

## Liu, Chang

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**Objective:** seeking a full time software engineer position

### Qualifications

- ◆ Extensive experience in natural language processing (NLP), especially NLP in Chinese
- ◆ Strong algorithm design and analysis ability
- ◆ Extensive experience in C/C++; Programming experience in Java and Perl
- ◆ Extensive experience in database programming (MySQL) and web programming (PHP)
- ◆ Experience with socket programming
- ◆ Experience with development environments in both Linux and Windows

### Education

- ◆ Aug. 2004 – Aug. 2006, graduate student in Department of Computer Science, University of Pittsburgh.  
Degree: Master degree in Computer Science
- ◆ Sep. 2001 – Jan. 2004, graduate student in State Key Laboratory of Intelligent Technology and Systems, Department of Computer Science and Technology, Tsinghua University, China  
Degree: Master degree in Computer Science
- ◆ Sep. 1997 – Jul. 2001, undergraduate student in Department of Computer Science and Technology, Tsinghua University, China  
Degree: B.E. in Computer Science

### Experience

- ◆ **PHP/MySQL Web Service**  
(Sep 2006 – current)  
We developed a web service with PHP/MySQL to provide online RSVP and other functions.
- ◆ **Construction and Visualization of Chinese Phrases**  
(Master project in Dept. of Computer Science, University of Pittsburgh, May–Aug 2006)  
We developed a grammar in visual language for the construction of Chinese phrases in this project. Chinese characters, phrases and sentences can be generated by the syntactic rules in the grammar. Their meanings can be captured by the semantic rules defined in this grammar.
- ◆ **Core Vocabulary for Chinese Mandarin**  
(Project with Semantic Compaction Systems, May–Aug 2006)  
We designed criteria to evaluate different corpora for linguistic and speech research work on Chinese Mandarin and selected the most suitable corpus for Minspeak system. Based on this corpus, we developed a Minspeak-Application-Program word list.
- ◆ **Speech Act Classification in Emails**  
(Summer Intern, Institute of Creative Technology (ICT), USC, May–Jul 2005)  
We used several machine learning methods to classify different emails into several speech act categories, which are used for detecting people's roles in communication. We also designed and implemented a user interface with PHP/MySQL that allows new annotations added into the database in the future.

- ◆ **Phrase-based Joint Probability Model for Machine Translation**  
(Course project in Dept. of Computer Science, University of Pittsburgh, Jan–Apr 2005)  
We implemented a phrase-based joint probability model and applied it to Chinese-English translation in this project.
- ◆ **Email Summarization**  
(Intern, Microsoft Research Asia, Beijing, China, Jan–Apr 2004)  
We focused on extracting email summaries from information in email thread reply chains. Our approach considered both the titles and contents of individual emails and the key words in a set of emails within one reply chain.
- ◆ **Semantic Cohesion Computation between Chinese Words**  
(Master project in CS Dept., Tsinghua University, China, Sep 2001 – Jan 2004)  
We implemented three sub-projects in this work: classifying each word in collocations into its semantic class; selecting appropriate representations for semantic classes based on HowNet system; and building a semantic template bank.
- ◆ **Part-time Translator** (Feb–May 2003)  
English-Chinese translation for part of the textbook *Artificial Intelligence: A Modern Approach* (by Stuart Russell and Peter Norvig)
- ◆ **Identifying Chinese Chunk based on Maximum Entropy Model**  
(Research Assistant, Artificial Intelligence Lab, CS Dept., Tsinghua University, Jan–Jul 2001)  
We built a Chinese chunk analysis system based on maximum entropy model. This system divides a sentence (with POS tag labels on each word) into several chunks and decides the type of each chunk.
- ◆ **Mini C++ Compiler**  
(Course Project in CS Dept, Tsinghua University, China, Sep.2000 – Jan.2001)  
We implemented a mini compiler for a simplified version of C++. The simplified language includes most basic features of object-oriented language but has limited operations and expressions.

## Teaching Experience

- ◆ Aug. 2004 – Aug. 2006, Teaching Assistant, Dept. of Computer Science, University of Pittsburgh  
I was the TA for the following courses: Advanced Operating Systems (CS2510), Advanced System Software (CS1651), Artificial Intelligence (CS1571) and Intermediate Programming Using Java (CS0401).
- ◆ Sep. 2002 – Jan. 2003, Teaching Assistant, Dept. of Computer Science, Tsinghua University  
I was the TA for an undergraduate course: *Introduction to Artificial Intelligence*.

## Publication

- ◆ Liu, Chang and Sloane, Zachary; *Developing a Core Vocabulary for a Mandarin AAC System Using Word Frequency Data*, in International Journal of Computer Processing of Oriental Languages (IJCPOL). 2006
- ◆ Liu, Chang (Advisor: Chang, Shi-Kuo); *Construction and Visualization of Chinese Words*, Technical Report. 2006
- ◆ Liu, Chang (Advisor: Leuski, Anton); *Speech Act Classification on Emails*; Technical Report. 2005
- ◆ Liu, Chang (Advisor: Zhou, Qiang); *Semantic Cohesion Computation between Chinese Words*; Master Thesis, Tsinghua University, Jan. 2004
- ◆ Liu, Chang and Zhou, Qiang; *Class-based Semantic Cohesion Computation*; accepted by IEEE International Conference on Systems, Man & Cybernetics 2003 (SMC 2003).

## Award

- ◆ 2000 – 2001 Tsinghua University Outstanding Student Scholarship.