# HLT-NAACL 2004

Human Language Technology
Conference of the
North American Chapter of the
Association for Computational Linguistics

Proceedings of the Main Conference

May 2-7, 2004
Boston, Massachusetts, USA

ISBN 1-932432-23-X

# HLT-NAACL 2004

## Human Language Technology
## Conference of the
## North American Chapter of the
## Association for Computational Linguistics

## Proceedings of the Main Conference

Julia B. Hirschberg, General Chair
Susan Dumais, Daniel Marcu and Salim Roukos
Program Committee Chairs

May 2-7, 2004
Boston, Massachusetts, USA

Published by the Association for Computational Linguistics
http://www.aclweb.org

Printed and served by
Omnipress
Helping Associations Educate
1-800-828-0305 www.omnipress.com
Continuing Educational Material in Print and CD-ROM

Copyright ©2004
ISBN: 1-932432-23-X
Order this and other ACL publications from:
The Association for Computational Linguistics
3 Landmark Center
East Stroudsburg, PA, 18301, USA
Phone: +1-570-476-8006
Fax: +1-570-476-0860
acl@aclweb.org
www.aclweb.org

HLT-NAACL 2004: Main Volume, May 2–7, 2004

# Preface

This year's HLT/NAACL 2004 continues to combine the research efforts of the Human Language Technologies (HLT) and the North Amercian chapter of the Association for Computational Linguistict (NAACL) in a single conference. This year we specifically focus on bringing together researchers in speech recognition, information retrieval, and natural language processing, to share results in topics of mutual interest, including cross-language retrieval; summarization; question-answering; language modeling for speech or IR; all aspects of speech recognition and synthesis; entity extraction; parsing and grammatical formalisms; machine translation; shallow and formal semantics; language generation; dialogue systems; evaluation of language systems; and applications of machine learning to all three areas represented in the conference. We have tried to prepare a conference that will showcase complementary research efforts in the three fields of endeavor, to promote cooperation and collaboration among those with similar long-term research interests.

As the general chair of this conference, I thank the people who have worked hard to make the conference possible, especially the local arrangements chair, Christy Doran; the Program Committee Chairs, Sue Dumais, Daniel Marcu, and Salim Roukos; and the chairs of the conference subcommittees, Joe Polifroni, David Palmer, and Deb Roy (Demos); Miles Osborne, Katrin Kirchoff, and Gina Levow (Publications); Shri Narayanan, Peter Anick, and Peter Heeman (Publicity); Doug Jones and Roberto Pierracini (Sponsorships); Amanda Stent, Lisa Ballesteros, and Eric Fosler-Lussier (Student Workshop Advisors); Ani Nenkova, Karen Livescu, and Nicola Stokes (Student Workshop) Andy Kehler, Alex Acero, and Manie Callan (Tutorials); Richard Sproat, Bhuvana Ramabhadran, and Alan Smeaton (Workshops). Many thanks also to Pablo Duboue, Kathy McCoy, Dragomir Radev, and Priscilla Rasmussen, for their help. Thanks also to the members of the HLT/NAACL advisory committee, the NAACL executive committee, and the ACL executive board, for their help and advice. I also want to thank our sponsors, the many members of our program committees and reviewers, the student volunteers, and the many others who have contributed their time and effort to making this conference possible.

Julia Hirschberg
Columbia University
General Chair

# Preface from the Program Co-chairs

On this second anniversary of the joint HLT/NAACL conference, the field of Human Language Technology (HLT) seems vibrant and moving by leaps and bounds. Evidence of this can be found in the existence of a variety of language resources, combined with advances in statistical analysis and modeling techniques, and the relatively large number of community-wide evaluations of NLP systems. Lexical resources such as FrameNet, WordNet, PropBank, the ACE Corpus, the Penn TreeBank, and parallel corpora, and test collections for information retrieval, question answering and text classification play prominent roles in HLT advances. Great strides are being made in the sophistication and coverage of information retrieval, question answering and machine translation systems. The current accuracy of speech recognition systems has enabled the development of conversational systems, information extraction and retrieval from recognized speech, and topic tracking on spoken documents. Large and growing collections of *annotated* text and speech corpora – and the promise of much more *unannotated* data from the web – will continue to fuel these rapid advances.

