Theme and Objectives

Speech is a fundamental human activity. It is central to the organization and the development of human health, personality and intelligence. It is also essential means of interaction within human groups and their relationship with their environment. Speech signal processing is a scientific discipline as well as a technology frontier with immense applications; as a scientific discipline, it has a long history and as a technology area, it is intensely explored both by industry and academia.

From the signal processing point-of-view, it involves study related to digital processing of speech signals. Speech signal processing refers to the acquisition, transformation, manipulation, storage, transfer and output of vocal utterances by the machines. Speech is a very common modality for the communication of various technologies and applications such as speech and speaker recognition, language technologies, speech synthesis, speech enhancement, speech coding, etc. On one side of the spectrum are the speech and language sciences, such as linguistics, phonetics, psycho-acoustics, and on the other side are signal processing theory, linear algebra, pattern recognition, artificial intelligence, etc., leading to enhanced human-human and human-machine communication systems. Such a wide ranging research and development demands a broad base of fundamental knowledge in this area.
With an aim to have a deep insight into few of the applications of speech processing, this CEP (Continuing Education Program) workshop will focus on general speech signal processing using source and spectral features and applications like speech analysis, speaker and speech recognition, text-to-speech synthesis system, etc. The workshop will also discuss about various aspects of speech prosody. Further talks on compressive sensing and nonlinear speech processing will add to the knowledge of various speech-related applications.

Who should attend?

- For faculty, the workshop can be immensely helpful in gaining knowledge and in looking at vistas for research in the field of Speech Processing and Applications.
- The workshop will be of great interest to Ph.D. scholars and researchers from R&D laboratories in various speech-related applications
- The workshop is a good platform for postgraduate and undergraduate students willing to work in speech processing area.
- The workshop will also be greatly useful to practicing engineers and product developers and industry personnel.

Invited Speakers

Dr. S.R.M. Prasanna was born in India in 1971. He received the B.E. degree in Electronics Engineering from Sri Siddhartha Institute of Technology (SIT), Bangalore University, India, in 1994, the M.Tech. degree in Industrial Electronics from National Institute of Technology (NIT), Surathkal, India, in 1997, and the Ph.D. degree in Computer Science and Engineering from the Indian Institute of Technology (IIT) Madras, Chennai, in 2004. He is currently a Professor in the Department of Electronics and Communication Engineering, Indian Institute of Technology (IIT), Guwahati. He is an author of several research papers published in national and international journals, conferences, etc. His research interests are in speech signal processing, speech enhancement, speaker recognition, speech recognition, speech synthesis.

Prof. Rajesh M Hegde is an Associate Professor in the Department of Electrical Engineering at IIT Kanpur. Prior to this, he was a researcher and lecturer at the California Institute of Telecommunications and Information Technology (University of California San Diego) and associated with the DSP Lab. He received the B.E. degree in IT Engineering from Government BDT College of Engineering, Davangere, the Ph.D. degree from Indian Institute of Technology (IIT), Madras in Computer Science Engg. in 2005. He is an author of several research papers published in national and international journals, conferences, etc. His areas of interest include speech, audio, vision, multimodal information fusion, and signal processing in wireless sensor networks.
Prof. Krothapalli Sreenivasa Rao is an Associate Professor, in Department of Information Technology at IIT Kharagpur. He joined IIT-Kharagpur in 2007 as Assistant Professor. He completed his M.E. in Communication System at PSG Tech. situated in Coimbatore in 1993. He completed his Ph.D. at Indian Institute of Technology (IIT), Madras in 2005. He is an author of several research papers published in national and international journals, conferences, etc. His current areas of research interest include Speech Processing, Multimedia Signal Processing, Pattern Recognition, Neural Networks.

Prof. K. Sri Rama Murty received the B.Tech. degree in Electronics and Communications engineering from Jawaharlal Nehru Technological University (JNTU), Hyderabad, India, in 2002. He received the Ph.D. degree from the Indian Institute of Technology (IIT) Madras, Chennai, India, in 2009. Presently, he is Assistant Professor at Indian Institute of Technology (IIT) Hyderabad. He is an author of several research papers published in national and international journals, conferences, etc. His research interests include signal processing, speech analysis, blind source separation, and pattern recognition.

