

RESUME

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Date of birth : 25 - 08 - 1952

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Qualification:

Degree/ Diploma	University / Institution	Subject / Specialization	Year of Passing	Class obtained
B.Sc	Scott Christian College, Nagercoil, Madurai University	Physics	1972	First Class
B.Tech (DMIT)	Madras Institute of Technology, Chennai	Electronics Engineering	1975	First Class
ME	PSG College of Technology, Coimbatore, Madras University	Communication System	1977	First Rank of Madras University
Ph.D	College of Engineering, Anna University	Biomedical Signal Processing	1998	

Membership in Professional Bodies

1. Senior Member of the Institute of Electrical and Electronics Engineers, USA (SMIEEE)
2. Life Member of the Institution of Engineers, India (MIE)
3. Life Member of the Indian Society for Technical Education (MISTE)

4. Life Member of the Institution of Electronics and Telecommunication Engineers (MIETE)
5. Life Member of the Bio-Medical Engineering Society of India (MBMESI)

Experience

Name of the organization	Designation	Period	Description of duties / job
<u>Administration</u> Anna University , Chennai	Additional Registrar	01-02-2012 to till date	University administration
<u>Academic</u> Anna University [College of Engineering, Guindy Campus, Chennai]	Professor & HOD	12-12-2006 to till date	Dept Administration, Teaching, Research and Development & Consultancy
Anna University [College of Engineering, Guindy Campus, Chennai]	Professor	09-01-2003 to 11-12-2006	Administration, Teaching, Research and Development & Consultancy
[College of Technology – GCT Campus, Coimbatore]	Professor& HOD	15-07-2002 to 08-01-2003	Administration (HOD) Teaching, Research and Development & Consultancy
[College of Engineering, Guindy Campus, Chennai]	Assistant Professor	12-01-1998 to 14-07-2002	
	Selection grade Lecturer	18-02-1992 to 11-01-1998	Teaching, Research and Development & Consultancy
	Senior Lecturer	01-01-1986 to 17-02-1992	
	Lecturer	18-04-1983 to 31-12-1985	
	Associate Lecturer	18-02-1978 to 17-04-1983	

<u>Field Experience</u>			
Institute of Neurology, Govt General Hospital & Madras Medical College, Chennai [On deputation from Anna University]	Biomedical Engineer	01-11-1984 to 31-10-1989 [5 years]	Maintenance of the Computerized Tomographic scanner at Institute of Neurology, Madras Medical College, Chennai

Research and Development activities

** Ph.D. thesis on ' **Preprocessing, analysis and Classification of electrocardiogram - An Artificial Intelligence Approach**'

** Area of Research : **Medical Image Processing and Biomedical Signal Processing.**

PhD Supervised

- 1.S.Sridhar on ' **A knowledge based diagnostic system for Renal Calculi and gallstones**'
Year Dec2004
- 2.S.Poornachandra on 'Wavelet based subband shrinkage models and their applications in denoising of Biomedical signals' **Year Feb 2007**
- 3.M.Sasikala on 'Optimal Feature based analysis of MR Brain Images using Wavelet Transform' **Year: Dec 2008**
- 4.S Nirmaladevi on 'Segmentation and 3D Visualization of Stenosis in Coronary Angiogram Images' **Nov 2009**
5. T.Kalpalatha Reddy on 'Texture Analysis of Jaw Bone CT Images for characterization of Bone Quality' **Year: June 2011**
- 6.S.Ganesh Vaithyanathan on 'Development and Performance Evaluation of Processing techniques for Automatic Karyotyping' **Year:Sep 2011**
- 7.C.Sanathi on 'Nonlinear Methods and Analysis of Heart rate Variability' **Year:Dec 2011**

Laboratory Development

- ** Involved in the development and manual preparation of **Medical Electronics Lab.** at ECE, Anna University.
- ** Developed & established the new **Digital Signal Processing laboratory** to support the revised UG -1996 curriculum of ECE , Anna University.
- ** Co-ordinator of **Texas Instruments & Anna University program for DSP Lab Support** at DECE, Anna University.
- ** Co-coordinator of **AICTE project of Rs 5 lakhs under TAPTEC** for the year 1996 -97 on ' **Development of DSP based Telematic Systems Laboratory** '
- ** Co-ordinator of **AICTE project of Rs. 5 lakhs under Thrust area** for the year 1999

-2000 on **Medical Image Processing Laboratory**.

- **MOU with **RENESAS Technology Singapore Pte Ltd** for the establishment of **Microcontroller lab** at DECE, CEG, Anna University
- ** MOU with **Altera Internationals** for the establishment of **FPGA SOC lab** at DECE, CEG, Anna University
- ** MOU with **Cypress Semiconductors** for the establishment of **PSOC lab** at DECE, CEG, Anna University
- ** MOU with **Texas Instruments, USA** for the establishment of **Centre of Excellence for Biomedical Electronics** DECE, CEG, Anna University
- ** Co ordinator for **DST-FIST Programme** Fund of Rs 150 Lakhs to the DECE, CEG Anna University