The number and quality of submissions we received is another testament to the increased interest and progress in the field. We received 168 submissions for full papers, of which 43 were accepted, resulting in a highly competitive acceptance rate of 26%. (Thirty-nine submissions received an average score of 4.0 or higher, on a reviewing scale of 1 to 5.) In addition, we received 84 submissions for the short (late-breaking) papers track, of which 40 were accepted. Half of the short papers are presented as short talks and others as posters. In addition to the technical papers, the HLT/NAACL 2004 conference showcases 19 demonstrations, 6 tutorials, and 12 workshops, which includes a student research workshop. We thank everyone who submitted proposals, whether or not they were accepted. Your participation is critical to the moving forward of the field, and we hope the reviewer feedback was helpful.

The full paper reviewing was done using a two-tiered system. Twenty Area Chairs were responsible for a topical area and coordinated the review process within those areas. Each Area Chair recruited a set of Reviewers and ensured that submitted papers were reviewed by at least 3 reviewers. We had a total of 149 reviewers. The Area Chairs acted at meta-reviewers and moderated discussions of papers where the initial ratings varied. Papers where there were disagreements or questions were subsequently reviewed by another member of the program committee. Area Chairs also attended a one day Program Committee meeting in which papers were discussed and acceptances were decided. The same process was used for the late-breaking (short) papers, except that the one day meeting was replaced by a conference call. Paper submission and reviewing was done online with commercial conference software that Daniel Marcu and Radu Soricut managed at ISI.

Many people have contributed to the exciting program at the HLT/NAACL 2004 conference. We thank our large and able reviewer pools; their careful and timely reviews made it possible to include both high quality and late breaking results. We owe a great debt to the members of the program committee, who we believe are responsible for the high quality of the submissions (their presence on the program committee no doubt encouraging top-notch research to be submitted). Their excellent judgment helped lead to the compilation of a stimulating and forward-looking set of papers. The program committee was also responsible for suggesting and approving a "Best Paper" award. This was somewhat controversial among the various committees with concerns about keeping high enough standards for such a designation in the future. This year, the award goes to "*Catching the Drift: Probabilistic Content Models, with Applications to Generation and Summarization*" by Regina Barzilay, MIT, and Lillian Lee, Cornell. We believe this paper merits the attention of the community.

The two Keynote Talks we have selected for presentation at HLT/NAACL 2004 denote the maturity of our field, which has an increasing impact on large-scale, commercial applications. The first keynote address by Dr. Andrei Broder, entitled "*Ten years of Web Search Technology*", gives an overview of a big playground for language technologies. Dr. Broder discusses the evolution of web search over the past decade, how users' expectations are evolving based on their use of web search technology, and implications of this work

in the enterprise search arena. The second keynote address by Dr. Jill Burstein, entitled "*Automated Essay Evaluation: From NLP research through deployment as a business*", describes the development of technology for automatic essay evaluation and its deployment as a business.

We are pleased to have outstanding lecturers covering a broad range of HLT topics, including both statistical and non-statistical work in natural language processing, topics in speech and information retrieval, and general methods for optimization and estimation. In addition to the technical papers, the program also includes a varied and interested set of demonstrations, workshops and tutorials. We thank David Palmer, Joe Polifroni and Deb Roy for managing the recruiting and reviewing of demonstrations; Alex Acero, Jamie Callan and Andy Kehler for putting together a rich program of Tutorials; Bhuvana Ramabhadran, Alan Smeaton and Richard Sproat for coordinating the Workshop activities; and, Ani Nenkova, Nicola Stokes and Karen Licescu for handling the Student Workshops. We also thank Miles Osborne, Katrin Kirchoff and Gina-Ann Levow for their work in pulling all this information together (in very short time) for the conference proceedings.

