ACL-HLT 2011

Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies

Volume 1: Long Papers

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ACL HLT 2011

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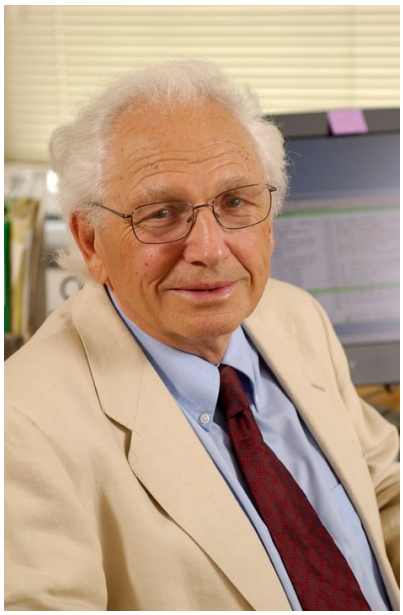

We dedicate the ACL 2011 proceedings to the memory of Fred Jelinek (1932-2010), who received ACL's Lifetime Achievement Award in 2009. His award acceptance speech can be found in Computational Linguistics 35(4), and an obituary by Mark Liberman appeared in Computational Linguistics 36(4). Several other newspaper and professional society obituaries have described his extraordinary personal life and career.

Fred's influence on computational linguistics is almost impossible to overstate. In the 1970s and 1980s, he and his colleagues at IBM developed the statistical paradigm that dominates our field today, including a great many specific techniques for modeling, parameter estimation, and search that continue to enjoy wide use. Even more fundamentally, as Mark Liberman recounts in his obituary, Fred led the field away from a mode where lone inventors defended their designs by appealing to aesthetics and anecdotes, to a more communal and transparent process of evaluating methods objectively through controlled comparisons on training and test sets.

Under Fred's visionary leadership, the IBM group revolutionized speech recognition by adopting a statistical, data-driven perspective that was deeply at odds with the rationalist ethos of the time. The group began with Fred's information-theoretic reconceptualization of the task as recovering a source signal (text) after it had passed through a noisy channel. They then worked out the many components needed for a full speech recognizer, along with the training algorithms for each component and global decoding algorithms. Steve Young, in an obituary in the IEEE SLTC Newsletter, describes Fred as not a pioneer but the pioneer of speech recognition.

In the 1980s, the IBM speech group's work on language modeling drew them toward deeper analysis of text. Fred and his colleagues introduced NLP methods such as word clustering, HMM part-of-speech tagging, history-based parsing, and prefix probability computation in PCFGs. They famously turned their noisy-channel lens on machine translation, founding the field of statistical MT with a series of ingenious and highly influential models.

After Fred moved to Johns Hopkins University in 1993, he worked tirelessly to improve language modeling by incorporating syntactic and other long-range dependencies as well as semantic classes. He also presided for 16 years over the Johns Hopkins Summer Workshops, whose 51 teams from 1995-2010 attacked a wide range of topics in human language technology, many making groundbreaking advances in the field.

There is a popular conception that Fred was somehow hostile to linguistics. Certainly he liked to entertain others by repeating his 1988 quip that "Any time a linguist leaves the group, the recognition rate goes up." Yet he had tried to leave information theory for linguistics as early as 1962, influenced by Noam Chomsky's lectures and his wife Milena's earlier studies with Roman Jakobson. He always strove for clean formal models just as linguists do. He was deeply welcoming toward any attempt to improve models through better linguistics, as long as they had a large number of parameters. Indeed, it was one of the major frustrations of his career that it was so difficult to beat n-gram language models, when humans were evidently using additional linguistic and world knowledge to obtain much better predictive performance. As he said in an award acceptance speech in 2004, "My colleagues and I always hoped that linguistics will eventually allow us to strike gold."

Fred was skeptical only about the relevance of armchair linguistics to engineering, believing that there was far more variation in the data than could be described compactly by humans. For this reason, while he was quite interested in recovering or exploiting latent linguistic structure, he trusted human-annotated linguistic data to be a better description of that structure than human-conceived linguistic rules. Statistical models could be aided even by imperfect or incomplete annotations, such as unaligned orthographic transcriptions, bilingual corpora, or syntactic analyses furnished by ordinary speakers. Fred pushed successfully for the development of such resources, notably the IBM/Lancaster Treebank and its successor, the Penn Treebank.

Fred influenced many of us personally. He was warm-hearted, witty, cultured, thoughtful about the scientific process, a generous mentor, and always frank, honest, and unpretentious. The changes that he brought to our field are largely responsible for its recent empirical progress and commercial success. They have also helped make it attractive to many bright, technically sophisticated young researchers. This proceedings volume, which is dedicated to his memory, testifies to the overwhelming success of his leadership and vision.