Academic Council and Board of Studies

- ****Nominated as Academic Council Member of Anna University by His Excellency the Governor – Chancellor in the year 2009 for three years**
- ** Member of **Board of Studies for Electronics and Communication Engineering in Govt. College of Technology [autonomous], Coimbatore.**
- ** Member of **Board of Studies** for Electronics and Communication Engineering and Electrical and Electronics engineering, **Coimbatore Institute of Technology [autonomous], Coimbatore.**
- ** Member of **Board of Studies** for **Biomedical Engineering, PSG College of Technology [autonomous], Coimbatore**
- ** Member of **Board of Studies** for Electronics and Communication Engineering and Electrical and Electronics engineering, **PSG College of Technology [autonomous], Coimbatore**

Conferences and Faculty Development Programmes

- **Coordinator of Six days Faculty Development Programme on “**Digital Signal Processing**” during 13-18th June 2005.
- ** Coordinator of thirteen days Faculty Development Programme on “ **Signals and Systems**” during Nov 27- Dec 9, 2006
- **Coordinator of thirteen days Faculty Development Programme on “ **Digital Signal Processing**” during June04- 16, 2007
- **Coordinator of the **National Conference on Signals, Systems and Communication- 2007** at **DECE, Anna University**
- **Local Organizing committee member of the **International conference on Biomedical Engineering conducted by Centre for Medical Electronics, School of ECE, Anna University on 24-26th Dec, 2001.**
- ** Coordinator of four days workshop on “**Architecture and Programming of DSP for Engineering college teachers**” during 10-13th April, 2002.
- ** Coordinator of two days workshop on “**Networking, Digital Signal Processing and Biomedical engineering**” during 6th -7th January, 2002 at College of Technology(GCT) Coimbatore-13.
- **Coordinator of five days Faculty Development Programme on “**Digital Signal Processing**”

during 18-22nd November 2003..

- **Coordinator of the **National Conference on Signals, Systems and Communication- 2007** at DECE, Anna University
- **Coordinator of Seven days Faculty Development Programme on “ **Digital Signal Processing**” during May 24-30, 2008
- **Coordinator of the **International Conference on Signals, Systems and Communication- 2009** at DECE, Anna University

Member of Committees:

- ** **DTE Inspection Committee** member for self-financed Engineering College.
- ****Anna University Inspection Committee** member for affiliation of self-financed Engineering Colleges.
- ****AICTE Inspection Committee** member for affiliation of self-financed Engineering Colleges.
- ****Pondichery University Inspection Committee** member for affiliation of self-financed Engineering Colleges
- ****Technical committee member** in various committees for Govt of Tamilnadu

Other Activities and awards

- **Received Honours from **IEEE(USA) President Mr. Clone Anderson for longstanding association with IEEE on 16th Jan 2005.**
- ** Principal Coordinator of UKIERI Project with **University of Westminster, UK** which is funded by British Council during 2012-2013
- ** Member of the **German aided GTZ- ANNA UNIVERSITY Project on ' Biomedical Engineering'**
- ** Member in the Panel of Examiners for Indian engineering service Examination, **Union Public Service Commission, Govt of India.**
- ** Expert Member for the AICTE(R&D) project entitled '**Boiler process monitoring and aid to fault diagnosis by Digital Signal Processing techniques**', Dept of E&I, Annamalai University, Anna Malainagar-608002.
- **Reviewer for the **International Journal on Artificial Intelligence in Medicine**” [Elsevier Science]
- **Delivered lectures on **Digital Signal Processing in EDUSAT programme** of Anna University
- ****Convenor, Purchase Committee for the newly started university colleges at Tindivanam, Villupuram and Arni** during the first year of the respective colleges (2008-2010)
- ** Presented talk on Biomedical Instrumentation in Health Care in All India Radio, Chennai.
- ** Participation as Anna **University Coordinator in the conduct of TNPCEE and TANCET** Entrance examinations.
- ** Consultancy works in Digital Signal Processing and Biomedical Instrumentation.

Country visited

Country	Period	Purpose of visit
Germany	14 th Sep - 14 th Dec 1992	Under GTZ[Germany]-ANNA UNIVERSITY Project on Biomedical Engineering. Academic training at Fachhochschule at Giessen
USA	14 th April – 22 nd April 1998	35 th Rocky Mountain Bioengineering Symposium at Copper Mountain, Colorado
Malaysia	21-25 th November 2006	ICAIET conference at University Malaysia Sabah, KotaKinabalu, Malaysia
Saudi Arabia	26-30 January 2010	Anna University representative for International Exhibition for Higher Education
Japan	21-30 January 2011	Anna University delegation to Hiroshima University, University of Tsukuba, NIMS, Nagoya Institute of Technology
China	19-23 August 2011	Keynote Speaker in the International (ICEBB 2011) Conference at Shanghai, Chennai
Dubai, Abudhabi, Doha, Muscat and Kuwait	26 Feb 2012 to 7 Mar 2012	Admission Promotion under NRI/CIWGC/FN in the Gulf region
UK	20-25 th Nov 2012	Visit to Westminster University, London under UKIERI project