Most of our decisions had to be approved by a large and diverse committee representing NAACL, HLT, ISCA, and SIGIR, as well as different government sponsors of HLT research. We are pleased to report that despite this seemingly cumbersome situation, our questions were always resolved within one or two days, if not hours, and with great alacrity. We thank all of the board members for their ongoing support of research and development in human language technologies!

We did our best to merge the different goals of the communities, and we think we succeeded for the most part. We also worked hard to solicit involvement from all of the associated communities, and we are especially pleased about the interdisciplinary nature of many of the papers. As the conference becomes better known, we hope to see this trend continue. We feel that, although there is room for improvement, the HLT/NAACL merge was a success in attracting high quality work and in bridging gaps, and hope to see it continue next year.

Susan Dumais, Daniel Marcu, and Salim Roukos
22 March 2004

# Table of Contents

*A Statistical Model for Multilingual Entity Detection and Tracking*
R Florian, H Hassan, A Ittycheriah, H Jing, N Kambhatla, X Luo, N Nicolov and S Roukos....1

*Cross-Document Coreference on a Large Scale Corpus*
Chung Heong Gooi and James Allan....9

*Robust Reading: Identification and Tracing of Ambiguous Names*
Xin Li, Paul Morie and Dan Roth....17

*A Salience-Based Approach to Gesture-Speech Alignment*
Jacob Eisenstein and C. Mario Christoudias....25

*Balancing data-driven and rule-based approaches in the context of a Multimodal Conversational System*
Srinivas Bangalore and Michael Johnston....33

*Optimizing Automated Call Routing by Integrating Spoken Dialog Models with Queuing Models*
Tim Paek and Eric Horvitz....41

*Answering Definition Questions with Multiple Knowledge Sources*
Wesley Hildebrandt, Boris Katz and Jimmy Lin....49

*Automatic Question Answering: Beyond the Factoid*
Radu Soricut and Eric Brill....57

*A Probabilistic Rasch Analysis of Question Answering Evaluations*
Rense Lange, Juan Moran, Warren R Greiff and Lisa Ferro....65

*Acquiring Hyponymy Relations from Web Documents*
Keiji Shinzato and Kentaro Torisawa....73

*Sentence-Internal Prosody Does not Help Parsing the Way Punctuation Does*
Michelle Gregory, Mark Johnson and Eugene Charniak....81

*Ensemble-based Active Learning for Parse Selection*
Miles Osborne and Jason Baldridge....89

*Speed and Accuracy in Shallow and Deep Stochastic Parsing*
Ron Kaplan, Stefan Riezler, Tracy H King, John T Maxwell III, Alex Vasserman and Richard Crouch....97

*Training Tree Transducers*
Jonathan Graehl and Kevin Knight....105

*Catching the Drift: Probabilistic Content Models, with Applications to Generation and Summarization*
Regina Barzilay and Lillian Lee....113

*The Web as a Baseline: Evaluating the Performance of Unsupervised Web-based Models for a Range of NLP Tasks*
Mirella Lapata and Frank Keller....121

*Lattice-Based Search for Spoken Utterance Retrieval*
Murat Saraclar and Richard Sproat....129

*Detecting Structural Metadata with Decision Trees and Transformation-Based Learning*
Joungbum Kim, Sarah E Schwarm and Mari Ostendorf....137

*Evaluating Content Selection in Summarization: The Pyramid Method*

Ani Nenkova and Rebecca Passonneau ..... 145

*Inferring Sentence-internal Temporal Relations*
Mirella Lapata and Alex Lascarides ..... 153

