

Hema Arunachalam Murthy

(A) Personal:

Present Occupation : April, 2006, Professor,  
Dept. of Computer Science and Engg.,  
IIT, Madras.

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Communication and Engg., IIT, Madras -600 036, India.

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(B) Academic:

1. Ph.D (Computer Science and Engineering), Indian Institute of Technology, Madras, July, 1992.
2. M.Eng.(Electrical and Computer Engineering), McMaster University, Hamilton, Ontario, Canada, December, 1985.
3. B.E.(Electronics and Communication Engineering), Osmania University, Hyderabad, June, 1980, I class(Distinction).

(C) Professional Experience:

1. Nov'79 - Jul'80 : Worked as a student trainee at D.L.R.L. Hyderabad. Designed and implemented a microprogrammed emulator of the 8080 CPU using AM2900 series bit-slice processor and sequencer.
2. Sept'80-Aug'83 : Worked as a Scientific Officer(SO/SC) in the Speech and Digital Systems Group of T.I.F.R., Bombay. Designed and implemented (i) a three dimensional graphics system GRASP in Pascal (ii) an editor for drafting circuit layout.
3. Sept'83-Dec'85 : Worked as a Teaching assistant(10 hours a week) at McMaster University, Canada, during Fall and Winter Sessions from Sept, 1983-Dec.,1985.
4. Jan'86-Apr'86 : Research Assistant and part-time Graduate Student in Communications Research Laboratory, McMaster University, Canada.
5. Jul'86 - Aug'88 : Research Scholar (Full-time), Dept. of Computer Science and Engg., IIT, Madras.
6. Aug'88 - Jul'92 : Lecturer ( and part-time research scholar), Department of Computer Science and Engineering, IIT Madras - 600 036.
7. Jul'92 - Feb'93 : Lecturer, Department of Computer Science and Engineering, IIT, Madras - 600 036.
8. Feb'93 - Sept'00: Asst. Professor, Department of Computer Science and Engineering, IIT, Madras - 600 036.

9. Sept'00 - Apr'06: Associate Professor, Department of Computer Science and Engineering, IIT, Madras - 600 036.
10. Apr'06 - : Professor, Department of Computer Science and Engineering, IIT, Madras - 600 036.
11. Jun'95 - Jun'96 : International Fellow, STAR Laboratory, SRI International, 333, Ravenswood Avenue, Menlo Park, CA 94025 (on leave from IIT, Madras).
12. Jun'98 - Jul'98 (six weeks): Visitor at TIFR Bombay
13. Jun'02 - Aug'02 :International Fellow, STAR Laboratory, SRI International, 333, Ravenswood Avenue, Menlo Park, CA 94025 (on leave from IIT, Madras).

(D) Publications: *In Journals*

1. G L Sarada, A Lakshmi, Hema A Murthy and T Nagarajan, "Automatic Transcription of Continuous Speech into Syllable-like units for Indian Languages," *Sadhana, Indian Academy of Sciences*, Vol. 34, Part 2, April 2009, pp. 221-233.
2. Rajesh M. Hegde, Hema A. Murthy and Venkata Ramana Rao Gadde, "Significance of Joint Features Derived from The Modified Group Delay Function in Speech Processing," *EURASIP Journal on Applied Signal Processing*, Vol.2007, Article ID 79032, 13 pages.
3. T Nagarajan and Hema A Murthy, "Language Identification using Acoustic Log-Likelihood of Syllable-like units," *Speech Communicatons*, Vol.48, pp.913-926, 2006.
4. Rajesh M. Hegde, Hema A. Murthy and Venkata Ramana Rao Gadde, "Significance of The Modified Group Delay Function in Speech Recognition", *IEEE Transactions on Speech and Audio Processing*, Vol.15, Issue.1, Jan 2007, pp.190-202.
5. T Nagarajan and Hema A Murthy, "Group Delay based Segmentation of Spontaneous Speech into Syllable-like units," *EURASIP Journal of Applied Signal Processing*, Vol.17, pp.2614-2625, 2004.
6. V. Kamakshi Prasad, T. Nagarajan and Hema A. Murthy, "Automatic segmentation of continuous speech using minimum phase group delay functions," *Speech Communications*, Elsevier, vol.42, pp.429-446, 2004.
7. T. Nagarajan, V. Kamakshi Prasad and Hema A. Murthy, "Minimum phase signal derived from the root cepstrum," *IEE Electronics Letters*, Vol.39, No.12, pp.941-942, June, 2003.
8. Hema A. Murthy, Francoise Beaufays, Larry P.Heck, Mitchel Weintraub, "Robust Text Independent Speaker Identification over Telephone Channels," *IEEE Trans. on Speech and Audio Processing*, Vol.7, No.5, pp.554-568, 1999.
9. M.Narendranath, Hema A.Murthy, S.Rajendran and B.Yegnanarayana, "Transformation of formants for voice conversion using artificial neural networks," *Speech Communication*, vol.16, no.2, pp.206-216, 1995.
10. B.Yegnanarayana and Hema A. Murthy, "Significance of Group Delay functions in Spectrum estimation," *IEEE Trans. on Signal Processing*, Vol.40, No.9, pp.2281-2289, Sep. 1992.
11. Hema A. Murthy and B. Yegnanarayana "Formant extraction from group delay function," *Speech Communication*, Vol.10, pp.209-221, Aug., 1991.

12. Hema A. Murthy and B. Yegnanarayana, "Speech processing using Group delay functions," *Signal Processing*, Vol.22, pp.259-267, March, 1991.
13. Hema A. Murthy, K.V. Madhu Murthy and B. Yegnanarayana, "Formant extraction from phase using weighted group delay function," *Electronics letters*, 9th Nov., 1989, Vol.25, No.23, pp.1609-1611.
14. Hema A. Murthy and Simon Haykin, "Bayesian classification of surface-based ice-radar images," *IEEE Journal of Oceanic Engineering*, Vol. OE-12, No.3, pp.493-501, July, 1987.
15. R.R. Joshi and Hema Arunachalam, "Multi-Level Picture Segmentation in the Graphics System GRASP," *Computers and Graphics*, Pergamon Press, Vol.8,No.2,pp.167-176,1984.
16. R.R. Joshi and Hema Arunachalam,"GRASP - A 3D Graphics System for Pascal Users," *Computers and Graphics*, Pergamon Press, Vol.8,No.1,pp.93-102, 1984.
17. B.Yegnanarayana, K.V. Madhu Murthy and Hema A. Murthy, "Applications of Group Delay Functions in speech processing," *JIETE Special issue on Speech processing*, Jan 1988.