By Jason Eisner, on behalf of ACL 2011 Organizing Committee

Preface: General Chair

Welcome to the 49th Annual Meeting of the Association for Computational Linguistics in Portland, Oregon. ACL is perhaps the longest-running conference series in computer science. Amazingly, it is still growing. We expect this year's ACL to attract an even larger number of participants than usual, since 2011 happens to be an off-year for COLING, EACL and NAACL.

The yearly success of ACL results from the dedication and hard work of many people. This year is no exception. I would like to thank all of them for volunteering their time and energy in service to our community.

I thank the Program Co-Chairs Rada Mihalcea and Yuji Matsumoto for putting together a wonderful main conference program, including 164 long papers, 128 short papers and much anticipated keynote speeches by David Ferrucci and Lera Boroditsky. Tutorial Co-Chairs, Patrick Pantel and Andy Way solicited proposals and selected six fascinating tutorials in a wide range of topics. The Workshop Co-Chairs, Hal Daume III and John Carroll, organized a joint selection process with EMNLP 2011. The program consists of 3 two-day workshops and 13 one-day workshops, a new record number for ACL. Sadao Kurohashi, Chair of System Demonstrations, assembled a committee and oversaw the review of 46 demo submissions.

The Student Session is organized by Co-Chairs, Sasa Petrovic, Emily Pitler, Ethan Selfridge and Faculty Advisors: Miles Osborne, Thamar Solorio. They introduced a new, poster-only format to be held in conjunction with the main ACL poster session. They also obtained NSF funding to provide travel support for all student session authors.

Special thank goes to Publication Chair, Guodong Zhou and his assistant Hong Yu. They produced the entire proceedings of the conference.

We are indebted to Brain Roark and the local arrangement committee for undertaking a phenomenal amount detailed work over the course of two years to host this conference, such as allocating appropriate space to meet all the needs of the scientific program, compiling and printing of the conference handbook, arranging a live tango band for the banquet and dance, to name just a few. The local arrangement committee consists of: Nate Bodenstab (webmeister), Peter Heeman (exhibitions), Christian Monson (student volunteers), Zak Shafran and Meg Mitchell (social), Richard Sproat (local sponsorship), Mahsa Yarmohammadi and Masoud Rouhizadeh (student housing coordinators) and Aaron Dunlop (local publications coordinator).

I want to express my gratitude to Ido Dagan, Chair of the ACL Conference Coordination Committee, Dragomir Radev, ACL Secretary, and Priscilla Rasmussen, ACL Business Manager, for their advice and guidance throughout the process.

ACL 2011 has two Platinum Sponsors (Google and Baidu), one Gold Sponsor (Microsoft), two Silver sponsors (Pacific Northwest National Lab and Yahoo!), and seven Bronze Sponsors and six Supporters. We are grateful for the financial support from these organizations. I would like to thank and applaud the tremendous effort by the ACL sponsorship committee: Srinivas Bangalore (AT&T), Massimiliano Ciaramita (Google), Kevin Duh (NTT), Michael Gamon (Microsoft), Stephen Pulman (Oxford), Priscilla Rasmussen (ACL), and Haifeng Wang (Baidu).

Finally, I would like to thank all the area chairs, workshop organizers, tutorial presenters, authors, reviewers and conference attendees for their participation and contribution. I hope everyone will have a great time sharing ideas and inspiring one another at this conference.

ACL 2011 General Chair
Dekang Lin, Google, Inc.

Preface: Program Committee Co-Chairs

Welcome to the program of the 2011 Conference of the Association for Computational Linguistics! ACL continues to grow, and this year the number of paper submissions broke once again the record set by previous years. We received a total of 1,146 papers, out of which 634 were submitted as long papers and 512 were submitted as short papers. 25.7

To achieve the goal of a broad technical program, we followed the initiative from last year and solicited papers under four main different categories: *theoretical computational linguistics*, *empirical/data-driven approaches*, *resources/evaluation*, and *applications/tools*. We also continued to accept other types of papers (e.g., surveys or challenge papers), although unlike the previous year, no separate category was created for these papers. The papers falling under one of the four categories were reviewed using specialized reviewed forms; we also had a general review form that was used to review the papers that did not fall under one of the four main categories.

A new initiative this year was to also accept papers accompanied by supplemental materials (software and/or datasets). In addition to the regular review of the research quality of the paper, the accompanied resources were also reviewed for their quality, and the acceptance or rejection decisions were made based on the quality of both the paper and the supplemental materials. Among all the submissions, a total of 84 papers were accompanied by a software package and 117 papers were accompanied by a dataset. Among all the accepted papers, 30 papers are accompanied by software and 35 papers are accompanied by a dataset. These materials will be hosted on the ACL web site under http://www.aclweb.org/supplementals.