Prof. Leena Mary is a Professor in Department of Electronics in Rajiv Gandhi Institute of Technology, Kottayam. She completed her B.E. from Mangalore University in 1988, M.Tech. degree from College of Engineering situated at Trivandrum, in 1990 and Ph.D. in Computer Science & Engg. from IIT Madras, in 2006. She has published several research papers in national and international journals, conferences, etc. She has authored a springer brief on extraction and representation of prosody. She has undertaken several research projects funded by government agencies. Her research interests are in prosody based speaker, language and speech recognition.

Dr. Suryakanth V Gangashetty has joined to IIIT Hyderabad on 23rd August 2006 as an Assistant Professor. He has done his B.E. (Computer Science and Engineering) from Govt.(BDT) College of Engineering Davangere (Now it is UBDTCE) in 1991, M.Tech. (Systems Analysis and Computer Applications) from Karnataka Regional Engineering College Surathkal (Now it is NITK) in 1998 and Ph.D. from Indian Institute of Technology (IIT), Madras in 2005. Before joining to IIIT Hyderabad, he has worked as a Senior Project Officer at Speech and Vision Laboratory, IIT Madras. He has worked as a member of faculty at BIET Davangere karnataka, from 1991 to 1999. He has also worked as a visiting research scholar at OGI Portland (USA) for three months during the summer of 2001. He has done his post-doctoral studies (PDF) at Carnegie Mellon University (CMU) Pittsburgh (PA, USA) during April 2007 to July 2008. He is an author of about 90 papers published in national as well as international conferences and journals. He has co-authored four book chapters in edited volumes published by Springer and World Scientific publishing company. He is a life member of the CSI, IE, IUPRAI, ASI, IETE, ORSI, and ISTE. He has reviewed papers for reputed conferences and journals. His research interests include Speech Processing, Neural Networks,
Multimedia Signal Processing, Pattern Recognition, Soft Computing, Machine Learning, Image Processing, Natural Language Processing, Artificial Intelligence, Fuzzy Logic. He has awarded Certificate of Merit and Medal, honored by B.I.E.T. Davangere (Karnataka, India) for Best lecturer of the year 1994-95 for all round performance in teaching on 20th April, 1996. His Ph.D. research work at IIT Madras was nominated for the IBM outstanding Ph.D. student award of the year 2005 as judged by IBM IRL New Delhi, in the all India level competition. He is a Faculty Counselor, Computer Society of India (CSI) Student Branch IIIT Hyderabad. (Part of his academic activities, He has visited the countries such as USA, Hungary, Czech Republic, Vienna Austria, UK, Netherlands, Italy, Thailand and Japan).

Prof. Manjunath V. Joshi was born in Ranebennur, Karnataka, India. He obtained his BE degree from Mysore University and M.Tech and Ph.D degrees from IIT Mumbai, India. At present, he is serving as Professor at Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), Gandhinagar, India. He has been involved in active research in the areas of signal processing, image processing and computer vision for the last eight years. He has co-authored a book entitled Motion- Free Super Resolution published by Springer, New York. He is an author of several research papers published in national and international journals, conferences, etc. He was given the outstanding researcher award in Engineering Section by Research Scholars Forum of IIT Bombay, India. He also received the Best Ph.D. Thesis Award by Infineon India. He received the Dr. Vikram Sarabhai Award for the year 2006-07 in the field of Information Technology constituted by the Government of Gujarat, India. He serves as a reviewer for many of the International Conferences/Journals in his areas of his expertise. He is a member of IEEE and a life member of ISTE.