Papers published in journals and conferences

International Journals

1. Kumaravel, N., Kavitha, V., (1994) ' Automatic Diagnosis of Neuro-muscular diseases using Neural Network' , **Biomed. Sci. Instrum., 1994, Vol-30, pp 245-250.**
2. Kumaravel, N., Senthil,A., Sridhar, K.S., Nithiyanandam, N. (1995), 'Integrating the ECG powerline interference removal methods with rule-based system',**Biomed.Sci.Instrum.,1995, Vol-31, pp 115-120.**
3. Kumaravel, N., Rajesh, J., Nithiyanandam, N, (1997) 'Equivalent Tree representation of Electrocardiogram using Genetic Algorithm ', **Biomed. Sci. Instrum, 1997, Vol-33, pp 120-125.**
4. Kumaravel, N., Nithiyanandam, N. (1998) ' Genetic Algorithm cancellation of sinusoidal Powerline interference in electrocardiograms' , **Journal of Med. Biol. Eng. Comput, 1998, 36, pp 191-196.**
5. N.Kumaravel and et.al (1998).,'ECG compression and Recognition using complete tree representation.' **Biomed. Sci. Instrum.,1998, Vol-34, pp 113-118.**
- 6.N.Kumaravel and et.al, (1999) ' Real time implementation of Genetic cancellation of sinusoidal noise removal in Electrocardiogram in TMS320C50 based DSP Processor' , **Biomed. Sci. Instrum. ,1999, Vol-35 , pp 110-115. .**
7. S.Sasikala and N.Kumaravel,(2000)'Optimal Auto Regressive Model based Medical Image Compression using Genetic Algorithm' , **Biomed. Sci. Instrum.,2000, Vol-36 ,pp 110-115.**
8. S.Sridhar and N.Kumaravel,(2001) 'Automatic Segmentation of Medical Images for Renal Calculi Analysis' , **Biomed. Sci. Instrum.,2001, Vol-37, pp 405-410.**
9. S.Sridhar and N.Kumaravel (2002), 'Segmentation of Renal Calculi in Ultrasound images' , **International Journal of Medical Informatics and Internet in Medicine, Volume 27, Number 4, December 2002, pp 229-236.**
10. Poornachandra and N.Kumaravel (2003), 'A wavelet co-efficient smoothened RLS Adaptive denoising model for ECG' , **Biomed. Sci. Instrumentation,Vol-39, April 2003,pp155-157.**
11. S.Sridhar and N.Kumaravel (2003), 'Internet based expert system for the management of Gall stones, Renal, Urteric and Bladder calculi' , **Biomed. Sci. Instrumentation, Vol-39, April 2003, pp36-41.**
12. S.Poornachandra and N.Kumaravel, (2005), 'Hyper-trim shrinkage for denoising of ECG signal' , **Elsevier Journal on Digital Signal Processing, Volume 15, Issue 3, 1 May 2005, PP 317-327**
13. Poornachandra S and N. Kumaravel. and, "Subband-Adaptive Shrinkage for Denoising of ECG Signals", **EURASIP Journal on Applied Signal Processing Volume 2006 (2006), Article ID 81236, 9 pages**
14. Poornachandra S.and, N. Kumaravel "Statistical Estimation for Hyper Shrinkage", **Journal of Digital Signal Processing, Vol. 17, Issue-2, pp. 485-494, March 2007.**
15. M.Sasikala and N.Kumaravel , 'Segmentation of Brain MR images using modified Fuzzy C-means clustering with a genetically optimized approach' , **International Journal of Biomedical Soft Computing and Human Sciences, Vol 12 No.1 , pp 59-68, 2007**
16. M.Sasikala and N.Kumaravel, ' A wavelet based optimal texture feature set for classification of brain tumours' , **International Journal of Medical Engineering and Technology,2007,1-8**

17. M.Sasikala and N.Kumaravel,' A comparative analysis of feature based image fusion methods', **Journal of Information Technology**, 6(8): 1224-1230, 2007
18. Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N " A curve fitting approach to separation of Non-linearly Separable pattern Classes applied to chromosome classification" **Journal of Artificial Intelligence** pp 1-7 , 2007
19. . Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N "Segmentation of Structurally Homogeneous Objects by Pixel Ranking using Multidirectional Parameter Evaluation applied to Chromosome images" **International Journal of Computational Intelligence and Healthcare Informatics** Vol 1 No 1 June 2008
20. . Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N " A regression based approach to a maximum margin classifier for separation of linearly inseparable patterns" **Journal of Interdisciplinary Mathematics** Vol 11 No 2 pp 237-254, 2008
- 21.Poornachandra and Kumaravel.N, 'A novel method for the elimination of power line frequency in ECG signal using hyper shrinkage function' **Elsevier Journal on Digital Signal Processing**, 18(2008), PP 116-126
- 22 Nirmaldevi,S, and Kumaravel,N et al A novel segmentation method using multiresolution analysis with 3D visualization for X-ray coronary angiogram images.
J Med Eng Technol. 2008 May-Jun;32(3):235-44.
- 23.Sasikala,s and Kumaravel, N , " A wavelet-based optimal texture feature set for classification of brain tumours. **J Med Eng Technol. 2008 May-Jun;32(3):198-205.**
- 24.Kalpalatha Reddy, T and Kumaravel,N 'Texture Analysis of Bone Images for Classification and Characterization of Bone Quality'. **International Journal of Soft Computing**, Vol 4(5),pp 223-238, 2009
- 25.Santhi C and Kumaravel N "Application of Volatility models on Heart variability" **Journal of Advanced Research in Computer engineering** Vol 3 No 1 pp 115-119 January-June 2009.
26. Santhi C and Kumaravel N "Heart Rate Variability analysis" **International Journal of Micro and Nano Electronics, Circuits and Systems** Vol 1 No 2 pp 55-60, 2009
- 27 Kalpalatha Reddy, T and Kumaravel,N 'Segmentation and Classification of Jaw Bone CT Images Using Curvelet Based Texture Features' **Bangladesh Journal Medical Sciences**, Vol 9, Issue 1. pp 33-43, Jan-Mar 2010
28. Kalpalatha Reddy, T and Kumaravel,N 'Assessment of Trabecular Bone Texture from CT images by Multi-resolution Analysis and Classification using SVM' **International Journal on Oral Implantology and Clinical research**, Vol 1, Issue 2, pp 13-18, May-August 2010
29. Kalpalatha Reddy, T and Kumaravel,N 'Jaw Bone Classification using Contourlets' **International Journal on Biomedical Engineering and Technology**, Vol 4 , No 4, 2010
30. Kalpalatha Reddy, T and Kumaravel,N 'Wavelet based Texture Analysis and Classification of Bone Lesions from Dental CT' **International Journal of Medical Engineering and Informatics**, Vol 2. No 3. 2010
31. Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N " A Maximum Margin classifier for non-linearly separable pattern classes using feature space sampling technique applied to chromosome classification" **International Journal on Biomedical engineering and Technology**, Vol4 No 2, pp 123-133, 2010
- 32.Santhi, C and Kumaravel N 'Nonlinear filters for preprocessing Heart variability signals" **International Journal of Computer Science and Network Security**, Vol 10 No 8 pp 250-254, August 2010