We are delighted to have two distinguished invited speakers: Dr. David Ferrucci (Principal Investigator, IBM Research), who will talk about his team's work on building *Watson* – a deep question answering system that achieved champion-level performance at Jeopardy!, and Lera Boroditsky (Assistant Professor, Stanford University), who will give a presentation on her research on how the languages we speak shape the way we think. In addition, the recipient of the ACL Lifetime Achievement Award will present a plenary lecture during the final day of the conference.

As in previous years, there will be three awards, one for the best long paper, one for the best long paper by a student, and one for the best short paper. The candidates for the best paper awards were nominated by the area chairs, who took into consideration the feedback they received from the reviewers on whether a paper might merit a best paper prize. From among the nominations we received, we selected the top five candidates for the long and short papers, and the final awards were then selected by the area chairs together with the program co-chairs. The recipients of the best paper awards will present their papers in a plenary session during the second day of the conference.

There are many individuals to thank for their contributions to the conference program. First and foremost, we would like to thank the authors who submitted their work to ACL. The growing number of submissions reflects how broad and active our field is. We are deeply indebted to the area chairs and the reviewers for their hard work. They enabled us to select an exciting program and to provide valuable feedback to the authors. We thank the general conference chair Dekang Lin and the local arrangements committee headed by Brian Roark for their help and advice, as well as last year's program committee co-chairs, Stephen Clark and Sandra Carberry, for sharing their experiences. Additional thanks go to

the publications chair, Guodong Zhang, who put this volume together, and Yu Hong, who helped him with this task.

We are most grateful to Priscilla Rasmussen, who helped us with various logistic and organizational aspects of the conference. Rich Gerber and the START team responded to our questions quickly, and helped us manage the large number of submissions smoothly.

Enjoy the conference!

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Conference Program

Monday, June 20, 2011

(8:45-9:00) Opening Session

(9:00-10:00) Invited Talk 1:IBM Watson Deep QA System (tentative title) by David Ferrucci

(10:00-10:30) Coffee Break

Session 1-A: (10:30-12:10) MT: Methods

A Word-Class Approach to Labeling PSCFG Rules for Machine Translation
Andreas Zollmann and Stephan Vogel

Deciphering Foreign Language
Sujith Ravi and Kevin Knight

Effective Use of Function Words for Rule Generalization in Forest-Based Translation
Xianchao Wu, Takuya Matsuzaki and Jun'ichi Tsujii

Combining Morpheme-based Machine Translation with Post-processing Morpheme Prediction
Ann Clifton and Anoop Sarkar

Session 1-B: (10:30-12:10) Machine Learning Methods 1

Evaluating the Impact of Coder Errors on Active Learning
Ines Rehbein and Josef Ruppenhofer

A Fast and Accurate Method for Approximate String Search
Ziqi Wang, Gu Xu, Hang Li and Ming Zhang

Domain Adaptation by Constraining Inter-Domain Variability of Latent Feature Representation
Ivan Titov

Exact Decoding of Syntactic Translation Models through Lagrangian Relaxation
Alexander M. Rush and Michael Collins

Monday, June 20, 2011 (continued)

Session 1-C: (10:30-12:10) Information Retrieval

Jigs and Lures: Associating Web Queries with Structured Entities
Patrick Pantel and Ariel Fuxman

Semi-Supervised SimHash for Efficient Document Similarity Search
Qixia Jiang and Maosong Sun

Joint Annotation of Search Queries
Michael Bendersky, W. Bruce Croft and David A. Smith

Query Weighting for Ranking Model Adaptation
Peng Cai, Wei Gao, Aoying Zhou and Kam-Fai Wong

Session 1-D: (10:30-12:10) Sentiment Analysis/Opinion Mining 1

Automatically Extracting Polarity-Bearing Topics for Cross-Domain Sentiment Classification
Yulan He, Chenghua Lin and Harith Alani

Using Multiple Sources to Construct a Sentiment Sensitive Thesaurus for Cross-Domain Sentiment Classification
Danushka Bollegala, David Weir and John Carroll

Learning Word Vectors for Sentiment Analysis
Andrew L. Maas, Raymond E. Daly, Peter T. Pham, Dan Huang, Andrew Y. Ng and Christopher Potts

Target-dependent Twitter Sentiment Classification
Long Jiang, Mo Yu, Ming Zhou, Xiaohua Liu and Tiejun Zhao

Monday, June 20, 2011 (continued)

Session 1-E: (10:30-12:10) Language Resource

A Comprehensive Dictionary of Multiword Expressions
Kosho Shudo, Akira Kurahone and Toshifumi Tanabe

Multi-Modal Annotation of Quest Games in Second Life
Sharon Gower Small, Jennifer Strommer-Galley and Tomek Strzalkowski

A New Dataset and Method for Automatically Grading ESOL Texts
Helen Yannakoudakis, Ted Briscoe and Ben Medlock

Collecting Highly Parallel Data for Paraphrase Evaluation
David Chen and William Dolan

