

# NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

## Format for Faculty Data Base

(Hard copy and soft copy both to be submitted to the Dean-Academic duly forwarded by concerned Head of the Department)

1. Name and Date of Birth: Rajesh Kumar Aggarwal, 15-09-1969
2. Department, Present Designation with Date: COE, Associate Prof., 01-07-2007
3. Highest Qualification (with year and institution): M. Tech., 2006, NIT, KKR
4. Total experience (in years):
  - a. Teaching 21 Years
  - b. R & D Organization / Industry NIL
5. Total Number of Research Publications (excluding paid journals) / Books etc.:  
(Provide detailed list separately for complete and last 5 years as Annexure-I)
  - a. Journals: (Enclosed)
    - i) International
    - ii) National
  - b. Conference / Seminar / Symposia etc.:
    - i) International
    - ii) National
  - c. Books / Monographs / Manuals (including year & publisher)
6. Total number of awards / recognition / honours including Membership / Fellowship of Professional Societies etc.: CSI & ISTE  
(Provide detailed list separately for complete and last 5 years as Annexure-II)
7. Number of Patents Awarded / Filed: NIL  
(Provide detailed list separately for complete and last 5 years as Annexure-III)
8. Number of Ph. D. theses supervised / co-supervised: NIL  
(Provide detailed list separately for complete and last 5 years as Annexure-IV)
  - a. Completed
  - b. In progress

9. Number of M. Tech dissertations (supervised / in progress): Enclosed  
(Provide detailed list separately for complete and last 5 years as Annexure-V)
  - a. Completed 6
  - b. In progress 5
10. Details of Sponsored R & D Projects in Tabular Form: NIL  
(Details for last 5 years with funding agency, duration, and amount)
11. Academic /Administrative Contributions at Department/ Institute Level: Enclosed  
(Provide detailed list separately for complete and last 5 years as Annexure-VI)
12. Areas of Current Interest, Research Activities, and Future Plans of Academic and Research activities: (Enclosed)  
(Provide details of each as Annexure-VII)
13. Research collaboration with brief outcome (within country and abroad):  
(Provide details as Annexure-VIII) NIL
14. Any other information: NIL

**(Signature of the Head of the Department with Seal)**

**Date:**

**P. S.: Incomplete information shall not be accepted.**

# Annexure-I

## International Journal

1. R. K. Aggarwal and M. Dave, Acoustic Modeling Problem for Automatic Speech Recognition System: Conventional Methods (Part I), International Journal of Speech Technology, Springer Verlag, DOI 10.1007/s10772-011-9108-2.
2. R. K. Aggarwal and M. Dave, Acoustic Modeling Problem for Automatic Speech Recognition System: Advances and Refinements (Part II), International Journal of Speech Technology, Springer Verlag, DOI 10.1007/s10772-011-9106-4.
3. R. K. Aggarwal and M. Dave, Performance Evaluation of Sequentially Combined Heterogeneous Feature Streams for Hindi Speech Recognition System, Telecommunication System Journal (Special issue on Signal Processing Application in Human Computer Interaction), Springer Verlag, DOI 10.1007/s11235-011-9623-0.
4. R. K. Aggarwal and M. Dave, Using Gaussian Mixtures for Hindi Speech Recognition System, International Journal of Signal Processing, Image Processing and Pattern Recognition, SERSC Korea (Accepted).
5. Kuldeep Kumar and R. K. Aggarwal, A Hindi Speech Recognition System for Connected Words using HTK, International Journal of Computational Systems Engineering, Inderscience Publisher (Accepted).
6. Kuldeep Kumar and R. K. Aggarwal, Hindi Speech Recognition System using HTK, International Journal of Computing and Business Research, Vol. 2, issue 2, May 2011.
7. Kuldeep Kumar, R. K. Aggarwal and Ankita Jain, An analysis of Speech Recognition Performance based upon network layers and Transfer Functions, International Journal of Computer Science, Engineering and Applications (IJCSEA) Vol.1, No.3, pp 11-20, June 2011.
8. R.K. Aggarwal and M. Dave, Tied Mixture Modeling in Hindi Speech Recognition System, Communication in Computer and Information Science (ICT, CCIS Springer), Vol. 101, Part 3, pp. 514-519, Publisher Springer-Verlag Berlin Heidelberg, 2010, DOI: 10.1007/978-3-642-15766-0\_86.
9. R.K. Aggarwal and M. Dave, Discriminative Techniques for Hindi Speech Recognition System, Communication in Computer and Information Science (Information Systems for Indian Languages), Vol. 139, pp. 261-266, Publisher Springer-Verlag Berlin Heidelberg, 2011.