33. Santhi C and Kumaravel N “ Empirical mode decomposition analysis of heart rate variability” **International Journal of Computer Science and Information Security**, vol 8 No 6 pp 255-258 Septmber 2010
34. Kalpalatha Reddy, T and Kumaravel,N ‘ Multiresolution based Texture Analysis of Jaw Bone Lesions’ **European Journal of Scientific Research**, Vol 51, Issue 3, 2011
35. Kalpalatha Reddy, T and Kumaravel,N ‘ Curvelet based Textue Parameters to Characterize changes in Jaw Bone with Age and Gender’**International Journal of Tomography and Statistics**, Vol 16, pp 30-40, Nov 2011
36. Santhi C and Kumaravel N”HRV analysis in Different age and pathological Condition” **Journal of Computer Science** Science Publications 2011
- 37.Palanivel J and Kumaravel,N ‘An efficient Breast cancer screening system based on Support Vector Machines with Fuzzy C Means clustering’ **European Journal of scientific Research** Vol 51, No 1, 2011 pp 115-123

International Conferences

1. Kumaravel,N., Sridhar,K. (1994) , ' Knowledge based Biosignal Processing System for diagnosing Heart Disorders ' , **International Conference on Robotics, Vision and Parallel processing for Industrial automation , Ipoh, Malaysia, pp 602-609.**
2. Kumaravel, N., Sridhar, K.S., Nithyanandam, N., (1996) ' Automatic Diagnosis of Heart Diseases using Neural Networks ' , **Fifteenth Southern Biomedical Engineering Conference, Dayton, Ohio, USA, 1996, pp 319-322.**
3. S.Sridhar and .N.Kumaravel (2002) ‘Expert system for Renal Calculi Analysis’, Int. Conf. on Artificial intelligence in Engg & Technologies at **Universiti Malaysia Sabah** ,17-18 , June 2002.
4. Poornachandra and N.Kumaravel (2002), ‘A new Wavelet co-efficient smoothened adaptive denoising model for biological signal’, **ICMBE, 4-7th, Dec 2002, Singapore.**
5. Poornachandra and .N.Kumaravel (2003) , ‘A Wavelet co-efficient smoothened RLS adaptive denoising model for ECG’, **NSIP, 8th-11th June 2003, Italy.**
6. Poornachandra, N.Kumaravel, and K.P.Karthikeyan(2004),”An efficient algorithm for noise elimination using B-spline in wavelet domain”. **BIOSIGNAL 2004, 17th International EURASIP conference, 23-25th June 2004, Brno, Czech Republic.**
7. S.Sridhar andN.Kumaravel, (2004), ‘Distributed data mining system for renal calculi & gallstones data analysis’ **ICAIET 2004, august 3-5, Malaysia. Pp 596-602.**
8. M.Sasikala and N.Kumaravel, (2004), ‘Optimal Feature Selection for detection of Malignant tumor in Brain images’ **ICAIET 2004, August 3-5, Malaysia. Pp 426430.**
9. Santhi C and Kumaravel N “ Statistical self-similarity of heart rate variability “ Proceedings of International Conference on Signal Processing and Communications (IEEE SPCOM 2004) IISc, Bangalore.
10. Santhi C and Kumaravel N “ Non-linear analysis of Cardiac Autonomic Nervous Activity using Principal Dynamic fluctuation analysis” Proceedings of International Conference on Signal Processing and Communications(IEEE INDICON 2005) IIT Chennai.