(12:10 - 2:00) Lunch

Session 2-A: (2:00-3:40) MT: Models & Evaluation

A Large Scale Distributed Syntactic, Semantic and Lexical Language Model for Machine Translation
Ming Tan, Wenli Zhou, Lei Zheng and Shaojun Wang

Goodness: A Method for Measuring Machine Translation Confidence
Nguyen Bach, Fei Huang and Yaser Al-Onaizan

MEANT: An inexpensive, high-accuracy, semi-automatic metric for evaluating translation utility based on semantic roles
Chi-kiu Lo and Dekai Wu

An exponential translation model for target language morphology
Michael Subotin

Monday, June 20, 2011 (continued)

Session 2-B: (2:00-3:40) Machine Learning Methods 2

Bayesian Inference for Zodiac and Other Homophonic Ciphers
Sujith Ravi and Kevin Knight

Interactive Topic Modeling
Yuening Hu, Jordan Boyd-Graber and Brianna Satinoff

Faster and Smaller N-Gram Language Models
Adam Pauls and Dan Klein

Learning to Win by Reading Manuals in a Monte-Carlo Framework
S.R.K Branavan, David Silver and Regina Barzilay

Session 2-C: (2:00-3:40) Linguistic Creativity

Creative Language Retrieval: A Robust Hybrid of Information Retrieval and Linguistic Creativity
Tony Veale

Local Histograms of Character N-grams for Authorship Attribution
Hugo Jair Escalante, Thamar Solorio and Manuel Montes-y-Gomez

Word Maturity: Computational Modeling of Word Knowledge
Kirill Kireyev and Thomas K Landauer

Finding Deceptive Opinion Spam by Any Stretch of the Imagination
Myle Ott, Yejin Choi, Claire Cardie and Jeffrey T. Hancock

Monday, June 20, 2011 (continued)

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Joint Bilingual Sentiment Classification with Unlabeled Parallel Corpora
Bin Lu, Chenhao Tan, Claire Cardie and Benjamin K. Tsou

A Pilot Study of Opinion Summarization in Conversations
Dong Wang and Yang Liu

Contrasting Opposing Views of News Articles on Contentious Issues
Souneil Park, Kyung Soon Lee and Junehwa Song

Content Models with Attitude
Christina Sauper, Aria Haghighi and Regina Barzilay

Session 2-E: (2:00-3:40) NLP for Web 2.0

Recognizing Named Entities in Tweets
Xiaohua LIU, Shaodian ZHANG, Furu WEI and Ming ZHOU

Lexical Normalisation of Short Text Messages: Makn Sens a #twitter
Bo Han and Timothy Baldwin

Topical Keyphrase Extraction from Twitter
Xin Zhao, Jing Jiang, Jing He, Yang Song, Palakorn Achanauparp, Ee-Peng Lim and Xiaoming Li

Event Discovery in Social Media Feeds
Edward Benson, Aria Haghighi and Regina Barzilay

Monday, June 20, 2011 (continued)

(3:40-4:10) Coffee Break

Session 3-A: (4:10-5:50) Transliteration/Alignment

How do you pronounce your name? Improving G2P with transliterations
Aditya Bhargava and Grzegorz Kondrak

Unsupervised Word Alignment with Arbitrary Features
Chris Dyer, Jonathan H. Clark, Alon Lavie and Noah A. Smith

Model-Based Aligner Combination Using Dual Decomposition
John DeNero and Klaus Macherey

An Algorithm for Unsupervised Transliteration Mining with an Application to Word Alignment
Hassan Sajjad, Alexander Fraser and Helmut Schmid

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Nathan Bodenstab, Aaron Dunlop, Keith Hall and Brian Roark

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Pierluigi Crescenzi, Daniel Gildea, Andrea Marino, Gianluca Rossi and Giorgio Satta

Prefix Probability for Probabilistic Synchronous Context-Free Grammars
Mark-Jan Nederhof and Giorgio Satta

A Comparison of Loopy Belief Propagation and Dual Decomposition for Integrated CCG Supertagging and Parsing
Michael Auli and Adam Lopez

Monday, June 20, 2011 (continued)

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Jointly Learning to Extract and Compress
Taylor Berg-Kirkpatrick, Dan Gillick and Dan Klein

Discovery of Topically Coherent Sentences for Extractive Summarization
Asli Celikyilmaz and Dilek Hakkani-Tur

Coherent Citation-Based Summarization of Scientific Papers
Amjad Abu-Jbara and Dragomir Radev

A Class of Submodular Functions for Document Summarization
Hui Lin and Jeff Bilmes

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Semi-supervised Relation Extraction with Large-scale Word Clustering
Ang Sun, Ralph Grishman and Satoshi Sekine

In-domain Relation Discovery with Meta-constraints via Posterior Regularization
Harr Chen, Edward Benson, Tahira Naseem and Regina Barzilay

Knowledge-Based Weak Supervision for Information Extraction of Overlapping Relations
Raphael Hoffmann, Congle Zhang, Xiao Ling, Luke Zettlemoyer and Daniel S. Weld

