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KAI ZHAO

research interests

Algorithms and theory in Natural Language Processing: Structured Prediction, Information Extraction, Deep Learning, Online Learning, Syntactic/Semantic Parsing, Machine Translation, and Textual Entailment.

education

Ph.D Candidate, *Oregon State University*, Corvallis, OR. 2015 - present.
Mentor: Professor Liang Huang
Major: Computer Science

Ph.D Student, *Graduate Center, City University of New York*, New York, NY. 2010 - 2015.
Mentor: Professor Liang Huang
Major: Computer Science

B.Eng., *University of Science and Technology of China*, Hefei, China. 2006 - 2010.
Graduated with Honors
Major: Computer Science

experience

Research Assistant, *Oregon State University*, Corvallis, OR. 2015 - present.
Research Assistant, *City University of New York*, New York, NY. 2012 - 2015.
Focused on Structured Prediction problems in Natural Language Processing, including:
- deep learning for structured prediction in textual entailment; [1]
- incremental semantic parsing; [4]
- incremental parsing with best-first search strategy; [6]
- discriminative training for statistical machine translation; [5]
- parallelizing online learning for large-scale NLP tasks. [10]

Research Intern, *Google Inc.*, New York, NY. Summer 2015.
Structured Data Team
Mentor: Hao Zhang, Cong Yu and Flip Korn
Investigated inducing entity similarities from web table corpus with alignment models.

Research Intern, *Microsoft Research*, Redmond, WA. Summer 2014.
Machine Translation Group
Mentor: Hany Hassan and Michael Auli
Explored learning translation rules from monolingual continuous representations. [3]

Research Intern, *IBM T.J. Watson Research Center*, Yorktown Heights, NY. Summer 2013.
Multilingual Natural Language Processing Group
Mentor: Abe Ittycheriah and Haitao Mi
Adapted large-scale discriminative training to syntax based machine translation system. [5]

publications

tags: [MT]: machine translation; [Parsing]: syntactic/semantic parsing; [SP]: structured prediction; [DL]: deep learning; [OL]: online learning.

1. Kai Zhao, Liang Huang, and Mingbo Ma. "Textual Entailment with Structured Attentions and Composition." To appear in *Proceedings of COLING*, 2016. (code) [DL]
2. Feifei Zhai, Liang Huang, and Kai Zhao. "Search-Aware Tuning for Hierarchical Phrase-based Decoding." *Proceedings of EMNLP*, 2015. [MT][SP]
3. Kai Zhao, Hany Hassan, and Michael Auli. "Learning Translation Models from Monolingual Continuous Representations." *Proceedings of NAACL*, 2015. [MT][DL]
4. Kai Zhao and Liang Huang. "Type-driven Incremental Semantic Parsing with Polymorphism." *Proceedings of NAACL*, 2015. [Parsing][SP]
5. Kai Zhao, Liang Huang, Haitao Mi, and Abe Ittycheriah. "Hierarchical MT Training using Max-Violation Perceptron." *Proceedings of ACL*, 2014. [MT][SP]
6. Kai Zhao, James Cross, and Liang Huang. "Optimal Incremental Parsing via Best-First Dynamic Programming." *Proceedings of EMNLP*, 2013. [Parsing]
7. Heng Yu, Liang Huang, Haitao Mi, and Kai Zhao. "Max-Violation Perceptron and Forced Decoding for Scalable MT Training." *Proceedings of EMNLP*, 2013. [MT][SP]
8. Hao Zhang, Liang Huang, Kai Zhao, and Ryan McDonald. "Online Learning for Inexact Hypergraph Search." *Proceedings of EMNLP*, 2013. [Parsing][OL]
9. Yoav Goldberg, Kai Zhao, and Liang Huang. "Efficient Implementation of Beam- Search Incremental Parsers." *Proceedings of ACL*, 2013. [Parsing]
10. Kai Zhao and Liang Huang. "Minibatch and Parallelization for Online Large Margin Structured Learning." *Proceedings of NAACL*, 2013. [OL]

tutorial

Liang Huang, Kai Zhao, and Lemao Liu. "Scalable Large-Margin Structured Learning: Theory and Algorithms." *ACL*, 2014.

teaching

Teaching Assistant for:

1. CS 480: Translators (Compilers, Interpreters), *Oregon State University*. Winter 2016.
2. CS 321: Theoretical Computer Science, *Oregon State University*. Fall 2015.
3. CSc 71010: Programming Languages, *Graduate Center, CUNY*. Fall 2013.
4. CSc 84010: Machine Learning, *Graduate Center, CUNY*. Spring 2013.
5. CS 3813/780: Python & Text Processing, *Queens College, CUNY*. Fall 2012.

honors & awards

Science Fellowship, *Graduate Center, City University of New York*. 2010 & 2011.

National Scholarship, *Ministry of Education of China*. 2009.

Outstanding Student Scholarship, *University of Science and Technology of China*. 2008.