- 11**S.Poornachandra , N.Kumaravel, and et.al, ‘Wave Shrink Using Modified Hyper-Shrinkage Function’ **27th annual International conference of the IEEE –EMBS, September 1-4, 2005, Shanghai**
- 12** S. Poornachandra , N. Kumaravel,. and V. Bhavani ‘A Novel Method for the Elimination of Power Line Frequency in ECG Signals Using Modified-Hyper Shrinkage’ ,**12th International Conference on Biomedical Engineering** 7 – 10 December 2005 Suntec Singapore International Convention & Exhibition Centre, Singapore
- 13** GaneshVaidyanathan.S, N.Kumaravel, and B. Kar , ‘Chromosomal Grouping System Using Tree Structured Discriminant Functions’ , **The 12th International Conference On Biomedical Engineering** 7 – 10 December 2005 Suntec Singapore International Convention & Exhibition Centre, Singapore.
- 14.** Shanthi, C and Kumaravel, N.:. Non-linear Analysis of Cardiac Autonomic Nervous Activity using Principal Dynamic Fluctuation Analysis, **INDICON**, 2005 Annual IEEE Volume , Issue , 11-13 Dec. 2005 Page(s): 208 – 211
- 15** M. Sasikala, and N. Kumaravel , , ‘Comparison of Feature Selection Techniques for Detection of Malignant Tumor in Brain Images’, **INDICON**, 2005 Annual IEEE Volume , Issue , 11-13 Dec. 2005 Page(s): 212 – 215
- 16.** Poornachandra, Dr. N. Kumaravel *et al*, “An improved analysis on Denoising using B-spline with adaptation” Proc. of International multiconference in computer science and computer engineering, 21st – 24th June, 2004, Las Vegas, Nevada, USA
- 17** Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N “ Chromosomal Grouping system using tree structured Discriminant functions” Proceedings of 12th International conference on Biomedical Engineering , December 2005 , Singapore
- 18** Nirmaladevi S .N.Kumaravel, and N.Sundar,’Matched filter approach for quantification of narrowing coronary blood vessels’ **ICCSA-2006**, San Diego, California pp 208-212
- 19.**Nirmaladevi,S., N.Kumaravel, and G.Valarmathi, ‘Improved K-Means Algorithm for Vascular Network Detection’, **ICCSA-2006**, San Diego, California pp 188-192.
- 20.**Nirmaladevi S, N.Kumaravel, and G.Valarmathi, ‘K-Means Algorithm for Vascular Network Detection’, International conference ISCO-2006 at Karpagam Engineering College, CBE, p-70 (Abstarct only)
- 21.** S.Sasikala , N.Kumaravel. and et.al , ‘Automatic tumour segmentation using optimal texture features’, International Conference on Advances in Medical Signal and information Processing Glasgow, UK, 17-19 July 2006
- 22.** S.Sasikala , N.Kumaravel. and et.al , ‘Segmentation of Brain MR images using genetically guided clustering’, IEEE EMBS Annual International Conference, Newyork, USA, Aug 30- Sept 3, 2006
- 23.** S.Sasikala N.Kumaravel. and et.al , ‘Medical Image Fusion using Wavelet features’, ICAIET, University Malaysia Sabah, Kota Kinabalu, 22-24, November 2006. pp
- 24.** S.Sasikala N.Kumaravel. and et.al , ‘Multimodal Medical Image Fusion based on Lifting wavelet transform’, International conference on Information Processing, August 10-12, Bangalore 2007.
- 25.**Kalpalatha Reddy,T and Kumaravel,N ‘Mutiscale assessment of Bone architecture and quality from CT images’ Proceedins of the 13th international conference on Biomedical Engineering, pp 144, December 3-6, 2008

26. Ganesh Vaidyanathan, Natesan Kumaravel and Bibhas Kar., 'A Novel Method for Identification of Mutually Occluding Text Pattern', International Conference on Signal Processing System (ICSPS 2009)15 - 17, May 2009, Singapore
27. Ganesh Vaidyanathan, Natesan Kumaravel and Bibhas Kar., 'A Novel Technique for Identification of Partially Hidden Metaphase Chromosomes', , International Conference on Signal Processing System (ICSPS 2009)15 - 17, May 2009, Singapore.
28. Kalpalatha Reddy,T and Kumaravel,N , ' Texture analysis of Bone CT images for detection of changes in Bone Mass and Structure' Proceedings of 2nd International Conference on Biomedical Informatics and Signal Processing, pp31, March 13-15 , 2009.
29. Kalpalatha Reddy,T and Kumaravel,N 'Classification of Law Bone images using Multiresolution based texture features', Proceedings of International Conference on Signals, Systems and Communication, pp274-278, December 21-23, 2009.
30. Santhi C and Kumaravel N "Time Domain Scale Filtering of Heart Rate Variability" Proceedinds of International Conference on Electronic Design and Signal Processing and Communications (IEEE ICEDSP 2009) MIT, Manipal
- 31.Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N " Novel Technique for Identification of Partially Hidden Metaphase Chromosome" International Conference on signal Processing Systems , IEEE Computer Society 2009.
32. Ganesh Vaidyanathan, Bibhas Kar and Kumaravel N " Novel Technique for Resolving mutually occluding Text Patterns" International Conference on signal Processing Systems , IEEE Computer Society 2009.