Exploiting Syntactico-Semantic Structures for Relation Extraction
Yee Seng Chan and Dan Roth

Monday, June 20, 2011 (continued)

Session 3-E: (4:10-5:50) Semantics

Together We Can: Bilingual Bootstrapping for WSD
Mitesh M. Khapra, Salil Joshi, Arindam Chatterjee and Pushpak Bhattacharyya

Which Noun Phrases Denote Which Concepts?
Jayant Krishnamurthy and Tom Mitchell

Semantic Representation of Negation Using Focus Detection
Eduardo Blanco and Dan Moldovan

Learning Dependency-Based Compositional Semantics
Percy Liang, Michael Jordan and Dan Klein

(6:00-8:30) Poster Session (Long papers)

(6:00-8:30) Poster Session (Short papers)

Tuesday, June 21, 2011

Session 4-A: (9:00-10:30) Best Paper Session

Unsupervised Part-of-Speech Tagging with Bilingual Graph-Based Projections
Dipanjan Das and Slav Petrov

Global Learning of Typed Entailment Rules
Jonathan Berant, Ido Dagan and Jacob Goldberger

Tuesday, June 21, 2011 (continued)

(10:30-11:00) Coffee Break

(3:30-4:00) Coffee Break

Session 7-A: (4:00-5:40) SMT: Phrase-based Models

Incremental Syntactic Language Models for Phrase-based Translation
Lane Schwartz, Chris Callison-Burch, William Schuler and Stephen Wu

An Unsupervised Model for Joint Phrase Alignment and Extraction
Graham Neubig, Taro Watanabe, Eiichiro Sumita, Shinsuke Mori and Tatsuya Kawahara

Learning Hierarchical Translation Structure with Linguistic Annotations
Markos Mylonakis and Khalil Sima'an

Phrase-Based Translation Model for Question Retrieval in Community Question Answer Archives
Guangyou Zhou, Li Cai, Jun Zhao and Kang Liu

Session 7-B: (4:00-5:40) Parsing 2

Neutralizing Linguistically Problematic Annotations in Unsupervised Dependency Parsing Evaluation
Roy Schwartz, Omri Abend, Roi Reichart and Ari Rappoport

Dynamic Programming Algorithms for Transition-Based Dependency Parsers
Marco Kuhlmann, Carlos Gómez-Rodríguez and Giorgio Satta

Shift-Reduce CCG Parsing
Yue Zhang and Stephen Clark

Web-Scale Features for Full-Scale Parsing
Mohit Bansal and Dan Klein

Tuesday, June 21, 2011 (continued)

Session 7-C: (4:00-5:40) Spoken Language Processing

The impact of language models and loss functions on repair disfluency detection
Simon Zwarts and Mark Johnson

Learning Sub-Word Units for Open Vocabulary Speech Recognition
Carolina Parada, Mark Dredze, Abhinav Sethy and Ariya Rastrow

Computing and Evaluating Syntactic Complexity Features for Automated Scoring of Spontaneous Non-Native Speech
Miao Chen and Klaus Zechner

N-Best Rescoring Based on Pitch-accent Patterns
Je Hun Jeon, Wen Wang and Yang Liu

Session 7-D: (4:00-5:40) Natural Language Processing Applications

Lexically-Triggered Hidden Markov Models for Clinical Document Coding
Svetlana Kiritchenko and Colin Cherry

Learning to Grade Short Answer Questions using Semantic Similarity Measures and Dependency Graph Alignments
Michael Mohler, Razvan Bunescu and Rada Mihalcea

Age Prediction in Blogs: A Study of Style, Content, and Online Behavior in Pre- and Post-Social Media Generations
Sara Rosenthal and Kathleen McKeown

Extracting Social Power Relationships from Natural Language
Philip Bramsen, Martha Escobar-Molano, Ami Patel and Rafael Alonso

Tuesday, June 21, 2011 (continued)

Session 7-E: (4:00-5:40) Coreference Resolution

Bootstrapping coreference resolution using word associations
Hamidreza Kobdani, Hinrich Schuetze, Michael Schiehlen and Hans Kamp

Large-Scale Cross-Document Coreference Using Distributed Inference and Hierarchical Models
Sameer Singh, Amarnag Subramanya, Fernando Pereira and Andrew McCallum

A Cross-Lingual ILP Solution to Zero Anaphora Resolution
Ryu Iida and Massimo Poesio

Coreference Resolution with World Knowledge
Altaf Rahman and Vincent Ng

(7:00-11:00) Banquet

Wednesday, June 22, 2011

(9:00-10:00) Invited Talk 2: How do the languages we speak shape the ways we think? by Lera Boroditsky