*A Smorgasbord of Features for Statistical Machine Translation*
Franz Josef Och, Daniel Gildea, Sanjeev Khudanpur, Anoop Sarkar, Kenji Yamada, Alex Fraser, Shankar Kumar, Libin Shen, David Smith, Katherine Eng, Viren Jain, Zhen Jin and Dragomir Radev 161

*Minimum Bayes-Risk Decoding for Statistical Machine Translation*
Shankar Kumar and William Byrne ..... 169

*Discriminative Reranking for Machine Translation*
Libin Shen, Anoop Sarkar and Franz Josef Och ..... 177

*Evaluating Multiple Aspects of Coherence in Student Essays*
Derrick Higgins, Jill Burstein, Daniel Marcu and Claudia Gentile ..... 185

*A Language Modeling Approach to Predicting Reading Difficulty*
Kevyn Collins-Thompson and James P Callan ..... 193

*Predicting Emotion in Spoken Dialogue from Multiple Knowledge Sources*
Kate Forbes-Riley and Diane Litman ..... 201

*The Tao of CHI: Towards Effective Human-Computer Interaction*
Robert Porzel and Manja Baudis ..... 209

*Non-Native Users in the Let's Go!! Spoken Dialogue System: Dealing with Linguistic Mismatch*
Antoine Raux and Maxine Eskenazi ..... 217

*Comparison of two interactive search refinement techniques*
Olga Vechtomova and Murat Karamuftuoglu ..... 225

*Shallow Semantic Parsing using Support Vector Machines*
Sameer S Pradhan, Wayne H Ward, Kadri Hacioglu, James H Martin and Dan Jurafsky ..... 233

*Paraphrasing Predicates from Written Language to Spoken Language Using the Web*
Nobuhiro Kaji, Masashi Okamoto and Sadao Kurohashi ..... 241

*Shallow Semantc Parsing of Chinese*
Honglin Sun and Daniel Jurafsky ..... 249

*Improvements in Phrase-Based Statistical Machine Translation*
Richard Zens and Hermann Ney ..... 257

*Improved Machine Translation Performance via Parallel Sentence Extraction from Comparable Corpora*
Dragos Stefan Munteanu, Alexander Fraser and Daniel Marcu ..... 265

*What's in a translation rule?*
Michel Galley, Mark Hopkins, Kevin Knight and Daniel Marcu ..... 273

*Improving Named Entity Translation Combining Phonetic and Semantic Similarities*
Fei Huang, Stephan Vogel and Alex Waibel ..... 281

*The (Non)Utility of Predicate-Argument Frequencies for Pronoun Interpretation*
Andrew Kehler, Douglas Appelt, Lara Taylor and Aleksandr Simma ..... 289

*Unsupervised Learning of Contextual Role Knowledge for Coreference Resolution*
David Bean and Ellen Riloff ..... 297

*Exponential Priors for Maximum Entropy Models*
Joshua Goodman ..... 305

*Multiple Similarity Measures and Source-Pair Information in Story Link Detection*
Francine Chen, Ayman Farahat and Thorsten Brants ..... 313

*Automatically Labeling Semantic Classes*
Patrick Pantel and Deepak Ravichandran ..... 321

*Accurate Information Extraction from Research Papers using Conditional Random Fields*
Fuchun Peng and Andrew McCallum ..... 329

*Name Tagging with Word Clusters and Discriminative Training*
Scott Miller, Jethran Guinness and Alex Zamanian ..... 337

# Technical Program Schedule

**Monday, May 3**

9:00 – 9:15 Conference Welcome

9:15 – 10:30 **Keynote Speaker I: Andrei Broder**
Ten Years of Web Search Technology

10:30-11:00 Break

**Information Extraction I**

11:00 – 11:25 *A Statistical Model for Multilingual Entity Detection and Tracking*
R Florian, H Hassan, A Ittycheriah, H Jing, N Kambhatla, X Luo, N Nicolov and S Roukos

11:25 – 11:50 *Cross-Document Coreference on a Large Scale Corpus*
Chung Heong Gooi and James Allan