*In Books:*

1. Hema A Murthy, Francoise Beaufays, Larry P Heck and Mitchel Weintraub, "Issues in Speaker Identification over Telephone Channels," *invited paper in Speech Technology, Issues and Implications in Indian Languages*, Ed. K Nagamma Reddy, Dravidian Linguistics Association, International School of Dravidian Linguistics, Thiruvananthapuram, Kerala, 2000.

*In Refereed International Conferences:*

1. R Padmanabhan, Rajesh Hegde and Hema A Murthy, "Dynamic Selection of Magnitude and Phase based Acoustic Feature Streams for Speaker Verification," *Proc. EUSIPCO 2009*, pp.1244-1248, Glasgow, UK, August 24-28, 2009.
2. R Padmanabhan, P Sreehari Krishnan and Hema A Murthy, "Robustness of Phase based Features for Speaker Recognition," *Proc. INTERSPEECH 2009*, pp.2355-2358, Brighton, UK, Sept 6-10, 2009.
3. Ankit Malpani, B Ravindran and Hema A Murthy, "Personalised Intelligent Tutoring Systems using Reinforcement Learning," *Multi Disciplinary Symposium on Reinforcement Learning*, Calgary, Canada, June 16-19, 2009.
4. Y R Venugopalakrishna, M V Vinodh, Hema A Murthy and C S Ramalingam, "Methods for improving the quality of syllable based speech synthesis," pp.29-32, SLT-2008, Goa, India.
5. Ramya Rasipuram, Rajesh M Hegde and Hema A Murthy, "Significance of group delay based acoustic features in the linguistic feature space for syllable recognition," accepted for presentation at INTERSPEECH 2008, Australia, 22-26 Sept, 2008
6. Ramya Rasipuram, Rajesh M Hegde and Hema A Murthy, "Incorporating acoustic diversity into the linguistic feature space for syllable recognition," accepted for presentation in 16th European Conference on Signal Processing and Communication, EUSIPCO-2008, Lausanne, Switzerland, 24-29 August, 2008.

7. Sadhana Chevireddy, Hema A. Murthy and C. Chandra Sekhar, "Signal processing based segmentation and HMM based automatic clustering for a syllable based segment vocoder at 1.4Kbps," accepted for presentation in 16th European Conference on Signal Processing and Communication, EUSIPCO-2008, Lausanne, Switzerland, 24-29 August, 2008.
8. R.Padmanabhan, Hema A. Murthy, "On parametric representations of the modified group delay," to be presented at the International Conference on Audio, Language and Image Processing (ICALIP 2008), Shanghai, China, July, 2008.
9. Sanasam Ranbir Singh, Hema A. Murthy, Timothy A. Gonsalves, "Determining user's interest in real time," WWW 2008, Beijing, China, April 2008 (Ref: <http://www2008.org/papers/Proceedings.html>), pp.1115-1116.
10. Sanasam Ranbir Singh, Hema A. Murthy, Timothy A. Gonsalves, "Effect of word density on measuring words association," ACM Compute Conference, Bangalore, 2008.
11. V Bharathi Harishankar, Archana Ghode, Alankar Bandyopadhyaya, Maryma Scotlin, Hema A Murthy, Timothy A Gonsalves, Ashok Jhunjunwala, "Teaching-Learning Strategies in Interactive Education - A Case Study," HOIT 2007, Chennai, August 2007.
12. A Lakshmi and Hema A Murthy "A Syllable-based Continuous Speech Recogniser for Tamil," INTERSPEECH 2006, Pittsburgh, pp.1878-1881, Sept 2006
13. Sreehari Krishnan, R Padmanabhan, Hema A Murthy "Robust Voice Activity Detection using Group Delay Functions," *ICIT-2006*, pp.2603-2607, Dec 15-17, 2006, Mumbai, India.
14. Dinil Mon Divakaran, Hema A Murthy and Timothy A Gonsalves, "Traffic Modeling and Classification Using Packet Train Length and Packet Train Size," 6th IEEE International Workshop on IP Operations and Management, *Proc. IPOM-2006*, pp.1-12, Ireland, Oct. 2006 (received the *Best Paper* award).
15. Dinil Mon Divakaran, Hema A Murthy and Timothy A Gonsalves, "Detection of SYN Flooding Attacks using Linear Prediction Analysis," 14th IEEE International Conference on Networks, *ICON-2006*, pp.218-223, Singapore, Sep 2006.
16. Hemant Tyagi, Rajesh M Hegde, Hema A Murthy and Anil Prabhakar "Automatic Identification of Bird Calls using Spectral Ensemble Average Voice Prints," *EUSIPCO 2006*, Sept 4-8, 2006, Florence, Italy (Ref: <http://www.eurasip.org/Proceedings/Eusipco/Eusipco2006/>).
17. Samuel Thomas, M Nageshwar Rao, Hema A Murthy and C S Ramalingam, "Natural Sounding Speech based on Syllable-like Units," *EUSIPCO 2006*, Sept 4-8, 2006, Florence, Italy (Ref: <http://www.eurasip.org/Proceedings/Eusipco/Eusipco2006/>).
18. Rajesh M.Hegde, Hema A.Murthy and Venkata Ramana Rao Gadde, "Speech Processing using Joint Features Derived from The Modified Group Delay Function," in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP-2005*, Philadelphia, U.S.A, SP-P6.8, March 2005.
19. Rajesh M.Hegde and Hema A.Murthy, "Automatic Language Identification and Discrimination using The Modified Group Delay Feature", in *Proceedings of International Conference on Intelligent Sensing and Information Processing, ICISIP-2005*, Chennai, pp. 395 - 399, Jan 2005.

