorithm with Adaptive learning parameters using lyapunov Stability Concept, Proceedings of the International Conference on Emerging Trends in Mathematics and Computer Applications, (2010), 563 – 568. |
| 51. | T.Kathirvalavakumar, E.Ponmalar, Improving Wavelet based Image Compression using Neural Networks on detailed coefficients, Proceedings of the International Conference on Emerging Trends in Mathematics and Computer Applications, (2010), 336-341.                               |
| 52. | T.Kathirvalavakumar, J.Jebakumari Beulah Vasanthi, Face Recognition using Averaged subband coefficients by radial basis function network, Proceedings of the International Conference on Emerging Trends in Mathematics and Computer Applications, (2010), 286 – 290.              |
| 53. | T.Kathirvalavakumar, S.Jeyaseeli Subavathi, Neighborhood based modified backpropagation algorithm using adaptive learning parameters for training feedforward neural networks, Neurocomputing, 72 (2009) 3915 – 3921. ELSEVIER   |
| 54. | T.Kathirvalavakumar, K.Aruna Devi, Predicting Time Response of Position Control servomechanism using Neural Networks, College Sadhana , 1 (2008) 1 -8.   |

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| 55. | T.Kathirvalavakumar, K.Arunadevi, Neighborhood Based Modified Backpropagation Algorithm with Adaptive Learning Parameter to solve Nonlinear Function Approximation Problems, Proceedings of the Second International Conference on Resource Utilization and Intelligence Systems, (2008), 800 – 803. |
| 56. | T.Kathirvalavakumar, P.Thangavel, A Modified Backpropagation Training Algorithm for Feedforward Neural Networks, Neural Processing Letters, 23 (2006), 111-119. SPRINGER   |
| 57. | T.Kathirvalavakumar, P.Thangavel, A New Learning Algorithm Using Simultaneous Perturbation With Weight Initialization, Neural Processing Letters, 17 (2003), 55-68.  |
| 58. | T.Kathirvalavakumar, P.Thangavel, Simultaneous Perturbation in Feedforward networks training, Proceedings of National Seminar in Algorithm and Artificial Systems, (2003), 323 – 335.  |
| 59. | T.Kathirvalavakumar, P.Thangavel, Simultaneous Perturbation for single hidden layer networks – Cascade Learning, Neurocomputing, 50 (2003) 193 - 209. ELSEVIER   |
| 60. | T.Kathirvalavakumar, P.Thangavel, Training feedforward networks using simultaneous perturbation with dynamic tunneling, Neurocomputing 48 (2002) 691-704. ELSEVIER   |