(10:00-10:30) Coffee Break

Session 5-A: (10:30-12:10) SMT: Tree-based Models

How to train your multi bottom-up tree transducer
Andreas Maletti

Binarized Forest to String Translation
Hao Zhang, Licheng Fang, Peng Xu and Xiaoyun Wu

Learning to Transform and Select Elementary Trees for Improved Syntax-based Machine Translations
Bing Zhao, Young-Suk Lee, Xiaoqiang Luo and Liu Li

Rule Markov Models for Fast Tree-to-String Translation
Ashish Vaswani, Haitao Mi, Liang Huang and David Chiang

Wednesday, June 22, 2011 (continued)

Session 5-B: (10:30-12:10) Morphology/POS Induction

A Hierarchical Pitman-Yor Process HMM for Unsupervised Part of Speech Induction
Phil Blunsom and Trevor Cohn

Using Deep Morphology to Improve Automatic Error Detection in Arabic Handwriting Recognition
Nizar Habash and Ryan Roth

A Discriminative Model for Joint Morphological Disambiguation and Dependency Parsing
John Lee, Jason Naradowsky and David A. Smith

Unsupervised Bilingual Morpheme Segmentation and Alignment with Context-rich Hidden Semi-Markov Models
Jason Naradowsky and Kristina Toutanova

Session 5-C: (10:30-12:10) Error Correction

A Graph Approach to Spelling Correction in Domain-Centric Search
Zhuowei Bao, Benny Kimelfeld and Yunyao Li

Grammatical Error Correction with Alternating Structure Optimization
Daniel Dahlmeier and Hwee Tou Ng

Algorithm Selection and Model Adaptation for ESL Correction Tasks
Alla Rozovskaya and Dan Roth

Automated Whole Sentence Grammar Correction Using a Noisy Channel Model
Y. Albert Park and Roger Levy

Wednesday, June 22, 2011 (continued)

Session 5-D: (10:30-12:10) Information Extraction

A Generative Entity-Mention Model for Linking Entities with Knowledge Base
Xianpei Han and Le Sun

Simple supervised document geolocation with geodesic grids
Benjamin Wing and Jason Baldridge

Piggyback: Using Search Engines for Robust Cross-Domain Named Entity Recognition
Stefan Rüd, Massimiliano Ciaramita, Jens Müller and Hinrich Schütze

Template-Based Information Extraction without the Templates
Nathanael Chambers and Dan Jurafsky

Session 5-E: (10:30-12:10) Discourse

Classifying arguments by scheme
Vanessa Wei Feng and Graeme Hirst

Automatically Evaluating Text Coherence Using Discourse Relations
Ziheng Lin, Hwee Tou Ng and Min-Yen Kan

Underspecifying and Predicting Voice for Surface Realisation Ranking
Sina Zarrieß, Aoife Cahill and Jonas Kuhn

Recognizing Authority in Dialogue with an Integer Linear Programming Constrained Model
Elijah Mayfield and Carolyn Penstein Rosé

Wednesday, June 22, 2011 (continued)

(12:10 - 2:00) Lunch

(1:30-3:00) ACL Business Meeting

(3:00-3:30) Coffee Break

Session 6-A: (3:30-4:45) MT: Reordering Models

Reordering Metrics for MT
Alexandra Birch and Miles Osborne

Reordering with Source Language Collocations
Zhanyi Liu, Haifeng Wang, Hua Wu, Ting Liu and Sheng Li

A Joint Sequence Translation Model with Integrated Reordering
Nadir Durrani, Helmut Schmid and Alexander Fraser

Session 6-B: (3:30-4:45) Grammar

Integrating surprisal and uncertain-input models in online sentence comprehension: formal techniques and empirical results
Roger Levy

Metagrammar engineering: Towards systematic exploration of implemented grammars
Antske Fokkens

Simple Unsupervised Grammar Induction from Raw Text with Cascaded Finite State Models
Elias Ponvert, Jason Baldridge and Katrin Erk

Wednesday, June 22, 2011 (continued)

Session 6-C: (3:30-4:45) Generation/Paraphrasing

Extracting Paraphrases from Definition Sentences on the Web
Chikara Hashimoto, Kentaro Torisawa, Stijn De Saeger, Jun'ichi Kazama and Sadao Kurohashi

Learning From Collective Human Behavior to Introduce Diversity in Lexical Choice
Vahed Qazvinian and Dragomir R. Radev

Ordering Prenominal Modifiers with a Reranking Approach
Jenny Liu and Aria Haghighi

Session 6-D: (3:30-4:45) Event-Role Extraction

Unsupervised Semantic Role Induction via Split-Merge Clustering
Joel Lang and Mirella Lapata

Using Cross-Entity Inference to Improve Event Extraction
Yu Hong, Jianfeng Zhang, Bin Ma, Jianmin Yao, Guodong Zhou and Qiaoming Zhu

Peeling Back the Layers: Detecting Event Role Fillers in Secondary Contexts
Ruihong Huang and Ellen Riloff

