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
Preface

This year’s HLT/NAACL 2004 continues to combine the research efforts of the Human Language Technologies (HLT) and the North American 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 Peck 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
Renee Lange, Juan Moran, Warren R Greiff and Lisa Ferro ................... 65

Acquiring Hypnymy 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
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 Karamuftsouglu ..................................... 225

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

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

Shallow Semantic 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

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
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 Semantic Parsing of Chinese
Honglin Sun and Daniel Jurafsky

7:00  Banquet
Wednesday, May 5

9:00 – 10:15  **Keynote Speaker II: Jill Burstein**  
Automated 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allan, James</td>
<td>9</td>
</tr>
<tr>
<td>Appelt, Douglas</td>
<td>289</td>
</tr>
<tr>
<td>Baldrige, Jason</td>
<td>89</td>
</tr>
<tr>
<td>Bangalore, Srinivas</td>
<td>33</td>
</tr>
<tr>
<td>Barzilay, Regina</td>
<td>113</td>
</tr>
<tr>
<td>Baudis, Manja</td>
<td>209</td>
</tr>
<tr>
<td>Bean, David</td>
<td>297</td>
</tr>
<tr>
<td>Brants, Thorsten</td>
<td>313</td>
</tr>
<tr>
<td>Brill, Eric</td>
<td>57</td>
</tr>
<tr>
<td>Burstein, Jill</td>
<td>185</td>
</tr>
<tr>
<td>Byrne, William</td>
<td>169</td>
</tr>
<tr>
<td>Callan, James P</td>
<td>193</td>
</tr>
<tr>
<td>Chamiak, Eugene</td>
<td>81</td>
</tr>
<tr>
<td>Chen, Francine</td>
<td>313</td>
</tr>
<tr>
<td>Christodoulas, C. Mario</td>
<td>25</td>
</tr>
<tr>
<td>Collins-Thompson, Kevyn</td>
<td>193</td>
</tr>
<tr>
<td>Crouch, Richard</td>
<td>97</td>
</tr>
<tr>
<td>Eisenstein, Jacob</td>
<td>25</td>
</tr>
<tr>
<td>Eng, Katherine</td>
<td>161</td>
</tr>
<tr>
<td>Estenazi, Maxine</td>
<td>217</td>
</tr>
<tr>
<td>Farahat, Ayman</td>
<td>313</td>
</tr>
<tr>
<td>Ferro, Lisa</td>
<td>65</td>
</tr>
<tr>
<td>Florian, R</td>
<td>1</td>
</tr>
<tr>
<td>Forbes-Riley, Kate</td>
<td>201</td>
</tr>
<tr>
<td>Fraser, Alex</td>
<td>161</td>
</tr>
<tr>
<td>Fraser, Alexander</td>
<td>265</td>
</tr>
<tr>
<td>Galley, Michel</td>
<td>273</td>
</tr>
<tr>
<td>Gentle, Claudia</td>
<td>185</td>
</tr>
<tr>
<td>Gilday, Daniel</td>
<td>161</td>
</tr>
<tr>
<td>Goodman, Joshua</td>
<td>305</td>
</tr>
<tr>
<td>Gooi, Chung Heong</td>
<td>9</td>
</tr>
<tr>
<td>Graehl, Jonathan</td>
<td>105</td>
</tr>
<tr>
<td>Gregory, Michelle</td>
<td>81</td>
</tr>
<tr>
<td>Greiff, Warren R</td>
<td>65</td>
</tr>
<tr>
<td>Guinness, Jethran</td>
<td>337</td>
</tr>
<tr>
<td>Hacigoglu, Kadri</td>
<td>233</td>
</tr>
<tr>
<td>Hassan, H</td>
<td>1</td>
</tr>
<tr>
<td>Higgins, Derrick</td>
<td>185</td>
</tr>
<tr>
<td>Hildebrandt, Wesley</td>
<td>49</td>
</tr>
<tr>
<td>Hopkins, Mark</td>
<td>273</td>
</tr>
<tr>
<td>Horvitz, Eric</td>
<td>41</td>
</tr>
<tr>
<td>Huang, Fei</td>
<td>281</td>
</tr>
<tr>
<td>Ittycheriah, A</td>
<td>1</td>
</tr>
<tr>
<td>Jain, Viren</td>
<td>161</td>
</tr>
<tr>
<td>Jin, Zhen</td>
<td>161</td>
</tr>
<tr>
<td>Jing, H</td>
<td>1</td>
</tr>
<tr>
<td>Johnson, Mark</td>
<td>81</td>
</tr>
<tr>
<td>Johnston, Michael</td>
<td>33</td>
</tr>
<tr>
<td>Jurafsky, Dan</td>
<td>233</td>
</tr>
<tr>
<td>Jurafsky, Daniel</td>
<td>249</td>
</tr>
<tr>
<td>Kaji, Nobuhiro</td>
<td>241</td>
</tr>
<tr>
<td>Kambhatla, N</td>
<td>1</td>
</tr>
<tr>
<td>Kaplan, Ron</td>
<td>97</td>
</tr>
</tbody>
</table>
Karamuftuoglu, Murat ................................................................. 225
Katz, Boris .................................................................................. 49
Kehler, Andrew ........................................................................... 289
Keller, Frank ................................................................................ 121
Khudanpur, Sanjeev ..................................................................... 161
Kim, Journgbum .......................................................................... 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
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
Nikolov, N .................................................................................. 1
Och, Franz Josef .......................................................................... 161, 177
Okamoto, Masashi ....................................................................... 241
Osborne, Miles ............................................................................ 89
Ostendorf, Mari ........................................................................... 137
Paek, Tim .................................................................................... 41
Pantel, Patrick ............................................................................ 321
Passonnneau, Rebecca ................................................................. 145
Peng, Fuchun ................................................................................ 329
Porzel, Robert ............................................................................ 309
Pradhan, Sameer S ...................................................................... 233
Radov, 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, Aleksandri ..................................................................... 289
Smith, David ............................................................................... 161
Soricut, Radu ............................................................................. 57
Sproat, Richard .......................................................................... 129
<table>
<thead>
<tr>
<th>Author</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun, Honglin</td>
<td>249</td>
</tr>
<tr>
<td>Taylor, Lara</td>
<td>289</td>
</tr>
<tr>
<td>Torisawa, Kentaro</td>
<td>73</td>
</tr>
<tr>
<td>Vasserman, Alex</td>
<td>97</td>
</tr>
<tr>
<td>Vechtomova, Olga</td>
<td>225</td>
</tr>
<tr>
<td>Vogel, Stephan</td>
<td>281</td>
</tr>
<tr>
<td>Waibel, Alex</td>
<td>281</td>
</tr>
<tr>
<td>Ward, Wayne H</td>
<td>233</td>
</tr>
<tr>
<td>Yamada, Kenji</td>
<td>161</td>
</tr>
<tr>
<td>Zamanian, Alex</td>
<td>337</td>
</tr>
<tr>
<td>Zens, Richard</td>
<td>257</td>
</tr>
</tbody>
</table>