20. Rajesh M.Hegde and Hema A.Murthy, "An Alternative Representation of Speech using The Modified Group Delay Feature", in *Proceedings of International Conference on Signal Processing and Communications, SPCOM-2004*, Bangalore, Su C1.1, Dec 2004.
21. G. L. Sarada, T. Nagarajan, and Hema A. Murthy, "Multiple Frame size and multiple frame rate feature extraction for continuous speech recognition" , pp.592-595, SPCOM-2004, December, Bangalore.
22. Rajesh M.Hegde and Hema A.Murthy, "Cluster and Intrinsic Dimensionality Analysis of The Modified Group Delay Feature for Speaker Classification", *Lecture Notes in Computer Science, LNCS 3316*, pp. 1172 - 1178, Springer Verlag, From *Proceedings of the ICONIP-2004*, Calcutta, India, Nov 2004.
23. Rajesh M.Hegde, Hema A.Murthy and Venkata Ramana Rao Gadde, "Continuous Speech Recognition using Joint Features derived from The Modified Group Delay Function and MFCC," in *Proceedings of the INTERSPEECH 2004 - ICSLP*, Jeju, S. Korea, Vol. 2, pp. 905-908, Oct 6-11, 2004.
24. T Nagarajan, Hema A Murthy and N Hemalatha, "Automatic segmentation and labeling of Continuous Speech without Bootstrapping," *Proceedings EUSIPCO-2004*, pp.561-564,Vienna, Austria, September 6-10, 2004.
25. Rajesh M.Hegde, Hema A.Murthy and Venkata Ramana Rao Gadde, "The Modified Group Delay Feature : A New Spectral Representation of Speech," in *Proceedings of the INTERSPEECH 2004 - ICSLP*, Jeju, S. Korea, Vol. 2, pp. 913-916, Oct 6-11, 2004.
26. Rajesh M.Hegde, Hema A.Murthy and Venkata Ramana Rao Gadde, "The Modified Group Delay Feature : A New Spectral Representation of Speech," in *Proceedings of the INTERSPEECH 2004 - ICSLP*, Jeju, S. Korea, Vol. 2, pp. 913-916, Oct 6-11, 2004.
27. Nemala Sridhar Krishna and Hema A Murthy, "A New Prosodic Phrasing Model for Indian Language Telugu," *INTER SPEECH-2004 - ICSLP*, Vol.1, pp.793-796, Oct 6-11, 2004.
28. Veena Desai and Hema A Murthy, "Distributed Speaker Recognition," *INTER SPEECH-2004 - ICSLP*, Vol.4, pp.2381-2384, South Korea, Oct 6-11, 2004.
29. G. L. Sarada, T. Nagarajan, and Hema A. Murthy, "Automatic Transcription of continuous speech Using Unsupervised and Incremental Training", pp. 405-408, INTERSPEECH - 2004, October 6-11, South Korea.
30. K Balamurgan, Hema A Murthy and T A Gonsalves, "Efficient methods for Propagation modeling in Fixed Wireless," *7th IASTED International conference on Computer Graphics and Image Processing*, Aug 17-19, 2004, Kauai, Hawaii, USA.
31. Nemala Sridhar Krishna and Hema A Murthy, "Duration Modeling of Indian Languages Hindi and Telugu," *Proceedings of 5th ISCA Speech Synthesis Workshop*, pp. 197-202, Carnegie Mellon University, Pittsburgh, June 14-16, 2004.
32. T Nagarajan and Hema A Murthy, "Language Identification using Parallel Syllable-like unit Recognition," *Proc. ICASSP-2004*, May'17-21, 2004, Vol.I, pp.401-404., Montreal, Canada.

33. Rajesh M Hegde, Hema A Murthy and Gadde Venkata Ramana Rao, "Application of the Modified Group Delay function to Speaker Identification and Discrimination," *Proc. ICASSP-2004*, Vol.1, pp.517-520, May'17-21, 2004, Montreal, Canada.
34. Rajesh M Hegde and Hema A Murthy, "Speaker Identification using the Modified Group Delay Feature," (accepted for presentation at ICON-2003), Mysore, Dec.20-21, 2003.
35. T Nagarajan, Hema A Murthy and Rajesh M Hegde, "Segmentation of Speech into Syllable-like units," *Proc. Eurospeech-2003*, Sept. 2003, Geneva, Switzerland, pp.2893-2896.
36. T Nagarajan, Hema A Murthy and Rajesh M Hegde, "Group Delay based Segmentation of Spontaneous Speech into Syllable-like units," *Proc. SSPR-2003*, pp.115-118, Tokyo, Japan, April 14-16, 2003.
37. Hema A Murthy and Gadde V Ramana Rao, "The Modified Group Delay Function and its Application to Phoneme Recognition," *Proc. ICASSP-2003*, pp.1.68-1.71, April 6-9, 2003, Hongkong, China.
38. N Sridhar Krishna, Hema A Murthy and T A Gonsalves, "Text to Speech (TTS) in Indian Languages," *Proc. ICON-02*, pp. 317-326, Mumbai, India.
39. T Nagarajan and Hema A Murthy, "Language Identification Using Spectral Vector Distribution Across Indian Languages," *Proc. ICON-02*, pp. 327-335, Mumbai, India.
40. Anitha Nalluri, Bala Saraswathi A, Bharathi S, Hema A Murthy, Patricia J., Ranbir Singh S., Timothy A Gonsalves, Vidhya M.S., and Vivekanathan K., "Indian Language Support for X-Window System," *Proc. ICON-02*, pp. 263-272, Mumbai, India.
41. M A Saifulla, Hema A Murthy and T A Gonsalves, "Identifying Patterns in Internet Traffic," *Proceedings ICC-2002*, pp.859-865, Mumbai, India.
42. V Kamakshi Prasad, T Nagarajan and Hema A Murthy, "Continuous Speech Recognition Using Automatically Segmented Data at Syllabic Units," *Proc. ICSP-2002*, Beijing, China, pp.235-238.
43. J Patricia, K Ratheesh, V S Shenoi, G Sreepriya, T A Gonsalves and Hema A Murthy, "Indian Language Support for the Linux Operating System," *Int'l Symposium on Information Technology, People's Development and Culture*, Allahabad, February, 12-16, 2001.
44. A Ramasamy, Hema A Murthy and T A Gonsalves, "Linear Prediction for Traffic Management and Fault Detection," *ICIT-2000*, Bhubaneshwar, Orissa.
45. V.Kamakshi Prasad and Hema A Murthy, "An Automatic Algorithm for Segmenting and Labelling a Connected Digit Sequence," *ICSLP-2000*, Beijing, pp. 87-91.
46. Jyotsana Balleda, Hema A Murthy and T Nagarajan, "Language Identification from Short Segments of Speech," *ICSLP-2000*, Beijing, 1033-1036.
47. V. Kamakshi Prasad, Hema A Murthy and C Chandra Sekhar, "A New Approach to Connected Digit Recognition Problem Using Minimum Phase Group Delay Functions," *Proc. ICMPS-2000*, IIT, Chennai, August 13-15, pp. 174-177, 2000.
48. S.Vela and Hema A. Murthy, "Speaker Identification - A New Model based on Statistical Similarity," *Proc.ICCLSDP-98*, Calcutta, February 18-20, pp. B-7-B-12, 1998.