11:50 – 12:15 *Robust Reading: Identification and Tracing of Ambiguous Names*
Xin Li, Paul Morie and Dan Roth

**Dialogue and Discourse**

11:00 – 11:25 *A Salience-Based Approach to Gesture-Speech Alignment*
Jacob Eisenstein and C. Mario Christoudias

11:25 – 11:50 *Balancing data-driven and rule-based approaches in the context of a Multimodal Conversational System*
Srinivas Bangalore and Michael Johnston

11:50 – 12:15 *Optimizing Automated Call Routing by Integrating Spoken Dialog Models with Queuing Models*
Tim Paek and Eric Horvitz

12:15 – 1:30 Lunch

**Question Answering I**

1:30 – 1:55 *Answering Definition Questions with Multiple Knowledge Sources*
Wesley Hildebrandt, Boris Katz and Jimmy Lin

1:55 – 2:20 *Automatic Question Answering: Beyond the Factoid*
Radu Soricut and Eric Brill

2:20 – 2:45 *A Probabilistic Rasch Analysis of Question Answering Evaluations*
Rense Lange, Juan Moran, Warren R Greiff and Lisa Ferro

2:45 – 3:10 *Acquiring Hyponymy Relations from Web Documents*
Keiji Shinzato and Kentaro Torisawa

**Syntax and Semantics I**

1:30 – 1:55 *Sentence-Internal Prosody Does not Help Parsing the Way Punctuation Does*
Michelle Gregory, Mark Johnson and Eugene Charniak

1:55 – 2:20 *Ensemble-based Active Learning for Parse Selection*
Miles Osborne and Jason Baldridge

2:20 – 2:45 *Speed and Accuracy in Shallow and Deep Stochastic Parsing*
Ron Kaplan, Stefan Riezler, Tracy H King, John T Maxwell III, Alex Vasserman and Richard Crouch

2:45 – 3:10 *Training Tree Transducers*
Jonathan Graehl and Kevin Knight

3:15 – 4:00 Award and Demo

4:00 – 4:15 Break

4:15 – 6:00 Poster and Demo Session

**Tuesday, May 4**

**Human Language Technology**

9:00 – 9:25 *Catching the Drift: Probabilistic Content Models, with Applications to Generation and Summarization*
Regina Barzilay and Lillian Lee

9:25 – 9:50 *The Web as a Baseline: Evaluating the Performance of Unsupervised Web-based Models for a Range of NLP Tasks*
Mirella Lapata and Frank Keller

9:50 – 10:15 *Lattice-Based Search for Spoken Utterance Retrieval*
Murat Saraclar and Richard Sproat

10:15-10:45 Break

**Speech, Summarisation and Discourse**

10:45 – 11:10 *Detecting Structural Metadata with Decision Trees and Transformation-Based Learning*
Joungbum Kim, Sarah E Schwarm and Mari Ostendorf

11:10 – 11:35 *Evaluating Content Selection in Summarization: The Pyramid Method*
Ani Nenkova and Rebecca Passonneau

11:35 – 12:00 *Inferring Sentence-internal Temporal Relations*
Mirella Lapata and Alex Lascarides

**Machine Translation I**

10:45 – 11:10 *A Smorgasbord of Features for Statistical Machine Translation*
Franz Josef Och, Daniel Gildea, Sanjeev Khudanpur, Anoop Sarkar, Kenji Yamada, Alex Fraser Shankar Kumar, Libin Shen, David Smith, Katherine Eng, Viren Jain, Zhen Jin and Dragomir Radev

11:10 – 11:35 *Minimum Bayes-Risk Decoding for Statistical Machine Translation*
Shankar Kumar and William Byrne

11:35 – 12:00 *Discriminative Reranking for Machine Translation*
Libin Shen, Anoop Sarkar and Franz Josef Och