National Journals

1. N.Kumaravel and et.al(2002).,' Analysis of Profile of Auto antibodies in systemic Lupus Erithematosus using Data Mining Techniques', **Journal of Indian Rheumatology Association, Vol.10, supplementary 1, November 2002, ISSN 0971-5045.**
2. Poornachandra, N.Kumaravel, and V.Ravichandran(2003), 'Mapping of DCT and DST based on symmetries', **IETE Journal of Research, Vol 49, No1, Jan-Feb,2003 pp 35-42.**
3. N. Kumaravel and Poornachandra S., "Wavelet based Adaptive Denoising Models for Biological Signals", **Journal of Institution of Engineers**, Vol. 86, November 2005
- 4.N. Kumaravel and Poornachandra S. , "Wavelet Thresholding by α -Trim Mean Filter", *Journal of Institute of Engineers*, Vol. 87, January 2007.
5. M. Suchetha and N. Kumaravel1 Empirical Mode Decomposition- based Subtraction Techniques for 50 Hz Interference Reduction from Electrocardiogram

National conferences

- 1.N.Kumaravel, et.al.,(1998) 'Restoration of Medical Image Compressed in JPEG Format', **National Conference on Biomedical Engineering at Manipal Institute of Technology, Manipal April 9-11,1998, pp III 16-18.**
2. N.Kumaravel, and et.al.,(1998) " Selection of Optimal Wavelets for ECG Compression using Genetic Algorithm ', **National Conference on Biomedical Engineering at Manipal Institute of Technology,Manipal April 9-11,1998, pp v 21-23.**

3. N.Kumaravel and P.Krishnamoorthy, (2000) 'Perceptual Watermark for Medical Image Authentication', **National Conference on Biomedical Engineering at University of Roorkee, April 21-22, 2000**
4. N.Kumaravel and S.Sridhar (2002), 'Expert system for renal calculi analysis', Proc. Of Medical Informatics and Telemedicine conference 2002, **Sri Ramachandra Medical College Research institute, India, pp 23 (abstract).**
5. Poornachandra and N.Kumaravel (2003), 'Wavelet co-efficient smoothened LMS Adaptive denoising model for ECE', **NCC-2003, 31st Jan-2nd Feb 2003, IIT, Chennai.**
6. Poornachandra, N.Kumaravel. and K.P.Karthikeyan (2004), 'Denoising of ECG by ∞ -trim thresholding of wavelet coefficients' **NCC 2004, 31st-2nd, Jan-Feb, 2004, IISc, India**
7. C.Shanthi and N.Kumaravel, (2004), 'The Statistical self-similarity of heart-rate variability' **SPCOM -2004, IISC, Bangalore.**
8. N.Kumaravel, T.Kalaiselvi and J.Sheeba Jenifer, 'Denoising Functional MR Images' Proc of National Conference on Image Processing 2005 at **MS Ramaiah School of Advanced Studies, Bangalore, March 22-24, 2005.**
9. N.Kumaravel and D.Mary Sugantharathnam, 'Image Enhancement using Fusion' Proc. Of **National Conference at Govt. College of Engineering, Trinelveli, 2005.**
10. N.Kumaravel and M.Selvam, 'Efficient Volumetric Medical Image Compression using Wavelet Transform with SPIHT algorithm' **Proc. Of national Conference on Recent Trends in Communication, NCRTC-2005, May 12-13, pp 31-36.**
11. N.Kumaravel, M.Sasikala and Subashini, 'Feature based segmentation of Malignant tumor in MRI Brain Images', **Proc. Of National Conference on Signals, Systems and communication at CEG, Anna university, 1-2 June 2005.**
12. N.Kumaravel, S.Suresh, 'Denoising of ECG Signals Using Wavelet shrinkage' **NCSSSS -2006, Feb 24-25, 2006, BAIT, Sathiyamangalam.**
13. S.NirmalaDevi, N.Kumaravel, and M.Sangeetha, 'Wavelet based coronary blood vessel segmentation using Entropy segmentation', National Conference on Microelectronics and Communication at **SRMIST, march 2006, P 48-51.**
14. N.Kumaravel, S.NirmalaDevi and N.Sundar, 'Quantitative analysis of Coronary angiographic images', National Conference on Microelectronics and Communication at **SRMIST, march 2006, P 66-70.**
15. N.Kumaravel, S.NirmalaDevi and Valarmathi, 'Automatic segmentation of angiographic images using K-means algorithm', **NCCT-06 at MEPCO, March 2006, pp 237-40**
16. N.Kumaravel, Srinivasan.K, Vaidyanathan, G and .Bibaskar, 'Chromosome image Enhancement Using Multiscale Differential Operators Applied to 400-Band Photomicrographs' **JCECON-06, 7-8 April 2006**
17. N.Kumaravel, Sasikala, Usha', 'Feature Based Image Fusion', **JCECON-06, 7-8 April 2006**
18. N.Kumaravel, S.NirmalaDevi and Dhalakshimi, 'Blood vessel segmentation and Blood flow rate determination in Angiographic images', **NSSC-2006 at CEG, AU pp 2**