49. S.Vela, G.Sriram and Hema A.Murthy, "New Approaches to Speaker Identification based on fractals," *Proc. ICSP-97*, pp.581-586, Seoul, Korea, Aug 26-28, 1997.
50. G.Sriram,S.Vela and Hema A Murthy, "Fast and Efficient Image Compression for MultiMedia," *Proc.SEARCC-97*, pp.248-252, New Delhi, Dec, 1997.
51. G.Sriram, S.Vela and Hema A Murthy, "A new approach to Fractal Image Compression," *Proc. ADCOMP-97*, pp.249-254, Dec 15-17, Madras, 1997.
52. Hema A. Murthy, "Pitch Extraction from Root Cepstrum," *ICSLP-94*, Yokohama, Japan, Sep,18-22, 1994.
53. M.Narendranath, Hema A.Murthy, S.Rajendran and B.Yegnanarayana, "Voice Conversion Using Artificial Neural Networks," *Proc. Workshop on Automatic Speaker Recognition, Identification and Verification*, Switzerland, April 5-7 1994.
54. B.Yegnanarayana, Hema A. Murthy and V.R.Ramachandran, "Processing of noisy speech using modified group delay functions," *ICASSP-91*, Toronto, Canada, pp.945-948, May, 1991.
55. B.Yegnanarayana, Hema A. Murthy, R.Sundar, V.R.Ramachandran,A.S. Madhukumar, N.Alwar and S.Rajendran, "Development of a text-to-speech system for Indian Languages," *Proc. KBCS-90*, pp.467-475, Pune, India, Dec., 1990.
56. B.Yegnanarayana, Hema A. Murthy and V.R.Ramachandran, "Speech Enhancement using group delay functions," *ICSLP-90*, Kobe, Japan, Vol.2, pp.301-304, Nov., 1990.
57. B.Yegnanarayana and Hema A. Murthy, "New Methods of processing noisy signals using group delay functions," *ICCS-90*, Singapore, Nov., 1990.
58. B.Yegnanarayana and Hema A. Murthy, "Spectrum Estimation using Fourier transform Phase," *Proc. of the workshop of Signals, Systems, Communications and Networking*, Bangalore, India, pp.44-53, July, 1990.
59. G.Duncan, B.Yegnanarayana and Hema A. Murthy, "A nonparametric method of formant estimation using group delay spectra," *ICASSP-89*, Glasgow, Scotland, Vol.1, pp.572-575, May, 1989.
60. Hema A. Murthy, K.V. Madhu Murthy and B. Yegnanarayana, "Formant extraction from Fourier transform phase," *ICASSP-89*, Glasgow, Scotland, Vol.1, pp.484-487, May, 1989.
61. Hema A. Murthy, A. A. Babu, B.Yegnanarayana and K.V. Madhu Murthy, "Speech coding using Fourier Transform phase," *EUSIPCO-88*, Grenoble, France, Vol.2, pp.879-882, Sept., 1988.
62. B.Yegnanarayana George E. Duncan and Hema A. Murthy, "Improving feature extraction from speech using minimum phase group delay spectra," *EUSIPCO-88*, Grenoble, France, Vol.1, pp.267-270, Sept., 1988.
63. B. Yegnanarayana, K.V. Madhu Murthy and Hema A. Murthy, "Processing of noisy speech using partial phase," *European Conference on Speech Technology*, Edinborough, U.K., Vol.1, pp.203-206, Sept., 1987.
64. B. Yegnanarayana, S. T. Fathima and Hema A. Murthy, "Signal reconstruction from Fourier Transform phase with applications to speech analysis," *ICASSP-87*, Dallas, Texas, April,1987.

65. Hema A. Murthy and R.G.S. Asthana, "Interactive Graphics Simulation System (IGSS) for the assembly of mechanical parts," Graphics Interface'84, Ottawa, Canada.

*Invited Paper at International and National Conferences*

1. Samuel Thomas, Y R Venugopalakrishna and Hema A Murthy, "Speech Synthesis using Syllable-like units," *Workshop on Speech Synthesis*, CDAC, Noida, April 13-14, 2007.
2. P Manohar and Hema A Murthy, "Multimodal Interfaces to the Computer," INDICON-2005, Chennai, Dec 12-13, 2005.
3. P Manohar and Hema A Murthy, "Multimodal Interfaces for Indian Languages," CSI-2005, Hyderabad, Nov 9-12, 2005.
4. Hema A Murthy, "Teaching and Learning Strategies – A Case Study," Digital Learning 2005, New Delhi, Oct 18-19, 2005.
5. Hema A Murthy, C Chandra Sekhar, C S Ramalingam and Srinivasa Chakravarthy, "A Multimodal interface to the computer," SCALLA-2004, Kathmandu, Nepal, Jan 5-7, 2004.
6. Hema A Murthy, *Overcoming Traditional Obstacles: Linux as a Rural Desktop*, LinuxWorld International, August 14-17, San Francisco, 2002.

*In Refereed National Conferences*

1. Chaitanya Kumar.J, and Hema A. Murthy, "Entropy based Measures for Incorporating Feature stream Diversity in the Linguistic Search Space for Syllable based Automatic Annotated Recogniser," *Proc. of National Conference on Communications (NCC) 2009*, IIT Guwahati, January 2009.
2. Padmanabhan.R and Hema A. Murthy, "Feature Evaluation for Speaker Identification in Radio Communications Channel," *Proc. of National Conference on Communications (NCC) 2009*, IIT Guwahati, January 2009.
3. P G Deivapalan, Mukhund Jha, Rakesh Guttikonta and Hema A Murthy, "DONLabel: An automatic labeling tool for Indian languages," *Proceedings NCC-2008*
4. P G Deivapalan and Hema A Murthy, "A syllable-based isolated word recogniser in Tamil handling OOV words," *Proceedings NCC-2008*
5. A Lakshmi and Hema A Murthy, "A new approach to continuous speech recognition in Indian languages," *Proceedings NCC-2008*
6. Sadhana Chevi Reddy, Hema A Murthy and C Chandra Sekhar, "A syllable-based segment vocoder," *accepted NCC-2008*
7. R Padmanabhan, P Sreehari Krishnan and Hema A Murthy, "A pattern recognition approach to VAD using modified group delay," *Proceedings NCC-2008*
8. Y R Venugopalakrishna, P Sreehari Krishnan, Samuel Thomas, Karthik Bommepally, Karthik Jayanthi, Suket Murarka, Hemant Raghavan and Hema A Murthy, "Design and development of text-to-speech synthesis systems for Indian Languages," *Proceedings NCC-2008*