12:00 – 1:30 Lunch

**Information Retrieval and Language Modelling**

1:30 – 1:55 *Evaluating Multiple Aspects of Coherence in Student Essays*
Derrick Higgins, Jill Burstein, Daniel Marcu and Claudia Gentile

1:55 – 2:20 *A Language Modeling Approach to Predicting Reading Difficulty*
Kevyn Collins-Thompson and James P Callan

2:20 – 2:45 *Predicting Emotion in Spoken Dialogue from Multiple Knowledge Sources*
Kate Forbes-Riley and Diane Litman

**Short Papers: Speech Recognition and Applications**

1:30 – 1:45 *Feature-based Pronunciation Modeling for Speech Recognition*
Karen Livescu and James Glass

1:45 – 2:00 *Parsing Conversational Speech Using Enhanced Segmentation*
Jeremy G. Kahn, Mari Ostendorf and Ciprian Chelba

2:00 – 2:15 *A Comparison of Rule–Based and Statistical Methods for Semantic Language Modeling and Confidence Measurement*
Ruhi Srikaya, Yuqing Gao and Michael Picheny

2:15 – 2:30 *Correction Grammars for Error Handling in a Speech Dialog System*
Hirohiko Sagawa, Teruko Mitamura and Eric Nyberg

2:30 – 2:45 *Improving Automatic Sentence Boundary Detection with Confusion Networks*
D. Hillard, M. Ostendorf, A. Stolcke, Y. Liu and E. Shriberg

**Short Papers: Language Modelling and Machine Translation**

2:45 – 3:00 *Multi-Speaker Language Modeling*
Gang Ji and Jeffrey Bilmes

3:00 – 3:15 *Computational Linkuistics: Word Triggers across Hyperlinks*
Dragomir Radev, Hong Qi, Adam Winkel and Daniel Tam

3:15 – 3:30 *A Unigram Orientation Model for Statistical Machine Translation*
Christoph Tillman

3:30 – 3:45 *Morphological Analysis for Statistical Machine Translation*
Young-Suk Lee

**Short Papers: Parsing and Ontologies**

2:45 – 3:00 *Nearly-Automated Metadata Hierarchy Creation*
Emilia Soica and Marti A. Hearst

3:00 – 3:15 *A Lightweight Semantic Chunker Based on Tagging*
Kadri Hacioglu

3:15 – 3:30 *Automatic Construction of an English-Chinese Bilingual FrameNet*
Benfeng Chen and Pascale Fung

3:45-4:15 Break

**Dialogue and Information Retrieval**

4:15 – 4:40 *The Tao of CHI: Towards Effective Human-Computer Interaction*
Robert Porzel and Manja Baudis

4:40 – 5:05 *Non-Native Users in the Let's Go!! Spoken Dialogue System: Dealing with Linguistic Mismatch*
Antoine Raux and Maxine Eskenazi

5:05 – 5:30 *Comparison of two interactive search refinement techniques*
Olga Vechtomova and Murat Karamuftuoglu

**Syntax and Semantics II**

4:15 – 4:40 *Shallow Semantic Parsing using Support Vector Machines*
Sameer S Pradhan, Wayne H Ward, Kadri Hacioglu, James H Martin and Dan Jurafsky

4:40 – 5:05 *Paraphrasing Predicates from Written Language to Spoken Language Using the Web*
Nobuhiro Kaji, Masashi Okamoto and Sadao Kurohashi

5:05 – 5:30 *Shallow Semantc Parsing of Chinese*
Honglin Sun and Daniel Jurafsky

7:00 Banquet

**Wednesday, May 5**

9:00 – 10:15 **Keynote Speaker II: Jill Burstein**
Automatated Essay Evaluation: From NLP Research through Deployment as a Business

10:15 – 10:45 Break

**Machine Translation II**

10:45 – 11:10 *Improvements in Phrase-Based Statistical Machine Translation*
Richard Zens and Hermann Ney

