11th International Conference on Natural Language Processing

Proceedings of the Conference

18-21 December 2014
Goa University, Goa, India
Research in Natural Language Processing (NLP) has taken a noticeable leap in the recent years. Tremendous growth of information on the web and its easy access has stimulated large interest in the field. India with multiple languages and continuous growth of Indian language content on the web makes a fertile ground for NLP research. Moreover, industry is keenly interested in obtaining NLP technology for mass use. The internet search companies are increasingly aware of the large market for processing languages other than English. For example, search capability is needed for content in Indian and other languages. There is also a need for searching content in multiple languages, and making the retrieved documents available in the language of the user. As a result, a strong need is being felt for machine translation to handle this large instantaneous use. Information Extraction, Question Answering Systems and Sentiment Analysis are also showing up as other business opportunities.

These needs have resulted in two welcome trends. First, there is much wider student interest in getting into NLP at both postgraduate and undergraduate levels. Many students interested in computing technology are getting interested in natural language technology, and those interested in pursuing computing research are joining NLP research. Second, the research community in academic institutions and the government funding agencies in India have joined hands to launch consortia projects to develop NLP products. Each consortium project is a multi-institutional endeavour working with a common software framework, common language standards, and common technology engines for all the different languages covered in the consortium. As a result, it has already led to development of basic tools for multiple languages which are inter-operable for machine translation, cross lingual search, hand writing recognition and OCR.

In this backdrop of increased student interest, greater funding and most importantly, common standards and interoperable tools, there has been a spurt in research in NLP on Indian languages whose effects we have just begun to see. A great number of submissions reflecting good research is a heartening matter. There is an increasing realization to take advantage of features common to Indian languages in machine learning. It is a delight to see that such features are not just specific to Indian languages but to a large number of languages of the world, hitherto ignored. The insights so gained are furthering our linguistic understanding and will help in technology development for hopefully all languages of the world.

For machine learning and other purposes, linguistically annotated corpora using the common standards have become available for multiple Indian languages. They have been used for the development of basic technologies for several languages. Larger set of corpora are expected to be prepared in near future.

This volume contains papers selected for presentation in technical sessions of ICON-2014 and short communications selected for poster presentation. We are thankful to our excellent team of reviewers from all over the globe who deserve full credit for the hard work of reviewing the high quality submissions with rich technical content. From 140 submissions, 54 papers were selected, 34 for full presentation and 20 for poster presentation, representing a variety of new and interesting developments, covering a wide spectrum of NLP areas and core linguistics.

We are deeply grateful to Aravind K. Joshi, Lori Levin and Sobha L for giving the three keynote lectures at ICON. We would also like to thank the members of the Advisory Committee and Programme Committee for their support and co-operation in making ICON 2014 a success.
We thank Vishal Goyal, Chair, Student Paper Competition and Sandipan Dandapat, Chair, NLP Tools Contest for taking the responsibilities of the events.

We convey our thanks to P V S Ram Babu, G Srinivas Rao and A Lakshmi Narayana, International Institute of Information Technology (IIIT), Hyderabad for their dedicated efforts in successfully handling the ICON Secretariat. We also thank IIIT Hyderabad team of Vasudeva Varma, Soma Paul, Radhika Mamidi, Manish Shrivastava, B Yegnanarayana, Kishore Prahallad and Suryakanth V Gangashetty and the team at Goa University lead by Ramdas Karmali and Ramrao Wagh along with large number of volunteers and many others for sharing the work and responsibilities of ICON. We also thank all those who came forward to help us in this task.

Finally, we thank all the researchers who responded to our call for papers and all the participants of ICON-2014, without whose overwhelming response the conference would not have been a success.

