Liang Huang

CONTACT INFORMATION

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RESEARCH INTERESTS

Computational Linguistics

Efficient Algorithms for Parsing and Translation

Syntax-based Machine Translation

Grammar Formalisms and Tree Transducers

Theoretical Computer Science

Generic Dynamic Programming, Hypergraph and Semiring Frameworks

Algorithms for k-best Problems

EDUCATION

University of Pennsylvania, Philadelphia, Pennsylvania USA

Ph.D. Student, Computer and Information Science

Advisor: Prof. Aravind K. Joshi

M.S.E., Computer and Information Science, May 2005

Shanghai Jiao Tong University, Shanghai, CHINA

B.S., Computer Science (with highest distinction), July 2003

TEACHING EXPERIENCE

University of Pennsylvania

Instructor, 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

RESEARCH EXPERIENCE

Information Sciences Institute, University of Southern California (USC/ISI)

Visiting Research Assistant   *Summer 2005*
Supervisors: Dr. Kevin Knight and Dr. Daniel Marcu

Research on Statistical Syntax-based Machine Translation

- Synchronous Binarization for Decoding and Synchronous Parsing
- Machine Translation as Lexicalized Parsing with Hooks
- Stochastic Syntax-Directed Translation

Research on Tree-Transducer Algorithms

- k-best extension of the Knuth 1977 Algorithm

University of Pennsylvania, Philadelphia, Pennsylvania

Graduate Research Fellow   *Fall 2003 - present*
Supervisor: Prof. Aravind Joshi

Research on both NLP (statistical parsing and Tree-Adjoining Grammars) and its application to the strutural modeling of biological sequences (in collaboration with Prof. Ken Dill's group at UCSF).

Independent Study   *Fall 2004*
Supervisors: Prof. Sampath Kannan and Prof. Junhyong Kim (Penn Biology)
Research on algorithms for phylogeny reconstruction.

Independent Study   *Spring 2004*
Supervisor: Prof. Stephanie Weirich
Research on Type-Directed Java, an extension to Generic Java.

HONORS AND AWARDS

1. Finalist, Microsoft Graduate Fellowship   *2006*
2. Penn Prize for Excellence in Teaching by Graduate Students, University of Pennsylvania *(University-wide award for top 12 TAs)*   *2005*
3. Dean's Fellowship, Dept. of Computer and Information Science, University of Pennsylvania   *2003-2004*
4. First Prize, National Finals, China Undergraduate Mathematical Contest in Modeling   *2002*
5. People's Scholarship, Shanghai Jiao Tong University   *2000-2002*
6. 4th Place, ACM International Collegiate Programming Contest, Shanghai site *2000*

INVITED TALKS

"Better k-best Parsing, Hypergraphs, and Dynamic Programming."

- USC Information Sciences Institute, Marina del Rey, CA   *June 2005*
- Google Inc., Mountain View, CA   *Oct. 2005*
- New York City NLP forum, New York, NY   *Nov. 2005*
- Johns Hopkins University, Baltimore, MD   *Nov. 2005*
- University of Rochester, Rochester, NY   *Nov. 2005*
- Microsoft Research, Redmond, WA   *Dec. 2005*

PUBLICATIONS

WORKING PAPERS

- Liang Huang, Kevin Knight, and Aravind Joshi (2006). Syntax-Directed Translation with Extended Domain of Locality. In Submission.

REFEREED CONFERENCE AND WORKSHOP PAPERS

- Hao Zhang, Liang Huang, Dan Gildea and Kevin Knight (2006). Synchronous Binarization for Machine Translation. *Proceedings of HLT-NAACL 2006.* To Appear.

- Liang Huang and David Chiang (2005). Better k-best Parsing. *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. *Proceedings of the 9th International Workshop on Parsing Technologies (IWPT).*

- Stephanie Weirich and Liang Huang (2004). A Design for Type-Directed Programming in Java. *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. *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. *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 Tsinghua University Press, Beijing.

PROFESSIONAL SERVICE

- Reviewer (PC member) for COLING-ACL 2006.

- Program Committee member, Workshop for Computationally Hard Problems in Speech and Language Processing, HLT-NAACL 2006.

- Reviewer, NESCAI: North East Student Colloquium on Artificial Intelligence, 2006.

OTHER INFORMATION

- Citizen of the People's Republic of China. F-1 visa in the United States.

- Languages: Chinese (Wu/Mandarin) (native), English (fluent), French (basic).

- Programming Languages: Python, Java, C/C++, Pascal, O'Caml, Prolog, Perl.

- Hobbies: Ping-Pong, Soccer, Classical Chinese Poetry, Classical Music, Go.

REFERENCES

- **Aravind K. Joshi**
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  University of Pennsylvania
  Philadelphia, PA 19104
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  Information Sciences Institute
  University of Southern California
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  Department of Computer and Information Science
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