Session 6-E: (3:30-4:20) Knowledge Base Extension

Knowledge Base Population: Successful Approaches and Challenges
Heng Ji and Ralph Grishman

Nonlinear Evidence Fusion and Propagation for Hyponymy Relation Mining
Fan Zhang, Shuming Shi, Jing Liu, Shuqi Sun and Chin-Yew Lin

Wednesday, June 22, 2011 (continued)

(5:00-6:10) Life time achievement award and closing

Monday, June 20, 2011

(6:00-8:30) Poster Session (Long papers)

A Pronoun Anaphora Resolution System based on Factorial Hidden Markov Models
Dingcheng Li, Tim Miller and William Schuler

Disentangling Chat with Local Coherence Models
Micha Elsner and Eugene Charniak

An Affect-Enriched Dialogue Act Classification Model for Task-Oriented Dialogue
Kristy Boyer, Joseph Grafsgaard, Eun Young Ha, Robert Phillips and James Lester

Fine-Grained Class Label Markup of Search Queries
Joseph Reisinger and Marius Pasca

Creating a manually error-tagged and shallow-parsed learner corpus
Ryo Nagata, Edward Whittaker and Vera Sheinman

Crowdsourcing Translation: Professional Quality from Non-Professionals
Omar F. Zaidan and Chris Callison-Burch

A Statistical Tree Annotator and Its Applications
Xiaoqiang Luo and Bing Zhao

Consistent Translation using Discriminative Learning - A Translation Memory-inspired Approach
Yanjun Ma, Yifan He, Andy Way and Josef van Genabith

Machine Translation System Combination by Confusion Forest
Taro Watanabe and Eiichiro Sumita

Hypothesis Mixture Decoding for Statistical Machine Translation
Nan Duan, Mu Li and Ming Zhou

Minimum Bayes-risk System Combination
Jesús González-Rubio, Alfons Juan and Francisco Casacuberta

Adjoining Tree-to-String Translation
Yang Liu, Qun Liu and Yajuan Lü

Enhancing Language Models in Statistical Machine Translation with Backward N-grams and Mutual Information Triggers
Deyi Xiong, Min Zhang and Haizhou Li

Translating from Morphologically Complex Languages: A Paraphrase-Based Approach
Preslav Nakov and Hwee Tou Ng

Gappy Phrasal Alignment By Agreement
Mohit Bansal, Chris Quirk and Robert Moore

Translationese and Its Dialects
Moshe Koppel and Noam Ordan

Rare Word Translation Extraction from Aligned Comparable Documents
Emmanuel Prochasson and Pascale Fung

Using Bilingual Parallel Corpora for Cross-Lingual Textual Entailment
Yashar Mehdad, Matteo Negri and Marcello Federico

Using Large Monolingual and Bilingual Corpora to Improve Coordination Disambiguation
Shane Bergsma, David Yarowsky and Kenneth Church

Unsupervised Decomposition of a Document into Authorial Components
Moshe Koppel, Navot Akiva, Idan Dershowitz and Nachum Dershowitz

Discovering Sociolinguistic Associations with Structured Sparsity
Jacob Eisenstein, Noah A. Smith and Eric P. Xing

Local and Global Algorithms for Disambiguation to Wikipedia
Lev Ratinov, Dan Roth, Doug Downey and Mike Anderson

A Stacked Sub-Word Model for Joint Chinese Word Segmentation and Part-of-Speech Tagging
Weiwei Sun

Language-independent compound splitting with morphological operations
Klaus Macherey, Andrew Dai, David Talbot, Ashok Popat and Franz Och

Parsing the Internal Structure of Words: A New Paradigm for Chinese Word Segmentation
Zhongguo Li

A Simple Measure to Assess Non-response
Anselmo Peñas and Alvaro Rodrigo

Improving Question Recommendation by Exploiting Information Need
Shuguang Li and Suresh Manandhar

Semi-Supervised Frame-Semantic Parsing for Unknown Predicates
Dipanjan Das and Noah A. Smith

A Bayesian Model for Unsupervised Semantic Parsing
Ivan Titov and Alexandre Klementiev

Unsupervised Learning of Semantic Relation Composition
Eduardo Blanco and Dan Moldovan

Unsupervised Discovery of Domain-Specific Knowledge from Text
Dirk Hovy, Chunliang Zhang, Eduard Hovy and Anselmo Peñas

Latent Semantic Word Sense Induction and Disambiguation
Tim Van de Cruys and Marianna Apidianaki

Confidence Driven Unsupervised Semantic Parsing
Dan Goldwasser, Roi Reichart, James Clarke and Dan Roth

Aspect Ranking: Identifying Important Product Aspects from Online Consumer Reviews
Jianxing Yu, Zheng-Jun Zha, Meng Wang and Tat-Seng Chua

Monday, June 20, 2011 (continued)