Prof. Hemant A. Patil was born in Shahada (MS) and received B.E. degree from NMU, Jalgaon, India, in 1999, M.E. degree from SRTMU, Nanded, India, in 2000 and Ph.D. degree from the Indian Institute of Technology (IIT), Kharagpur, India, in 2006. At present, he is serving as Associate Professor at Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), Gandhinagar, India. He is an author several research papers in national and international conferences/journals/book chapters. He visited department of ECE, University of Minnesota, Minneapolis, USA (May-July, 2009) as short term scholar. Currently, he is principal investigator for two DeitY sponsored projects. He is co-principal investigator from DA-IICT for DST sponsored project on India-Digital Heritage (IDH)-Hampi. His research interests include speaker and dialect recognition, infant cry analysis and wavelet signal processing. Recently, he has received DST Fast Track Award for Young Scientists for development of infant cry analyzer. Dr. Patil has coedited a book with Dr. Amy Neustein on Forensic Speaker Recognition: Law Enforcement and Counter-Terrorism, Springer, New York.
**Venue of the Workshop:**
CEP Building, DA-IICT Gandhinagar

**Details of Registration Fees:**

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<thead>
<tr>
<th>Category</th>
<th>Fees (Rs)</th>
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<tr>
<td>Academia (Students)</td>
<td>1000</td>
</tr>
<tr>
<td>Faculty and Project Staff</td>
<td>3000</td>
</tr>
<tr>
<td>Industry Personnel</td>
<td>5000</td>
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Payable by Demand Draft (DD) in favor of Dhirubhai Ambani Institute of Information & Communication Technology (DA-IICT), Gandhinagar.

Registration fees include the cost of course material, lunch and tea/biscuits/snacks.

No TD/DA will be given to outstation candidates.

**Date**

**Monday, 14th October 2013**

**Registration**

Please fill up the registration form attached to the brochure and mail it along with Demand Draft to

The Placement and CEP Officer

DA-IICT (Dhirubhai Ambani Institute of Information & Communication Technology)

Near Indroda Circle

Gandhinagar 382 007

**Last Date of Receiving Registration form and DD**

9th October, 2013

**Contact Persons**

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(Officer CEP) DA-IICT  
E-mail: anjali_kulshrestha@daiict.ac.in

Prof. Hemant A. Patil  
Dir: 079-30510650, Email: hemant_patil@daiict.ac.in
**Course Content**

**Detailed Program Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>08:00-08:30</td>
<td>Workshop Registrations</td>
</tr>
<tr>
<td>08:30-09:00</td>
<td>Prof. Hemant A. Patil (DA-IICT, Gandhinagar), “Introduction to Speech signal Processing”</td>
</tr>
<tr>
<td>09:00-10:00</td>
<td>Prof. S. R. M. Prasanna (IIT Guwahati), “Event Based Analysis and Processing of Speech”</td>
</tr>
<tr>
<td>10:00-11:00</td>
<td>Prof. Rajesh M Hegde (IIT Kanpur) “MUSIC Group Delay Based Methods for Distant Speech Recognition”</td>
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<tr>
<td>11:00-11:15</td>
<td>Tea Break</td>
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<tr>
<td>13:15-14:15</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>14:15-15:15</td>
<td>Prof. Leena Mary (RIT Kottayam), “Prosodic Features for Speaker Recognition”</td>
</tr>
<tr>
<td>15:15-16:15</td>
<td>Prof. Suryakant Gangashetty (IIIT Hyderabad) “Issues and Approaches for Multilingual Speech Recognition”</td>
</tr>
<tr>
<td>16:15-16:30</td>
<td>Tea/Coffee Break</td>
</tr>
<tr>
<td>16:30-17:30</td>
<td>Prof. M. V. Joshi (DA-IICT Gandhinagar) “Compressive Sensing in Speech Processing.”</td>
</tr>
<tr>
<td>17:30-19:00</td>
<td>Prof. Hemant A. Patil (DA-IICT Gandhinagar), “Nonlinear Speech Processing”</td>
</tr>
</tbody>
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**Note:** The participants will be provided with course material.
REGISTRATION FORM

“One-day CEP Workshop on Speech Signal Processing and its Applications”

1. Name:
2. Designation:
3. Name of the Institution:
4. Postal Address:

5. E-Mail:
6. Phone:
   Mobile:
   Fax:
7. Details of payment:
   DD No.:
   Rs.
   (favouring, DAIICT, Gandhinagar)
   Issuing Bank:
   Signature:_______________

Mail to: Placement & CEP Officer

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