## International Conferences

1. R.K. Aggarwal and M. Dave, An Empirical Approach for Optimization of Acoustic Models in Hindi Speech Recognition Systems, 8<sup>th</sup> International Conference on Natural Language Processing, 8-11 December, IIT Kharagpur (ICON-2010).
2. R.K. Aggarwal and M. Dave, Implementing a Speech Recognition System Interface for Indian Languages, Proceedings of the IJCNLP-08 Workshop on NLP for Less Privileged languages, 11 Jan 2008, IIIT Hyderabad. [http://www.aclweb.org/anthology-new/I/I08/I08\\_3017.pdf](http://www.aclweb.org/anthology-new/I/I08/I08_3017.pdf)
3. R.K. Aggarwal and M. Dave, Speech Recognition Technology for Remote control to Protect Environment from Electromagnetic radiation, International Conference on Changing Environmental Trends and Sustainable Development, February 9-11, 2009, Guru Jambheshwar University of Science and Technology, Hisar.
4. R.K. Aggarwal and M. Dave, Gaussian Evaluation of Acoustic Signals in Hindi Speech Recognition System, International Conference on Aerospace Electronics, Communication and Instrumentation, ASECI-2010, 6<sup>th</sup>-7<sup>th</sup> Jan 2010, V.R.S. Engineering College Vijaywara.
5. R.K. Aggarwal and M. Dave, Fitness Evaluation of Gaussian Mixtures in Hindi Speech Recognition System, ICIIC 2010 First International Conference on Integrated Intelligent Computing, 5<sup>th</sup>-7<sup>th</sup> August 2010, SJB Institute of Technology, Bangalore, Published by IEEE Computer Society.

## National Conferences

1. Ankita Jain, R.K. Aggarwal and Anil, Automatic Speech Recognition Using LPCC, All India Conference on Recent Emergences and Scope of Electronics Architecture 2010, 19<sup>th</sup>-20<sup>th</sup> Feb 2010 ,Haryana Engineering College, Jagadhari.
2. Ankita Jain, R.K. Aggarwal, Anil and Kuldeep Kumar, Speech Recognition Using MFCC, All India Conference on Recent Emergences and Scope of Electronics Architecture 2010, 19<sup>th</sup>-20<sup>th</sup> Feb 2010 ,Haryana Engineering College, Jagadhari.
3. Kuldeep Kumar, R.K. Aggarwal and V.K. Ranga, Approaches To Web And Semantic Web Services, All India Conference on Recent Emergences and Scope of Electronics Architecture 2010, 19<sup>th</sup>-20<sup>th</sup> Feb 2010 ,Haryana Engineering College, Jagadhari.
4. Gaurav Kumar Leekha, R.K. Aggarwal, Implementation Issues for Speech Recognition Techniques in the Context of Indian Languages: A Review, In National Conference on Wireless communication & VLSI design-2010 Technically Supported By IEEE, 27-28 March 2010, Gwalior Engineering College, Gwalior.
5. Shantanu Sharma and R.K. Aggarwal, Operation on Databased Routing Protocols for Wireless Sensor Networks, National Conference on information Science & Security (NISS), 5<sup>th</sup> March 2010, Jeppiaar Engineering College.

## Annexure-V

### M. Tech. Thesis (Completed in last 5 years)

1. Soft Computing Approach for Automatic Speech Recognition, by Deepika Sethi, NIT KKR, July 2011.
2. A Comparative Study of Statistical Techniques and Implementation Tools for Hindi Word Recognition, by Kuldeep Kumar, NIT KKR, June 2011.
3. Comparative Analysis of Speech Recognition System Using Various Feature Extraction Techniques, by Kapil, M. M. University, Mulana, May 2010.
4. Speech Recognition Techniques Using Statistical Methods for Indian Languages by Gaurav, K. U. K, June 2010.
5. Automatic Speech Recognition for Isolated Words by Kamlesh Kumari, M. M. University, Mulana, March 2011.
6. Study and Analysis of Speech Recognition Process by Ankita Jain M. M. University, Mulana, 2010.

### Thesis in Progress

1. Automatic Speech Recognition for Punjabi Language by Jasmine Bedi, Banasthali University
2. Automatic Speech Recognition Using Different Modeling Units by Malay, NIT, KKR.

Three more theses are currently in progress but topics are yet not finalized.

## Annexure-VI

### Academic Contribution:

1. Time table incharge at institute level during 2007 and at department level during 2004-2010.

2. Attendance and sessional incharge at department level during 2004-2010.
3. Expert lectures for trainees on MS-Office
4. Teaching assistant for workshop
5. Member of BOS

#### Administrative Contribution:

1. Hostel Warden during 2009-2010.
2. Organized 2 Days Workshop on Science, Religion and World Peace at NIT, Kurukshetra during Sept. 18-19, 2010.
3. Organized 4 Days Workshop on Science and Spirituality at NIT, Kurukshetra during Jan 24-27, 2011.

## Annexure-VII

### Area of Interest

1. Speech Processing (ASR, TTS, Speaker Identification)
2. Statistical Modeling (Hidden Markov Model, Bayesian Theory, Multivariate Analysis)
3. Pattern Recognition and Machine Learning (Estimation Theory, Clustering and Classification Techniques)
4. Soft Computing (Neural Networks, Genetic Algorithms, Swarm Intelligence, Fuzzy Logic, Neuro-Fuzzy)
5. Science and Spirituality (Health and Stress Management, Value Education, Occult Sciences, Indian Culture, Sanatan Dharam)