Workshop / Conference attended

1. Attended the 4th National System Conference at PSG College of Technology, Coimbatore from 2nd June to 4th June 1977.

2. Participated in the workshop on 'Medical Instrumentation' organised by Dr. MGR Medical University at Madras on 23rd Feb., 1991.
3. Attended the training programme on 'Quality Circle' conducted at College of Engineering, Anna University on 3rd and 4th January 1992.
4. Participated in the International Conference on 'Biomedical Engineering' organized by Fachhochschule, Giessen, Germany on 15th and 16th October, 1992.
5. Participated the International conference on 'Recent advances in Biomedical Engineering' organized by Osmania University from 6th Jan. to 8th Jan., 1994.
6. Presented the paper in the 35th Annual Rocky Mountain Bio- Engineering Symposium and 35th International ISA Biomedical Sciences Instrumentation Symposium, Copper Mountain, Colorado, USA, April 17-19, 1998,
7. Participated in the Texas Instruments DSP Educators and Third Party Conference, DSPS Fest '98 held at The Capitol Hotel, Bangalore on the 3rd and 4th of December, 1998.
8. Participated as guest in the Texas Instruments DSP Educators and Third Party Conference, DSPS Fest '99 held at The Capitol Hotel, Bangalore on the 2nd and 3rd of December 1999.
9. Participated as guest in the Texas Instruments DSP Educators and Third Party Conference, DSPS Fest '2000 held at Taj Residency, Bangalore on the 31st Nov and 1st Dec 2000.
10. Participated as guest in the Texas Instruments DSP Educators and Third Party Conference, DSPS Fest '2001 held at Hotel Leela Palace, Bangalore on the 1st Dec and 2nd Dec 2001.
11. Participated as guest in the Texas Instruments DSP Educators and Third Party Conference, DSPS Fest '2002 held at Hotel Leela Place , Bangalore on the 2nd and 3rd Dec 2002.

Short-term / Self supporting Courses

Conducted lecture and practical classes for the participants of the following short-term courses.

1. 'Cobol Programming Language' conducted by Department of Electronics and Communication Engineering, College of Engineering, Madras during the period 1979 - 1983.
2. 'Biomedical Instrumentation' - jointly conducted by SECE and Department of Physics, Anna University during 1991 - 1992.
3. 'Medical Electronics Equipments' - organised by SECE, Anna University from 01.09.1993 to 25.10.1993.
4. 'Satellite and Cable Television' organised by SECE, Anna University from 21.09.1993 to 27.11.1993.
5. 'Medical Electronics Equipments' organised by SECE, Anna University from 10.05.1995 to 21.06.1995.
6. 'Medical Instrumentation' for the Polytechnic teachers under Directorate of Technical Education, Gujarat through GTZ sponsored programme at SECE , Anna University from 09.10.1995 to 20.10.1995.
7. 'Electronics and Instrumentation' organised by SECE, Anna University for the Veterinary University doctors from 23.12.1996 to 30.12.1996 and from 28.07.1997 to 01.08.1997
8. 'Recent Trends in Biomedical engineering' ISTE Summer School conducted at the SECE, Anna University from 21-06-1999 to 02-07-1999.
9. "DSP and Measurements" Conducted for TNEB engineers under Appadurai chair at SECE Anna University, 11-16, October, 1999

Special / Guest Lectures/ Invited Talk

1. Guest lectures on ' Ultra sound Scanner / Preventive maintenance and repair' - D.O.E, Govt. of India supported program for international participants on Management Development Programme for HI_TECH Medical Equipments' at Tamilnadu Hospital organised by Kody-Elcot LTD on 14.03.1994.
2. Special lecture on ' Preventive Maintenance and repair of Biomedical Instruments ' - ISTE Summer school at Satyabama Engineering College, Madras on 19.05.1995.
3. Special lecture on ' Digital Signal Processing ' at Periyar Maniammai College of Engineering for Women, Thanjayur on 18.10.1995.
4. Guest lectures on 'CT and MRI in Medical Imaging', ' Ventilators', ' Hospital Equipment Management ' at ISTE/AICTE sponsored winter school at School of Instrumentation and Electronics, MIT during 08.06.1997 to 21.06.1997.
5. Guest Lecture on ' Patient Monitoring System ' at Training Programme on Cardiological Instrumentation by Kody-Elcot Ltd. on 24.06.1997.
6. Special Lecture on Magnetic Resonance imaging in ISTE Short-term course on Biomedical Instrumentation at Dr. Dharmambal Govt. Polytechnic for Women on 10-11-1998
7. Guest Lecture on ' Multirate Signal Processing and Realization in TMS 320C50 DSP Kits' at Mepco Schlenk Engineering College, Viruthunagar on 13-14, November 1998.
8. Guest Lecture on ' Image segmentation and representation' at Mepco Schlenk Engineering College, Viruthunagar on 26-27, March 1999.
9. Guest Lecture on Medical Mechatronics in the ISTE Summer School on Mechatronics at MIT on 08-07-1999.
10. Invited talk on Medical Imaging & AI Techniques in ECG in the Workshop on Biomedical Engineering At Kumaraguru College of Technology at Ciombatore
11. Guest Lecture on ' Multirate Signal Processing and Realization in TMS 320C50 DSP Kits' at Mepco Schlenk Engineering College, Viruthunagar on 8-9, September 1999.
12. Invited talk on Magnetic Resonance Imaging at the UGC sponsored short-term course on Bio-medical Instrumentation, PSG Arts & Science College, Coimbatore, March 2000.
13. Delivered Guest lecture on "Medical Mechatronics" at the training program on Mechatronics for Polytechnic teachers conducted by DR.Dharmambal Govt. Polytechnic for Women, Chennai on 16-05-2000
14. Guest Lecture on ' Multirate Signal Processing, Realization in TMS 320C50 DSP Processors, Adaptive Filters and Wavelets' at Mepco Schlenk Engineering College, Viruthunagar on 15-16, September 2000.
15. Invited Lecture on 'MRI Imaging' on behalf of ECE Association at M.N.M. Engineering College, Chennai on 10th January 2001
16. Guest Lecture on 'DSP with DSP Processors' at National Engineering College, Kovilpati on 16th Feb, 2001.
17. Guest Lecture on 'Biomedical Instrumentation' at E.V.P. Engineering College, Chennai On 24th Feb 2001.
18. Invited Lecture on 'Medical Imaging Techniques' at the State level seminar on Biomedical Signal Processing conducted by RVS College of Arts and Science, Coimbatore on 14th September 2001.