9. Sree Hari Krishnan, P., Padmanabhan, R., Hema A Murthy, "Voice Activity Detection using Group Delay Processing on Buffered Short-term Energy," *Proc. NCC 2007* pp.169-172, Jan 26-28, 2007, IIT Kanpur.
10. P Manohar, Hema A Murthy and T A Gonsalves "An Application Independent Multimodal interface for the Computer," *Proc. NCC-2006*, pp.275-279, Jan 27-29, 2006, IIT Delhi.
11. P.Sowjanya, K.Vijayalakshmi, G.Vijay Prakash, Kasi Rajan, M.S.Vidhya, T.Nagarajan, Srinivas Chakravarthy, N.S.Narayanaswamy and Hema A.Murthy, "Hand Writing Interface enabled Tamil Search Engine", In *Proc. 11'th National Conference on Communications*, pp 661-665, Jan 28-31, 2005, IIT Kharagpur
12. Dinil Mon Divakaran, Hema A. Murthy and Timothy A. Gonsalves, "Effective bandwidth Utilization for Multimedia Data Over Low Bandwidth Links", *Proc. NCC-2005*, IIT Kharagpur, Jan 05, pp. 236-240.
13. Krishanu Bhattacharya, N. Usha Rani, Timothy A. Gonsalves and Hema A. Murthy, "An Efficient Algorithm for Root Cause Analysis", *Proc. NCC-2005*, IIT Kharagpur, Jan 05, pp. 447-451.
14. R. Deepak, N. Usha Rani, Timothy A. Gonsalves and Hema A. Murthy, "Network Security Management for a National ISP", *Proc. NCC-2005*, IIT Kharagpur, Jan 05, pp. 565-568.
15. S.Thomas, H. Murthy and C. Chandra Sekhar, "Distributed speech synthesis for embedded systems - an analysis," *NCC-2005*, IIT Kharagpur, India, Jan 2005, pp 273-276.
16. M. Nageshwara Rao, S. Thomas, T. Nagarajan and H. Murthy, "Text-to-speech synthesis using syllable-like units," *NCC-2005*, IIT Kharagpur, India, Jan 2005, pp 277-280.
17. N. Hemalatha, G. L. Sarada, T.Nagarajan, Hema A. Murthy, "Connected Digit Recognition using Unsupervised and Incremental HMMs", *NCC-2005*, pp. 296-299, January, Kharagpur.
18. T Nagarajan and Hema A Murthy, "An Approach to Segmentation and Labeling of Continuous Speech without Bootstrapping," presentation at *Proceedings NCC-2004*, IISc, Bangalore, January, 2004.
19. M A Saifulla, Hema A Murthy and Timothy A. Gonsalves, "Vector Quantization for Internet Traffic," *Proc. NCC-2003*, pp.511-515, Chennai, 2003.
20. T. Nagarajan and Hema A Murthy, "Pairwise Multiple Codebook based Language Identification," *Proc. Workshop on Spoken Language Processing*, pp.101-108, TIFR, Bombay, January 10-11, 2003.
21. Hema A Murthy, Bhaskar Ramamurthi, Timothy A.Gonsalves, K.Balamurugan, Shubha Augustine & Ch. Vijyalakshmi "CygPlan-An Installation Planning Tool," *Proc. NCC-2002*, pp. 433-437, Bombay, India, January, 2002.
22. Hema A Murthy, T.A. Gonsalves, Rolland Enoch, G.Sirisha, Valli Kannu, M.Mahesh, G.Geetha, Saravanan , Raghu Kishore "A DSP Virtual Machine," *Proc. NCC-2002*, pp. 200-203, Bombay, India, January, 2002.
23. T. Nagarajan, V K Prasad and Hema A Murthy, " The Minimum Phase Property of the Magnitude Spectrum and its Application to Speech Segmentation," *Proc. SPCOM-01* pp. 95-101, July 2001, Bangalore, India.

24. Hema A Murthy, T A Gonsalves, B Madhavi, K Gupta, H Solanki, B Ramamurthi and Ashok JhunJhunwala, "CygPlan: An Installation Planner for Telecom Access Networks," *Proc. NCC-2000*, pp. 17-20, Delhi, 2000.
25. T A Gonsalves, Ashok JhunJhunwala, Hema A Murthy, Hari Selvarajan, D N Rajan, R Siddappa, N Jayaprakash, Prakash Chandra, A Ramasamy, J Joseph, Vaishali P Mane and R Srinivasan, "CygNet: An Integrated Management for Modern Telecom Networks," *Proc.NCC-2000*, Delhi, 2000, pp. 103-106.
26. A Ramasamy, Hema A Murthy and T A Gonsalves, "Linear Prediction for Network Management," *Proc. NCC-2000*, pp.199-202, Delhi, 2000.
27. V. Kamakshi Prasad, Hema A Murthy and C Chandra Sekhar, "Connected Digit Recognition Using Minimum Phase Group Delay Functions," *Proc.IRIL-99*, Hyderabad, pp. 15-1, November 12-14, 1999.
28. Jyotsana Ballela and Hema A Murthy, "Spoken Language Identification System for Indian Languages" *Proc.IRIL-99*, Hyderabad, pp. 20-1, November 12-14, 1999.
29. Jyotsana Ballela, S.Vela and Hema A Murthy, "A New Model for Speaker Identification using Affine Transformation," *Proc. SPCOM-99*, IISc, Bangalore, India, pp.121-124, July 21-24, 1999.
30. Hema A Murthy, Jyotsana Ballela and C Chandra Sekhar, "Identifying the location of Digits in a Connected Digit Sequence Using Minimum Phase Group Delay Functions," *Proc.NCC-99*, Kharagpur, pp.157-162, Jan 29-31, 1999.
31. Hema A. Murthy, Françoise Beaufays, Larry P Heck and Mitchel Weintraub "Feature Extraction for Speaker Identification," *Proc. SPCOM-97*, Bangalore, India, pp.43-50, July 16-19, 1997.
32. Hema A. Murthy, "The Real Root Cepstrum and its Application to Speech Processing," *Proc.NCC-97*, pp.180-183, Madras, India.
33. S.R.Rajesh Kumar, V.R.Ramachandran, A.S.Madhukumar, Hema A. Murthy and B.Yegnanarayana, "A text-to-speech system for Indian languages," presented at the Seminar on Common Phonetic Matrix for Indian Languages, CIIL, Mysore, India, March, 1990.
34. Hema Arunachalam and S. Pannageshwari and P. Vijaykumar, "Emulation of 8080 CPU - a bit-slice approach," Student paper presented at CSI Convention, Delhi, March 1981.

*In non-Refereed Indian Conferences*

- S.R.Rajesh Kumar, V.R.Ramachandran, A.S.Madhukumar, Hema A. Murthy and B.Yegnanarayana, "A text-to-speech system for Indian languages," presented at the Seminar on Common Phonetic Matrix for Indian Languages, CIIL, Mysore, India, March, 1990.

*Communicated Papers:*

1. A Lakshmi and Hema A Murthy, "A syllable-based continuous speech recognition system for Indian languages," *submitted ACM Trans.Asian language Information processing*, 2nd Revision.
2. Rajesh M. Hegde and Hema A. Murthy, "Significance of Multi-stream and Selective-band Processing in continuous speech recognition", *Speech Communication*, (1st Revision).

