

Liang Huang

CONTACT INFORMATION	Information Sciences Institute University of Southern California 4676 Admiralty Way, Suite 1001 Marina del Rey, CA 90292, USA	lhuang@isi.edu liang.huang.sh@gmail.com http://www.cis.upenn.edu/~lhuang3 http://www.isi.edu/~lhuang
EDUCATION	University of Pennsylvania Ph.D., Computer and Information Science Advisors: Aravind Joshi and Kevin Knight (USC/ISI) Thesis: <i>Forest-based Algorithms in Natural Language Processing.</i> Shanghai Jiao Tong University B.S., Computer Science (summa cum laude) Thesis: <i>Probabilistic k-best Earley Parsing for Classical and Modern Chinese.</i>	<i>Sep. 2003 - Oct. 2008</i>
RESEARCH INTERESTS	<i>Computational Linguistics</i> Efficient Algorithms for Parsing and Machine Translation Syntax-based Machine Translation Formal Properties of Synchronous Grammars and Tree Transducers <i>Theoretical Computer Science</i> Generic Dynamic Programming, Hypergraph and Semiring Frameworks Algorithms for <i>k</i> -best Problems	
PROFESSIONAL EXPERIENCE	<i>Computer Scientist</i> , Information Sciences Institute, University of Southern California (USC/ISI), Marina del Rey, CA <i>Research Scientist</i> , Google Research, Mountain View, CA <i>Visiting Scholar</i> , HK Univ. of Science and Technology (HKUST) <i>Visiting Scholar</i> , Institute of Computing Technology, Chinese Academy of Sciences, Beijing (CAS/ICT) <i>Research Intern</i> , USC Information Sciences Institute (USC/ISI)	<i>July 2009 - present</i> <i>Jan. 2009 - July 2009</i> <i>Nov-Dec 2008</i> <i>Oct 2007 - Jan 2008</i> <i>Summers 05 & 06</i>
TEACHING EXPERIENCE	University of Southern California (USC) Co-Instructor (with D. Chiang), CS 562, Empirical Methods in Natural Language Processing (graduate) Hong Kong University of Science & Technology (HKUST) Guest Lecturer (5 lectures), COMP 526 Natural Language Processing Chinese Academy of Sciences (CAS/ICT) Co-Instructor (with Q. Liu), Machine Translation (graduate)	<i>Fall 2009</i> <i>Fall 2008</i> <i>Fall 2007</i>

University of Pennsylvania

- Instructor and Course Developer, CSE 399-004 Python Programming *Spring 2006*
- Teaching Assistant, CSE 320 Algorithms *Spring 2005*
- Teaching Assistant, CSE 262 Automata, Complexity & Computability *Fall 2004*
- Awarded University Graduate Teaching Prize (2005).*

Conference Tutorials: Advanced Dynamic Programming for Computational Linguistics: Theory and Practice

- COLING 2008, Manchester, UK (attendance: ~70) *Aug. 2008*
- NAACL 2009, Boulder, CO (attendance: ~60) *May 2009*

HONORS AND AWARDS

- Outstanding Full Paper Award, *ACL 2008* (2 out of 100 papers)
- Best Paper Nominee, *EMNLP 2008* (with H. Mi)
- Best Paper Nominee, *ACL 2007* (with D. Chiang)
- Finalist, Microsoft Graduate Fellowship, *2006* and *2007*
- Penn Prize for Excellence in Teaching by Graduate Students, University of Pennsylvania, *2005* (one of the 12 winners University-wide)
- Dean's Fellowship, Dept. of Computer and Information Science, University of Pennsylvania, *2003-2004*
- First Prize, National Finals, China Undergrad Math. Contest in Modeling, *2002*
- *4th* Place, ACM International Collegiate Programming Contest, Shanghai site, *2000*
- Bronze Medal (16th nationwide), National Olympiads in Informatics (NOI), China, *1996*.