December 2014
Goa

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Rajeev Sangal
Jyoti D. Pawar
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We gratefully acknowledge the excellent quality of refereeing we received from the reviewers. We thank them all for being precise and fair in their assessment and for reviewing the papers in time.
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Keynote Lecture 1: Complexity of Dependency Representations for Natural Languages
Aravind K Joshi

+ 11:00-11:20 Tea Break


SMT from Agglutinative Languages: Use of Suffix Separation and Word Splitting
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+ 11:20-13:20 Technical Session II: Speech

Duration Modeling by Multi-Models based on Vowel Production characteristics
V Ramu Reddy, Parakrant Sarkar and K Sreenivasa Rao

Voice Activity Detection using Temporal Characteristics of Autocorrelation Lag and Maximum Spectral Amplitude in Sub-bands
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Use of GPU and Feature Reduction for Fast Query-by-Example Spoken Term Detection
Gautam Mantena and Kishore Prahallad

Influence of Mother Tongue on English Accent
G. Radha Krishna and R. Krishnan
+ 13:20-14:15 Lunch

+ 14:15-15:15 Keynote Lecture 2 by Sobha L

*Keynote Lecture 2: Text Analysis for identifying Entities and their mentions in Indian languages*
Sobha L

+ 15:15-15:30 Tea Break

+ 15:30-16:20 Poster Session and Demonstrations:

**HinMA: Distributed Morphology based Hindi Morphological Analyzer**
Ankit Bahuguna, Lavita Talukdar, Pushpak Bhattacharyya and Smriti Singh

**Roles of Nominals in Construing Meaning at the Level of Discourse**
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PaCMan : Parallel Corpus Management Workbench
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Translation of TO infinitives in Anusaaraka Platform: an English Hindi MT system
Akshar Bharati, Sukhada and Soma Paul
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_Determining Trustworthiness in E-Commerce Customer Reviews_
Dhruv Gupta and Asif Ekbal

_Naturalistic Audio-Visual Emotion Database_
Sudarsana Reddy Kadi, P. Gangamohan, V.K. Mittal and B. Yegnanarayana

_Discriminating Neutral and Emotional Speech using Neural Networks_
Sudarsana Reddy Kadi, P. Gangamohan and B. Yegnanarayana

+ 17:50-18:50 NLPAI Meeting

+ 19:00-20:00 Cultural Program

+ 20:00-20:30 Dinner

Saturday, December 20, 2014

+ 9:30-10:30 Keynote Lecture 3 by Lori Levin

_Keynote Lecture 3: Modeling NonPropositional Semantics_
Lori Levin

+ 10:30-10:50 Tea Break
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+ 10:50-13:20 Technical Session V: Statistical Methods

*Text Readability in Hindi: A Comparative Study of Feature Performances Using Support Vectors*
Manjira Sinha, Tirthankar Dasgupta and Anupam Basu

*Sangam: A Perso-Arabic to Indic Script Machine Transliteration Model*
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*Continuum models of semantics for language discovery*
Deepali Semwal, Sunakshi Gupta and Amitabha Mukerjee

*Syllables as Linguistic Units?*
Amitabha Mukerjee and Prashant Jalan

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*Accurate Identification of the Karta (Subject) Relation in Bangla*
Arnab Dhar and Sudeshna Sarkar

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*Handling Plurality in Bengali Noun Phrases*
Biswanath Barik and Sudeshna Sarkar

*Making Verb Frames for Bangla Vector Verbs*
Sanjukta Ghosh
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*English to Punjabi Transliteration using Orthographic and Phonetic Information*
Kamaljeet Kaur and Parminder Singh

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*Evaluating Two Annotated Corpora of Hindi Using a Verb Class Identifier*
Neha Dixit and Narayan Choudhary

*Hindi Word Sketches*
Anil Krishna Eragani, Varun Kuchib Hotla, Dipti Misra Sharma, Siva Reddy and Adam Kilgarriff

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*Hierarchical Recursive Tagset for Annotating Cooking Recipes*
Sharath Reddy Gunamgari, Sandipan Dandapat and Monojit Choudhury

+ 14:20-16:50 Technical Session IX: Emerging Areas

*Named Entity Based Answer Extraction form Hindi Text Corpus Using n-grams*
Lokesh Kumar Sharma and Namita Mittal

*“ye word kis lang ka hai bhai?” Testing the Limits of Word level Language Identification*
Spandana Gella, Kalika Bali and Monojit Choudhury

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Significance of Paralinguistic Cues in the Synthesis of Mathematical Equations
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