M.Eng thesis:

Title: Statistical Classification of Sea-Ice  
Advisor: Simon Haykin, Director, Communications Research  
Laboratory, McMaster University, Hamilton,  
Ontario, Canada.

Ph.D Thesis:

Title: Algorithms for processing Fourier transform  
phase of Signals  
Advisor: B. Yegnanarayana, Professor, Department of  
Computer Science and Engineering,  
IIT, Madras, India.

(E) Research Interests : Speech recognition, speech synthesis, speaker verification, spoken language  
identification, computer graphics, computer networks

(F) Research Scholars (Completed):

1. Sanasam Ranbir Singh, " On the importance of Crawling, Text Clustering Realtime Implicit Feedback in Web Search Engines," (Co-guide, Prof. T A Gonsalves, Dept. of CS&E, IIT Madras) Ph.d Thesis (submitted) September 2009.
2. Y R Venugopalakrishna, " Methods for Improving the Quality of Syllable-Based Speech Synthesis for Indian Languages," (Co-guide: Dr. C.S Ramalingam, EE, Dept) MS Thesis, IIT Madras, 2009.
3. P R Ramya, "Incorporating acoustic feature diversity in linguistic search space for speech recognition," (Co-guide: Dr. C.S Ramalingam, EE, Dept) MS Thesis, IIT Madras, 2009.
4. Sadhana Chevireddy, "A syllable-based segment vocoder," (Co-guide: Dr. C Chandra Sekhar, Dept. of CS&E), MS Thesis, 2009
5. P G Deivapalan, "A Segmented Syllable-based, Isolated Word Recognizer for Indian Languages," M S Thesis, IIT Madras, 2009.
6. Pranav Hamnabhadkar, "Pattern Recognition and Synthesis of Materials Microstructures," (Co-guide: Dr. K Balasubramanian, Director, NFTDC, Hyderabad) MS Thesis, IIT Madras, 2009.
7. Sreenivasulu Nagireddy, "A Pattern Recognition Approach to Block Cipher Identification," (Co-guide: Dr. C Chandra Sekhar, Dept. of CS&E), MS Thesis, IIT Madras, 2009.
8. M Kasirajan, "Patram: A unified word processing system for handwritten character recognition in Indian languages," (Co-guide: Dr. Srinivasa Chakravarthy, Dept of BT), MS Thesis, IIT Madras, 2008.
9. P Sreehari Krishnan, "Voice activity detection using group delay functions," M S Thesis, IIT, Madras, 2007.
10. A Lakshmi, "A Syllable-based approach to continuous speech recognition in Indian languages," (Co-guide, Dr. C S Ramalingam, Dept. of EE) M S Thesis, IIT, Madras, 2007.

11. Samuel Thomas, "Natural sounding Text-to-speech synthesis based on syllable-like units," (Co-guide: Dr. C Chandra Sekhar, Dept. of CS&E) M S Thesis, IIT, Madras, 2007.
12. Dinil Mon Divakaran, "Traffic Modeling and Analysis," (Co-guide: Prof. TA Gonsalves, Dept. of CS&E) M S Thesis, IIT, Madras, 2007.
13. P Manohar, "The Multimodal Interaction for the Computer: An Application independent Approach," M.S Thesis, IIT Madras, 2006.
14. Vinod J, "Low cost Data Communication network for Rural Telecom Management," (Co-Guide: Prof. T.A. Gonsalves, Dept. CS&E, IIT Madras) M S Thesis, IIT Madras, 2006.
15. G L Sarada, "Automatic Transcription of Continuous Speech into Syllable-like Units," M.S Thesis, IIT Madras, 2006.
16. Rajesh Hegde, "The Modified Group Delay feature and its application to Speech Recognition," Ph.d Thesis, IIT Madras, 2005.
17. R Deepak, "Distributed Intrusion Detection System," (Co-Guide: Prof. T.A.Gonsalves, Dept. CS&E, IIT Madras), M S Thesis, IIT Madras, 2005.
18. Veena Desai, "Distributed Speech Recognition," (Co-guide: Prof.T A Gonsalves, Dept. of CS&E, IIT Madras), M.S Thesis, IIT Madras, 2005.
19. T. Nagarajan, "Implicit Spoken Language Identification Systems," Ph.d Thesis, IIT Madras, 2004.
20. G.Sirisha, "A DSP Virtual Machine," M S Thesis, IIT Madras, 2004 (Co-Guide: Prof. T.A.Gonsalves, Dept. CS&E, IIT Madras)
21. N Sridhar Krishna, "Multilingual Text-to Speech Synthesis," M S Thesis IIT Madras, 2004 (Co-Guide: Prof. T.A.Gonsalves, Dept. CS&E, IIT Madras)
22. M Balamurugan, "An Access Network Planner," M S Thesis, IIT Madras, 2004 (Co-Guide: Prof. T.A.Gonsalves, Dept. CS&E, IIT Madras)
23. M. A. Saifulla, "A Pattern Matching Approach to Classifying Network Traffic," M.S Thesis, IIT Madras, 2003, (Co-Guide: Prof. T.A.Gonsalves, Dept. of CS&E).
24. V Kamakshi Prasad, "Segmentation and Recognition of Continuous Speech," Ph.D Thesis, IIT Madras, 2002.
25. A Ramasamy, "LP Based Traffic Modelling and a Framework for Control," M.S.Thesis, IIT Madras, 2002 (Co-Guide: Prof.T.A.Gonsalves, Dept. of CS&E).
26. B Jyotsana, "A Spoken Language Identification System for Indian Languages," M.S. Thesis, IIT Madras, 2001.
27. S Vela, "A New Model of Speaker Identification based on Statistical Similarity and an Object Oriented Framework for Online Speaker Identification," M.S.Thesis, IIT Madras, 1999.
28. J Srichand, "Word Boundary Detection in Indian Languages and its Application to Keyword Spotting," M.S.Thesis, IIT Madras, 1999 (Co-guide:Dr.G.V.Ramana Rao).

29. M Narendranath, "Transformation of Vocal Tract Characteristics for Voice Conversion using Artificial Neural Networks," M.S. Thesis, IIT Madras, 1995 (Co-Guide: Prof.B.Yegnanarayana, Dept. of CS&E).