11:10 – 11:35 *Improved Machine Translation Performance via Parallel Sentence Extraction from Comparable Corpora*
Dragos Stefan Munteanu, Alexander Fraser and Daniel Marcu

11:35 – 12:00 *What's in a translation rule?*
Michel Galley, Mark Hopkins, Kevin Knight and Daniel Marcu

12:00 – 12:25 *Improving Named Entity Translation Combining Phonetic and Semantic Similarities*
Fei Huang, Stephan Vogel and Alex Waibel

**Information Extraction II**

10:45 – 11:10 *The (Non)Utility of Predicate-Argument Frequencies for Pronoun Interpretation*
Andrew Kehler, Douglas Appelt, Lara Taylor and Aleksandr Simma

11:10 – 11:35 *Unsupervised Learning of Contextual Role Knowledge for Coreference Resolution*
David Bean and Ellen Riloff

11:35 – 12:00 *Exponential Priors for Maximum Entropy Models*
Joshua Goodman

12:00 – 12:25 *Multiple Similarity Measures and Source-Pair Information in Story Link Detection*
Francine Chen, Ayman Farahat and Thorsten Brants

12:25 – 1:45 Lunch

1:45 – 2:45 NAACL Business Meeting

**Short Papers: Statistical Techniques, Summarisation and IR**

2:45 – 3:00 *Competitive Self-Trained Pronoun Interpretation*
Andrew Kehler, Douglas Appelt, Lara Taylor and Aleksandr Simma

3:00 – 3:15 *Augmenting the kappa statistic to determine interannotator reliability for multiply labeled data points*
Andrew Rosenberg and Ed Binkowski

3:15 – 3:30 *Using N-Grams To Understand the Nature of Summaries*
Michele Banko and Lucy Vanderwende

3:30 – 3:45 *Web Search Intent Induction via Automatic Query Reformulation*
Hal Daume III and Eric Brill

**Short Papers: Multimodal Representation and Processing**

2:45 – 3:00 *Performance Evaluation and Error Analysis for Multimodal Reference Resolution in a Conversation System*
Joyce Y. Chai, Zahar Prasov and Pengyu Hong

3:00 – 3:15 *Advances in Children's Speech Recognition within an Interactive Literacy Tutor*
Andreas Hagen, Bryan Pellom, Sarel van Vuuren and Ronald Cole

3:15 – 3:30 *A Speech-in List-out Approach to Spoken User Interfaces*
Vijay Divi, C. Forlines, Jan Van Gemert, Bhiksha Raj, B. Schmidt-Nielsen, Kent Wittenburg Joseph Woelfel and Fang-Fang Zhang

3:30 – 3:45 *Converting a Text into Agent Animations: Assigning Gestures to a Text*
Yukiko I. Nakano, Masashi Okamoto, Daisuke Kawahara, Qing Li and Toyoaki Nishida

3:45 – 4:15 Break

**Question Answering II**

4:15 – 4:40 *Automatically Labeling Semantic Classes*
Patrick Pantel and Deepak Ravichandran

4:40 – 5:05 *Accurate Information Extraction from Research Papers using Conditional Random Fields*
Fuchun Peng and Andrew McCallum

5:05 – 5:30 *Name Tagging with Word Clusters and Discriminative Training*
Scott Miller, Jethran Guinness and Alex Zamanian