INVITED TALKS (PARTIAL)

- “Better k -best Parsing, Hypergraphs, and Dynamic Programming.”
 - USC Information Sciences Institute (NL seminar), Marina del Rey, CA *June 2005*
 - Google Research, Mountain View, CA *Oct. 2005*
 - New York University (NYCNLP series), New York, NY *Nov. 2005*
 - Johns Hopkins University, Baltimore, MD *Nov. 2005*
 - University of Rochester (big picture series), Rochester, NY *Nov. 2005*
 - Microsoft Research, Redmond, WA *Dec. 2005*
 - University of Alberta (AI Seminar), Edmonton, Canada *Oct. 2006*
- “Binarizing Synchronous Grammars for Machine Translation.”
 - Institute of Computing Tech., Chinese Academy of Sciences, Beijing *July 2007*
 - Hong Kong University of Science and Technology (HKUST) *July 2007*
- “ K -best Parsing Algorithms and Applications in Machine Translation.”
 - Universität Potsdam (CL Kolloquium), Potsdam, Germany *June 2007*
 - Microsoft Research Asia, Beijing *July 2007*
- “Forest-based Algorithms in Natural Language Processing.”
 - University of California at Berkeley, Berkeley, CA *Mar. 2008*

- Stanford University, Stanford, CA *Mar. 2008*
- Google Research, Mountain View, CA *Mar. 2008*
- Johns Hopkins University (CLSP Seminar), Baltimore, MD *Apr. 2008*
- MIT CSAIL, Cambridge, MA *Oct. 2008*
- Carnegie Mellon University, LTI Seminar, Pittsburgh, PA *May 2009*

Tutorial: “Advanced Dynamic Programming in NLP: Semirings and Hypergraphs.”

- Northeast Student Colloquium on AI (NESCAI 2008), Ithaca, NY *May 2008*
- University of Rochester (big picture series), Rochester, NY *Aug. 2008*
- COLING 2008, Manchester, UK *Aug. 2008*
- NAACL-HLT 2009, Boulder, CO *May 2009*

“Tree-based and Forest-based Translation.”

- BBN Technologies, Cambridge, MA *Oct. 2008*
- Hong Kong University of Science and Technology (HKUST) *Nov. 2008*
- The Chinese University of Hong Kong (CUHK) *Nov. 2008*
- USC Information Sciences Institute (USC/ISI), Marina del Rey, CA *Dec. 2008*
- University of California at Berkeley, Berkeley, CA *Feb. 2009*

PUBLICATIONS

JOURNAL ARTICLES

- Liang Huang, Hao Zhang, Daniel Gildea, and Kevin Knight (2009). Binarization of Synchronous Context-Free Grammars. *Computational Linguistics*, 35 (4). In Press (December).
Conference version appeared at HLT-NAACL 2006 (see below).
- Adam Lucas, Liang Huang, Aravind Joshi, and Ken Dill (2007). Statistical Mechanics of Helix Bundles using a Dynamic Programming Approach. *J. Am. Chem. Soc. (JACS)*, 129 (14), pp. 4272-4281.
- Ken Dill, Adam Lucas, Julia Hockenmaier, Liang Huang, David Chiang, and Aravind Joshi (2007). Computational Linguistics: a new tool for exploring biopolymer structures and statistical mechanics. *Polymer*, 48 (15), pp. 4289-4300, Elsevier.

REFEREED CONFERENCE AND WORKSHOP PAPERS

- Liang Huang, Wenbin Jiang, and Qun Liu (2009). Bilingually-Constrained (Monolingual) Shift-Reduce Parsing. In *Proceedings of EMNLP 2009*.
- Wenbin Jiang, Liang Huang, and Qun Liu (2009). Automatic Adaptation of Annotation Standards: Chinese Word Segmentation and POS Tagging: A Case Study. In *Proceedings of ACL-IJCNLP 2009*.
- Haitao Mi and Liang Huang (2008). Forest-based Translation Rule Extraction. In *Proceedings of EMNLP 2008*. Nominated for the Best Paper Award
- Liang Huang (2008). Advanced Dynamic Programming in Semiring and Hypergraph Frameworks. In *Proceedings of COLING 2008*. Survey paper to accompany the conference tutorial.
- Liang Huang (2008). Forest Reranking: Discriminative Parsing with Non-Local Features. In *Proceedings of ACL 2008*. **Received Outstanding Paper Award.**
- Haitao Mi, Liang Huang and Qun Liu (2008). Forest-based Translation. In *Pro-*

ceedings of ACL 2008.