Research Scholars (Current):

1. R Padmanabhan, "Robust feature extraction for speech analysis" (3 years)
2. Abhijit Pradhan, "Hardware implementation of low-bit rate coders for speech," (co-guide: V Kamakoti, Dept. of CS&E, IIT Madras) (3.5 years)
3. Nikhil Ranjan, "Network Traffic Analysis and Management," (co-guide: Prof. T A Gonsalves, Dept. of CS&E, IIT Madras) (2.5 months)
4. Rajesh Janakiraman, *Area: Speech Technology* (co-guide: Dr. C Chandra Sekhar) (2 year)
5. Chaitanya Kumar, *Area: Speech Technology* (co-guide: Dr. C Chandra Sekhar) (2 year )
6. Vinodh, M V *Area: Speech Synthesis* (1.5 year)

M. Tech Students (Completed):

1. Ambika Devi Amma T., *A Multilingual Speech Oriented Learning System for the Hearing Impaired*, M.Tech Thesis, IIT Madras, 1994.
2. Anurag Dave, *Curve Based Font Generation of Indian Languages*, M.Tech Thesis, IIT Madras, 1995.
3. Suriyan Narayanan R, *Devanagari Script Processor and Image Handler*, M.Tech Thesis, IIT Madras, 1995.
4. J Radha, *Distributed Orchestrated Multimedia Presentation*, M.Tech Thesis, IIT Madras, 1995.
5. S. Jagadish, *Surface Reconstruction from Planar Contours Extracted From MRI Images*, M Tech Thesis, IIT Madras, 1998 (Co-Guide: Sukhendu Das, Dept. of CS&E, IIT Madras).
6. Ravindranathan K R, *Unsupervised Texture Segmentation Using Gabor Filters*, M Tech Thesis, IIT Madras, 1998 (Co-Guide: Sukhendu Das, Dept. of CS&E, IIT Madras).
7. S B Herlekar, *Speaker Independent Data Collection of a) Connected Digit Database, (b) Acoustic Phonetic Corpus for Continuous Speech*, M Tech Thesis, IIT Madras, 1998.
8. Sai Arul, *Rendering of Surfaces by Texture Mapping*, M Tech Thesis, IIT Madras, 1998.
9. M Ravi Kumar, *Combining Solids Using Boolean Operations*, M Tech Thesis, IIT Madras, 1998.
10. G Sriram, *A New Approach to Fractal Image Compression based on Enveloped Domain Search*, M Tech Thesis, IIT Madras, 1998.
11. Hanumandla Sreedhar, *Block based Fractal Image Compression: An Adaptive Enveloped Domain Search*, M Tech Thesis, IIT Madras, 1999 (Co-Guide:Dr.R.Aravind, Dept. of EE, IIT Madras).
12. M Ramkoteswara Rao, *Solid Modeling Using Regularised Boolean Expressions: A Voxel Based Approach*, M Tech Thesis, IIT Madras, 1999.

13. Jyoti Prakash Kurmi, *ML\_Solsh - A Visual Aid for the Hearing Impaired*, M Tech Thesis, IIT Madras, 1999.
14. Rajesh Kumar, *WebSpeak: A Web Browser for the Visually Impaired*, M Tech Thesis, IIT Madras, 1999.
15. D. Rajanikanth, *Design of Agent Software for Network Monitoring and Control*, M Tech Thesis, IIT Madras, 2000.
16. S G Anand, *Enhancement of Network QoS Support and Traffic Control in Linux*, M Tech Thesis, IIT Madras, 2000.
17. Ashok Kumar, *Speaker-Independent Client Server based Web Browser for the Visually Impaired*, M Tech Thesis, IIT Madras, 2000.
18. Ajay Arora, *Performance Evaluation of IITM Campus Network Using CygNet*, M Tech Thesis, IIT Madras, 2001.
19. G T Nadiyan Selvam, *DSP Virtual Machine: VML to Target Translator*, M Tech Thesis, IIT Madras, 2001.
20. Saraph A P, *DSP Virtual Machine: VML to VML Optimisation*, M Tech Thesis, IIT Madras, 2001.
21. V S Sheno, *X Window based Indian Language Support for Linux Operating System*, M Tech Thesis, IIT Madras, 2001.
22. K Ratheesh *Console based Indian Language Support for Linux Operating System*, M Tech Thesis, IIT Madras, 2001.
23. Sanghamitra Biswas *Indian Language Interface to Database for Linux Operating System*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).
24. Anup Banskota, *SpreadSheet Implementation with Multilanguage Support*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).
25. M Backialakshmi, *PRI Interleaving Using VML*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: K B Venkaratraman, DARE, DRDO, Bangalore).
26. N Raghu Kishore *CODEC Application in DSP Virtual Machine Language* M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).
27. P Saravanan, *DSPVM Simulator*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).
28. M Mahesh *Digital Signal Processor Virtual Machine Input-Output*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).
29. K Geetha, *Graphical User Interface Development for DSP Virtual Machine*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).
30. Dukman, *Ping based Network Management System*, M Tech Thesis, IIT Madras, 2002 (Co-Guide: T A Gonsalves, Dept. of CS&E, IIT Madras).

31. Anitha Nalluri, *Convertor Across Different Indian Languages and Fonts*, M Tech Thesis, IIT Madras, 2003.
32. Adinarayana Gupta, *Blackfin Assembly Translator for ADSP 218X DSP Processor*, M Tech Thesis, IIT Madras, 2003 (Co-Guides: C S Ramalingam, Dept. EE, IIT Madras, Srinivas K, Analog Devices, Pvt. Ltd., Bangalore).
33. Subodh Gupta, *Network Traffic Analysis Using Linear Prediction*, M Tech Thesis, IIT Madras, 2004.
34. Ch. V Phani Kumar, *Network Security Scanning*, M Tech Thesis, IIT Madras, 2004.
35. M Krishna Kumar, *Communication and Control Software for an Automated Teller Machine*, M Tech Thesis, IIT Madras, 2004.
36. Deepak Agarwal, *Gaussian Mixture Models and Network Traffic Analysis*, M Tech Thesis, IIT Madras, 2004.
37. K Nagendra Prasad, *TMS320C54x to ADSP-21535 Program Translator*, M Tech Thesis, IIT Madras, 2004.
38. K Santosh *C to VML Translator*, M Tech Thesis, IIT Madras, 2005.
39. Sita Reddy *DSR using PO/PR protocol and measuring the QoS characteristics*, M Tech Thesis, IIT Madras, 2005.
40. P Devi *Client side implementation of distributed speech recognition on an embedded device*, M Tech Thesis, IIT Madras, 2005.
41. Sandhya Reddy *Detection of anomalous network traffic*, M Tech Thesis, IIT Madras, 2005.
42. Shameem Unnisa *Multilingual search engine interfaced with Morph analyzer*, M Tech Thesis, IIT Madras, 2005.
43. Amit Dangwal *Tool for organising data associated with online tutorials*, M Tech Thesis, IIT Madras, 2005
44. Vikas Luthra, *Implementing online teaching-learning strategies in interactive education*, M Tech Thesis, IIT Madras, 2005
45. Vijay Katoch, *Speech Synthesis in Spoken English Tool Kit*, M Tech Thesis, IIT Madras, 2006.
46. G Bhaskar, *Spoken English Tool kit*, M Tech Thesis, IIT Madras, 2006.
47. G Philip, *Grammar models for Spoken English Tool Kit*, M Tech Thesis, IIT Madras, 2006.
48. Dhananjaya, *Traffic Analysis and Modeling*, M Tech Thesis, IIT Madras, 2007.
49. J P Nirmala, *Multilingual Domain Name System for Indian Languages*, M Tech Thesis, IIT Madras, 2008.
50. Bhulakshmi, *Transliteration and Translation of web pages into Indian languages*, M Tech Thesis, IIT Madras, 2008.

