

ICON-2016

13th International Conference on Natural Language Processing

Proceedings of the Conference

17-20 December 2016
IIT (BHU), Varanasi, India

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Preface

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 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 the tasks of 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.

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-2016 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 150 submissions, 38 papers were selected, 15 for full presentation, 18 for poster presentation and 5 for poster-cum-demonstration, representing a variety of new and interesting developments, covering a wide spectrum of NLP areas and core linguistics.

We are deeply grateful to Richard Sproat, Google Inc., USA and Bruno Pouliquen, World Intellectual Property Organization, Switzerland for giving the keynote lectures at ICON-2016. We would also like to thank the members of the Advisory Committee and Programme Committee for their support and co-operation in making ICON 2016 a success.

We thank Asif Ekbal, Chair, Student Paper Competition and Amitav Das, Chair, NLP Tools Contest for taking the responsibilities of the events.

We convey our thanks to P V S Ram Babu, G Srinivas Rao, B Mahender Kumar 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 Vineet Chaitanya, Peri Bhaskararao, Vasudeva Varma, Soma Paul, Radhika Mamidi, Manish Shrivastava, Suryakanth V Gangashetty and Anil Kumar Vuppala. We heartily express our gratitude to Sukomal Pal, Swasti Mishra and the great team of volunteers at IIT (BHU) and BHU, Varanasi for their timely help with sincere dedication and hard work to make this conference a success.

We also thank all those who came forward to help us in this task. We apologize if we have missed some names.

Finally, we thank all the researchers who responded to our call for papers and all the participants of ICON-2016, without whose overwhelming response the conference would not have been a success.

December 2016
Varanasi

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Rajeev Sangal
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POS Tagging for Code-Mixed Indian Social Media Text Rationale:

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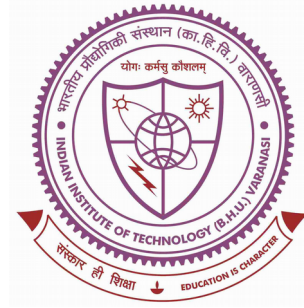
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We gratefully acknowledge the excellent quality of refereeing we received from the reviewers. We thank them all for being precise and fair in their assessment and for reviewing the papers in time.

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Workshop Program

Monday, December 19, 2016

+ 9:00-9:30 Inaugural Ceremony

+ 9:30-10:00 Keynote Lecture 1 by Bruno Pouliquen

Keynote Lecture 1: Practical Use of Machine Translation in International Organizations

Bruno Pouliquen

+ 10:30-11:00 Tea Break

+ 11:00-13:00 Technical Session I: Machine Translation and WSD:

Integrating WordNet for Multiple Sense Embeddings in Vector Semantics

David Foley and Jugal Kalita

Can SMT and RBMT Improve each other's Performance?- An Experiment with English-Hindi Translation

Debajyoty Banik, Sukanta Sen, Asif Ekbal and Pushpak Bhattacharyya

Composition of Compound Nouns Using Distributional Semantics

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Towards Building a SentiWordNet for Tamil

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+ 11:00-13:00 Technical Session II : Discourse Analysis:

Extending AIDA framework by incorporating coreference resolution on detected mentions and pruning based on popularity of an entity

Samaikya Akarapu and Ravindranath Chowdary

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Biomolecular Event Extraction using a Stacked Generalization based Classifier

Amit Majumder, Asif Ekbal and Sudip Kumar Naskar

Monday, December 19, 2016 (continued)

Syntax and Pragmatics of Conversation: A Case of Bangla

Samir Karmakar and Soumya Sankar Ghosh

+ 13:00-14:00 Lunch

+ 14:00-15:00 Technical Session III: New Trends:

Dependency grammars as Haskell programs

Tomasz Obrebski

Improving Document Ranking using Query Expansion and Classification Techniques for Mixed Script Information Retrieval

Subham Kumar, Anwesh Sinha Ray, Sabyasachi Kamila, Asif Ekbal, Sriparna Saha and Pushpak Bhattacharyya

+ 15:00-15:30 Tea Break

+ 15:30-17:30 Poster and Demo Session-1:

Feature based Sentiment Analysis using a Domain Ontology

Neha Yadav and C Ravindranath Chowdary

Cross-lingual transfer parser from Hindi to Bengali using delexicalization and chunking

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Graph theoretic interpretation of Bangla traditional grammar

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Vaidya: A Spoken Dialog System for Health Domain

Prathyusha Danda, Brij Mohan Lal Srivastava and Manish Shrivastava

Cosmopolitan Mumbai, Orthodox Delhi, Techcity Bangalore: Understanding City Specific Societal Sentiment

Aishwarya N Reganti, Tushar Maheshwari, Upendra Kumar and Amitava Das

+ 17:30-18:30 NLP AI Meeting

+ 18:30-19:30 Cultural Program

+ 19:30-20:30 Dinner

Tuesday, December 20, 2016

+ 9:30-10:30 Keynote Lecture 2:

Keynote Lecture 2: Neural (and other Machine Learning) Approaches to Text Normalization

Richard Sproat

+ 10:30-11:00 Tea Break

Tuesday, December 20, 2016 (continued)

+ 11:00-13:00 Technical Session IV: Statistical Methods:

Wisdom of Students: A Consistent Automatic Short Answer Grading Technique

Shourya Roy, Sandipan Dandapat, Ajay Nagesh and Narahari Y.

A Recurrent Neural Network Architecture for De-identifying Clinical Records

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Twitter Named Entity Extraction and Linking Using Differential Evolution

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Learning Non-Linear Functions for Text Classification

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+ 13:00-14:00 Lunch

+ 14:-15:30 Poster and Demo Session-2:

A Computational Analysis of Mahabharata

Debarati Das, Bhaskarjyoti Das and Kavi Mahesh

Use of Features for Accentuation of ghaanta Words

Samir Janardan Sohoni and Malhar A. Kulkarni

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Opinion Mining in a Code-Mixed Environment: A Case Study with Government Portals

Deepak Gupta, Ankit Lamba, Asif Ekbal and Pushpak Bhattacharyya

Use of Semantic Knowledge Base for Enhancement of Coherence of Code-mixed Topic-Based Aspect Clusters

Kavita Asnani and Jyoti D Pawar

Genetic Algorithm (GA) Implementation for Feature Selection in Manipuri POS Tagging

Kishorjit Nongmeikapam and Sivaji Bandyopadhyay

Tuesday, December 20, 2016 (continued)

Effect of Syntactic Features in Bangla Sentence Comprehension

Manjira Sinha, Tirthankar Dasgupta and Anupam Basu

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On Why Coarse Class Classification is Bottleneck in Noun Compound Interpretation

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Towards Building A Domain Agnostic Natural Language Interface to Real-World Relational Databases

Sree Harsha Ramesh, Jayant Jain, Sarath K S and Krishna R Sundaresan

+ 15:30-16:00 Tea Break

+ 16:00-17:30 Technical Session V: Speech Processing:

Experimental Study of Vowels in Nagamese, Ao and Lotha: Languages of Nagaland

Joyanta Basu, Tulika Basu, Soma Khan, Madhab Pal, Rajib Roy and Tapan Kumar Basu

Perception of Phi-Phrase boundaries in Hindi.

Somnath Roy

+ 16:00-17:30 Technical Session VI : NLP Tool Contest

Tuesday, December 20, 2016 (continued)

+ 17:30-18:00 Valedictory Session