19. Guest Lectures on ‘DSP Processors architecture , Adaptive signal Processing, Multi rate signal Processing and Wavelet Transform’ at Mepco Schlenk Engineering College, Viruthunagar on 15-16, September 2001.
20. Expert Lecture on ‘Genetic Algorithms in Biomedical Signal Processing’ in the AICTE Winter School - Genetic Algorithm Applications in Engineering conducted at CIT, Coimbatore on 20-11-2001.
21. Invited lecture on ‘DSP in 3G Networks’ in AICTE-ISTE-STTP on 3G Mobile networks at Kongu Engg College, Erode, October 17-30, 2002.
22. Invited lecture on 3D Ultrasonic Imaging’ in the short-term course on Recent advances in Medical Electronics at Bannari Amman Institute of technology, January 3-4, 2003.
23. Guest lecture on ‘DSP in Biomedical Engineering’ in the workshop for advanced DSP application at national engineering college, Kovilpatti on 17-19th April 2003.
24. Guest lecture on ‘ Mutirate signal processing ‘ in the Faculty development programme conducted at Mepco Schlenk Engineering College, Viruthunagar on 11, June 2003.
25. Guest lecture on ‘Neural Networks applications in Biomedical Engineering’ in the short term training programme on Neural Networks and Fuzzy Logic at RMK Engg College, 23-28 June 2003.
26. Guest lecture on ‘ Adaptive signal processing ‘at Mepco Schlenk Engineering College, Viruthunagar on 11-12, October 2003.
27. Special Lectures on ‘ Data acquisition, Digital Scanners, Medical data standards- DICOM, HL7’ in the short-term course on TELEHEALTH Technology conducted by Anna University and Apollo Hospital during October 2003.
28. Guest lecture on ‘ Mutirate signal processing ‘ in SSN Engineering College, Chennai on 22nd November 2003.
29. Special Lecture on DSP Controllers in the AICTE-ISTE winter school at CIT, Coimbatore on 13th Nov, 2003.
30. Guest lecture on ‘ DFT and FFT’ in the Faculty development programme conducted at SSN Engineering College, Chennai on 26th Nov 2003.
31. Special Lectures on ‘ Data acquisition, Digital Scanners, Medical data standards- DICOM, HL7’ in the short-term course on TELEHEALTH Technology conducted by Anna University and Apollo Hospital during July 2005.
32. Invited talk in the International Conference on Environmental, Biomedical and Biotechnology at Shanghai, China, August 19-21, 2011.
33. Keynote address in the National Conference at Motilal Nehru National Institute of Technology, Allahabad, April 4-6, 2013.

Areas of interest / Specialization

- ** Digital Signal Processing
- ** Biosignal Processing
- ** Medical Image Processing
- ** Pattern Recognition
- ** Neural Networks & Genetic Algorithms

Mail. TANCA 2020 (Refund). ADMISSIONS (Refund). Takes over as State Commander, Indian Coast Guard, Kerala & Mahe. Read More. AIC-Anna Incubator. CoE - Genuineness Verification. Constituent Colleges & Regional Offices. Anna University, Chennai. Home. About Us. Dr.K.Sankaran. Professor Director-CPEES, Coordinator-HUB. 2235 8368(O) 2442 3613(R) ksankaran@annauniv.edu ksankran@yahoo.com. Dr.Meenakshi Sundaram. Professor Director, Centre for Food Technology. 2235 8365 meenakshi@annauniv.edu. Dr.Usha Antony. Professor. Anna University is a technical university in Tamil Nadu, India. Anna University fifth among govt universities in India. The main campus is in Guindy, Chennai. Anna University at located in Tamil Nadu. in 1926. voter ID card. Main Features Of Anna University Chennai. Anna University was established in 1978 and located in Chennai. The university is located on 185 acres. University has two approvals that are AICTE & University Grant Commission (UGC). University offers 18 UG courses, 35 PG courses (Regular), 34 PG Self-supporting courses, and 3 Research courses. Email- ID: dsa@annauniv.edu / dsaannauniv@gmail.com. Facilities. Auditorium. Tamilnadu Dr. MGR Medical University. Chennai, Tamil Nadu. - info Courses & Fees Admission. Address for Communication[Office]: Dr.N.Kumaravel, Professor & HOD, Dept of ECE, Anna University, Chennai-600025 INDIA Ph: 2235 8880 & Additional Registrar, Anna University Chennai-600025 INDIA Ph:2235 7010 e-mail: kumaravel_n@annauniv.edu. Qualification: Residence: Dr.N.Kumaravel, 23A, Ravi Street, Seethapathy Nagar Velachery, Chennai 600042 Ph: 2243 2425 Mobile : 9444465074 e-mail: nkumaravel1952@gmail.com. Degree/ Diploma B.Sc. B.Tech (DMIT) ME. Ph.D. University / Institution Scott Christian College, Nagercoil, Madurai University Madras Institute of Technology, Chennai PSG College of Techno...