(G) Awards: Received an IBM Faculty award for the year 2006, for the work on "Speech Synthesis in Indian Languages."

(H) Projects:

*Sponsored Projects:*

Project Title: Microsoft Windows Technologies Lab  
Coordinators : T A Gonsalves, V Kamakoti, B Ravindran  
Hema A Murthy, Ashok Jhunjunwala,  
Devendra Jalihal  
Total : 93 lakhs so far  
Duration : Jun'2006-Apr'2009

Project Title: Speech Synthesis in Indian Languages  
Coordinators : Hema A Murthy  
Total : 4.47 lakhs  
Duration : Dec'2006-Dec' 2008

Project Title: Speaker Identification  
Coordinators : Hema A Murthy and C Chandra Sekhar  
Total : 9.96 lakhs  
Duration : Nov'2007 - Oct'2008  
Sponsor : Tata Power Corporation (Strategic Elect. Division)

Project Title: Soft Computing methods for Cipher System identification and key transformation  
Coordinators : C Chandra Sekhar and Hema A Murthy  
Total : 10 lakhs  
Duration : Sept'2005-Nov'2007  
Sponsor : DRDO

Project Title: Clustering techniques for key space reduction  
Coordinators : C Chandra Sekhar and Hema A Murthy  
Total : 5.88 lakhs  
Duration : Sept'2006-Nov'2007  
Sponsor : DRDO

Project Title:A Multimodal Interface Enabled Office Suite  
Coordinators : C S Ramlingam, Hema A Murthy, Srinivasa  
Chakravarthy, C Chandra Sekhar  
Total : 49 lakhs  
Duration : April'2005-Oct'2008  
Sponsor : Department of Science and Technology

Project Title: Communication Technology: Internal Development and Research Project  
Coordinators : Ashok Jhunjunwala, Hari Ramachandran,

Total : Hema A Murthy, C S Ramalingam  
: 60 lakhs  
Duration : Oct'2004-Sep'2007  
Sponsor : IIT Madras

Project Title: Translator across DSP Processors

Total : Rs. 6 lakhs  
Coordinators : Hema A Murthy and Timothy A Gonsalves  
Duration : Aug'2003-July'2006.  
Sponsor : IsoftTech Software Solutions Private Limited

Project Title : Advanced Network Management Systems

Total :Rs.20 lakhs  
Coordinators : Prof.Timothy A.Gonsalves, Hema A Murthy,  
Prof.Ashok Jhunjunwala  
Sponsor : NMSWorks, Madras  
Duration : 8/2002-Ongoing

Project Title : Network Management Software for NIOT Campus

Total : Rs.75,000/-  
Coordinators : Dr.Hema A.Murthy, Prof.Timothy A.Gonsalves,  
Prof.Ashok Jhunjunwala  
Sponsor : NIOT, Madras  
Duration : 8/99-11/2000

Project Title : Voice Conversion

Total : Rs.8.8 lakhs  
Coordinators : Prof.B.Yegnanarayana, Hema A Murthy,  
C Chandra Sekhar  
Sponsor : DST  
Duration : 1992-1995.

Project Title : Algorithms for Signal Reconstruction in  
Acoustic Imaging

Total : Rs.9.741 lakhs  
Coordinators : Prof.B.Yegnanarayana, Hema A Murthy  
Sponsor : Department of Electronics  
Duration : 1989-1991.

*RBIC Projects:*

Project Title : Development of Software Tools for DSP Platforms

Total : 7.71 lakhs  
Coordinators : C Chandra Sekhar  
Hema A Murthy  
Duration : Oct 1999 - Sept 2000.  
Sponsor : DACS, Bangalore.  
Duration

Project Title: Studies in Language Identification

Total :Rs.3.71 lakhs

Coordinators : Dr.Hema A Murthy

Duration : Jan. 2001, Dec. 2002

Sponsor : DACS, Bangalore.

Project Title: CygNet - Integrated Network Management System

Total: Rs.20 lakhs

Coordinators : Hema A Murthy, Ashok Jhunjunwala

Duration : Two years (2000-2002)

Sponsor : Polaris Software, Nilgiri Networks Pvt. Ltd.

Project Title: CygPlan - Integrated Access Network Planner

Total : Rs.2 lakh

Coordinators : Hema A Murthy, Ashok Jhunjunwala

Duration : Two years (2000-2002)

Sponsor : Nilgiri Networks Pvt. Ltd.

Project Title: Wireless in Local Loop

Coordinators : Bhaskar Ramamurthi, T A Gonsalves, Ashok  
Jhunjunwala, Hema A Murthy, C Mathialagan

Total : Rs 9 crores

Duration : Mar'94-Mar'03 (I was a coinvestigator  
from 1999-Mar'2003.)

Project Title: Direct Internet Access System

Coordinators : Ashok Jhunjunwala, Bhaskar Ramamurthi,  
T A Gonsalves, Devendra Jalihal, R Arvind,  
Hema A Murthy (I was a coinvestigator until  
Mar'2003).

Total : Rs. 5 lakhs

Duration : Ongoing

Sponsor :

Project Title: Ventureast TeNeT Fund

Coordinators : Ashok Jhunjunwala, Bhaskar Ramamurthi,  
T A Gonsalves, Hema A Murthy,  
Devendra Jalihal, R Arvind,  
T G Venkatesh, A N Rajagopalan

Total : 2.4 lakhs

Duration : (2002-2006) 4 years

Project Title: Digital Internet Access Server

Coordinators : Ashok Jhunjunwala, Bhaskar Ramamurthi,  
T A Gonsalves, Hema A Murthy

Total : 65.0 lakhs

Duration : Dec'2001-Mar'2003

Sponsor : HFCL, HTL, ARM, Shyam and Banyan