5:30 Conference End

# Author Index


Allan, James ..... 9
Appelt, Douglas ..... 289
Baldridge, Jason ..... 89
Bangalore, Srinivas ..... 33
Barzilay, Regina ..... 113
Baudis, Manja ..... 209
Bean, David ..... 297
Brants, Thorsten ..... 313
Brill, Eric ..... 57
Burstein, Jill ..... 185
Byrne, William ..... 169
Callan, James P ..... 193
Charniak, Eugene ..... 81
Chen, Francine ..... 313
Christoudias, C. Mario ..... 25
Collins-Thompson, Kevyn ..... 193
Crouch, Richard ..... 97
Eisenstein, Jacob ..... 25
Eng, Katherine ..... 161
Eskenazi, Maxine ..... 217
Farahat, Ayman ..... 313
Ferro, Lisa ..... 65
Florian, R ..... 1
Forbes-Riley, Kate ..... 201
Fraser, Alex ..... 161
Fraser, Alexander ..... 265
Galley, Michel ..... 273
Gentile, Claudia ..... 185
Gildea, Daniel ..... 161
Goodman, Joshua ..... 305
Gooi, Chung Heong ..... 9
Graehl, Jonathan ..... 105
Gregory, Michelle ..... 81
Greiff, Warren R ..... 65
Guinness, Jethran ..... 337
Hacioglu, Kadri ..... 233
Hassan, H ..... 1
Higgins, Derrick ..... 185
Hildebrandt, Wesley ..... 49
Hopkins, Mark ..... 273
Horvitz, Eric ..... 41
Huang, Fei ..... 281
Ittycheriah, A ..... 1
Jain, Viren ..... 161
Jin, Zhen ..... 161
Jing, H ..... 1
Johnson, Mark ..... 81
Johnston, Michael ..... 33
Jurafsky, Dan ..... 233
Jurafsky, Daniel ..... 249
Kaji, Nobuhiro ..... 241
Kambhatla, N ..... 1
Kaplan, Ron ..... 97

Karamuftuoglu, Murat ..... 225
Katz, Boris ..... 49
Kehler, Andrew ..... 289
Keller, Frank ..... 121
Khudanpur, Sanjeev ..... 161
Kim, Joungbum ..... 137
King, Tracy H ..... 97
Knight, Kevin ..... 105, 273
Kumar, Shankar ..... 161, 169
Kurohashi, Sadao ..... 241
Lange, Rense ..... 65
Lapata, Mirella ..... 121, 153
Lascarides, Alex ..... 153
Lee, Lillian ..... 113
Li, Xin ..... 17
Lin, Jimmy ..... 49
Litman, Diane ..... 201
Luo, X ..... 1
Marcu, Daniel ..... 185, 265, 273
Martin, James H ..... 233
Maxwell III, John T ..... 97
McCallum, Andrew ..... 329
Miller, Scott ..... 337
Moran, Juan ..... 65
Morie, Paul ..... 17
Munteanu, Dragos Stefan ..... 265
Nenkova, Ani ..... 145
Ney, Hermann ..... 257
Nicolov, N ..... 1
Och, Franz Josef ..... 161, 177
Okamoto, Masashi ..... 241
Osborne, Miles ..... 89
Ostendorf, Mari ..... 137
Paek, Tim ..... 41
Pantel, Patrick ..... 321
Passonneau, Rebecca ..... 145
Peng, Fuchun ..... 329
Porzel, Robert ..... 209
Pradhan, Sameer S ..... 233
Radev, Dragomir ..... 161
Raux, Antoine ..... 217
Ravichandran, Deepak ..... 321
Riezler, Stefan ..... 97
Riloff, Ellen ..... 297
Roth, Dan ..... 17
Roukos, S ..... 1
Saraclar, Murat ..... 129
Sarkar, Anoop ..... 161, 177
Schwarm, Sarah E ..... 137
Shen, Libin ..... 161, 177
Shinzato, Keiji ..... 73
Simma, Aleksandr ..... 289
Smith, David ..... 161
Soricut, Radu ..... 57
Sproat, Richard ..... 129

Sun, Honglin ..... 249
Taylor, Lara ..... 289
Torisawa, Kentaro ..... 73
Vasserman, Alex ..... 97
Vechtomova, Olga ..... 225
Vogel, Stephan ..... 281
Waibel, Alex ..... 281
Ward, Wayne H ..... 233
Yamada, Kenji ..... 161
Zamanian, Alex ..... 337
Zens, Richard ..... 257