- Wenbin Jiang, Liang Huang, Qun Liu, and Yajuan Lü (2008). A Cascaded Linear Model for Joint Chinese Word Segmentation and Part-of-Speech Tagging. In *Proceedings of ACL 2008*.
- Liang Huang and David Chiang (2007). Forest Rescoring: Faster Decoding with Integrated Language Models. In *Proceedings of ACL 2007*. Nominated for the Best Paper Award.
- Liang Huang (2007). Binarization, Synchronous Binarization, and Target-side Binarization. In *Proceedings of HLT-NAACL Workshop on Syntax and Structure in Statistical Translation (SSST)*.
- Liang Huang, Kevin Knight, and Aravind Joshi (2006). Statistical Syntax-Directed Translation with Extended Domain of Locality. In *Proceedings of AMTA 2006*. Preliminary version appeared in Proceedings of HLT-NAACL 2006 workshop on Computational Hard Problems in Speech and Language Processing.
- Hao Zhang, Liang Huang, Dan Gildea and Kevin Knight (2006). Synchronous Binarization for Machine Translation. In *Proceedings of HLT-NAACL 2006*.
- Liang Huang and David Chiang (2005). Better k -best Parsing. In *Proceedings of the 9th International Workshop on Parsing Technologies (IWPT)*.
- Liang Huang, Hao Zhang and Daniel Gildea (2005). Machine Translation as Lexicalized Parsing with Hooks. In *Proceedings of the 9th International Workshop on Parsing Technologies (IWPT)*.
- Stephanie Weirich and Liang Huang (2004). A Design for Type-Directed Programming in Java. In *Proceedings of the Workshop on Object-Oriented Developments (WOOD)*. The extended version is University of Pennsylvania Computer and Information Science Technical Report MS-CIS-04-11.
- L. Huang, Y. Peng, Z. Wu, Z. Yuan, H. Wang and H. Liu (2003). Pseudo Context-Sensitive Models for Parsing Isolating Languages: Classical Chinese – A Case Study. In *Proceedings of the International Conference on Intelligent Text Processing and Computational Linguistics (CICLING)*.
- L. Huang, Y. Peng, H. Wang, and Z. Wu (2002). PCFG Parsing for Restricted Classical Chinese Texts. In *Proceedings of the COLING Workshop on Chinese Processing (SIGHAN)*, Taipei.

MONOGRAPH (IN CHINESE)

- Rujia Liu and Liang Huang (2003). The Art of Algorithms and Programming Contests. (*Suànfǎ Yìshù yǔ Xìnxíxué Jìnsài*.) Tsinghua University Press, Beijing.

PROFESSIONAL
SERVICE (PARTIAL)

- Reviewer, *Computational Linguistics*, 2008-2009
- Reviewer, *IEEE Transactions on Audio, Speech and Language Processing*, 2008
- Reviewer, *ACM Transactions on Asian Language Information Processing*, 2008
- PC Member, ACL 2006, 2007, 2008, 2009
- PC Member, HLT-NAACL 2007, 2009
- PC Member, EMNLP 2007, 2008, 2009

- PC Member, MT Summit 2009
- PC Member, AMTA 2008
- PC Member, CoNLL 2007, 2008, 2009
- Reviewer, IJCAI 2007
- PC Member, ICCPOL (Computer Processing of Oriental Languages) 2006

MENTORING AND
ADVISING

Institute of Computing Technologies, Chinese Academy of Sciences, Beijing

- Haitao Mi, Ph.D. 2009 (primary advisor: Prof. Qun Liu)
- Wenbin Jiang, Ph.D. expected 2011 (primary advisor: Prof. Qun Liu)

University of Southern California (USC)

- William Chang, Ph.D. student (directed research)

OTHER
INFORMATION

- Citizen of the People's Republic of China. F-1 visa in the United States since 2003 (currently on OPT).
- Born April 1981, Shanghai, China.
- Languages: Wu and Mandarin (native), English (fluent), French and Italian (basic).
- Programming Languages: Python, Java, C/C++, Pascal, O'Caml, Prolog, Perl.
- Hobbies/Interests: Historical Geography, Historical Linguistics, History of Mathematics, Classical Chinese (esp. poetry), Classical Music (esp. Bach), Ping-Pong, Badminton, Soccer, Go, etc.

LAST UPDATED

October 2009.