Collective Classification of Congressional Floor-Debate Transcripts
Clinton Burfoot, Steven Bird and Timothy Baldwin

Integrating history-length interpolation and classes in language modeling
Hinrich Schütze

Structural Topic Model for Latent Topical Structure Analysis
Hongning Wang, Duo Zhang and ChengXiang Zhai

Automatic Labelling of Topic Models
Jey Han Lau, Karl Grieser, David Newman and Timothy Baldwin

Using Bilingual Information for Cross-Language Document Summarization
Xiaojun Wan

Exploiting Web-Derived Selectional Preference to Improve Statistical Dependency Parsing
Guangyou Zhou, Jun Zhao, Kang Liu and Li Cai

Effective Measures of Domain Similarity for Parsing
Barbara Plank and Gertjan van Noord

Efficient CCG Parsing: A versus Adaptive Supertagging*
Michael Auli and Adam Lopez

Improving Arabic Dependency Parsing with Form-based and Functional Morphological Features
Yuval Marton, Nizar Habash and Owen Rambow

Partial Parsing from Bitext Projections
Prashanth Mannem and Aswarth Dara

Ranking Class Labels Using Query Sessions
Marius Pasca

Insights from Network Structure for Text Mining
Zornitsa Kozareva and Eduard Hovy

Event Extraction as Dependency Parsing
David McClosky, Mihai Surdeanu and Christopher Manning

Extracting Comparative Entities and Predicates from Texts Using Comparative Type Classification
Seon Yang and Youngjoong Ko

Invited Talk 1: Building Watson: An Overview of the DeepQA Project

David Ferrucci, Principal Investigator, IBM Research
Monday, June 20 9:00-10:00

Computer systems that can directly and accurately answer peoples' questions over a broad domain of human knowledge have been envisioned by scientists and writers since the advent of computers themselves. Open domain question answering holds tremendous promise for facilitating informed decision making over vast volumes of natural language content. Applications in business intelligence, healthcare, customer support, enterprise knowledge management, social computing, science and government could all benefit from computer systems capable of deeper language understanding. The DeepQA project is aimed at exploring how advancing and integrating Natural Language Processing (NLP), Information Retrieval (IR), Machine Learning (ML), Knowledge Representation and Reasoning (KR&R) and massively parallel computation can greatly advance the science and application of automatic Question Answering. An exciting proof-point in this challenge was developing a computer system that could successfully compete against top human players at the Jeopardy! quiz show (www.jeopardy.com).

Attaining champion-level performance at Jeopardy! requires a computer to rapidly and accurately answer rich open-domain questions, and to predict its own performance on any given question. The system must deliver high degrees of precision and confidence over a very broad range of knowledge and natural language content with a 3-second response time. To do this, the DeepQA team advanced a broad array of NLP techniques to find, generate, evidence and analyze many competing hypotheses over large volumes of natural language content to build Watson (www.ibmwatson.com). An important contributor to Watson's success is its ability to automatically learn and combine accurate confidences across a wide array of algorithms and over different dimensions of evidence. Watson produced accurate confidences to know when to "buzz in" against its competitors and how much to bet. High precision and accurate confidence computations are critical for real business settings where helping users focus on the right content sooner and with greater confidence can make all the difference. The need for speed and high precision demands a massively parallel computing platform capable of generating, evaluating and combing 1000's of hypotheses and their associated evidence. In this talk, I will introduce the audience to the Jeopardy! Challenge, explain how Watson was built on DeepQA to ultimately defeat the two most celebrated human Jeopardy Champions of all time and I will discuss applications of the Watson technology beyond in areas such as healthcare.

Dr. David Ferrucci is the lead researcher and Principal Investigator (PI) for the Watson/Jeopardy! project. He has been a Research Staff Member at IBM's T.J. Watson's Research Center since 1995 where he heads up the Semantic Analysis and Integration department. Dr. Ferrucci focuses on technologies for automatically discovering valuable knowledge in natural language content and using it to enable better decision making.

Invited Talk 2: How do the languages we speak shape the ways we think?

Lera Boroditsky, Assistant Professor, Stanford University
Wednesday, June 22 9:00-10:00

Do people who speak different languages think differently? Does learning new languages change the way you think? Do polyglots think differently when speaking different languages? Are some thoughts unthinkable without language? I will describe data from experiments conducted around the world that reveal the powerful and often surprising ways that the languages we speak shape the ways we think.

Lera Boroditsky is an assistant professor of psychology at Stanford University and Editor in Chief of Frontiers in Cultural Psychology. Boroditsky's research centers on how knowledge emerges out of the interactions of mind, world, and language, and the ways that languages and cultures shape human thinking. To this end, Boroditsky's laboratory has collected data around the world, from Indonesia to Chile to Turkey to Aboriginal Australia. Her research has been widely featured in the media and has won multiple awards, including the CAREER award from the National Science Foundation, the Searle Scholars award, and the McDonnell Scholars award.