

# Kristina N. Toutanova

Dept of Computer Science,  
Gates Building 1A, Room 114,  
353 Serra Mall, Stanford CA 94305-9010  
(650) 804-8316  
kristina@cs.stanford.edu

## EDUCATION

*1999-present*

**Stanford University, Computer Science Department**

Ph.D. expected June 2005

Advisor: Christopher Manning

Dissertation Title: "Effective Probabilistic Models for Syntactic and Semantic Disambiguation"

*1998-1999*

**Sofia University, Bulgaria, Computer Science Department**

Master of Science, Concentration in Artificial Intelligence

GPA: 6.0/6.0

*1994-1998*

**Sofia University, Bulgaria, Computer Science Department**

Bachelor of Science, Computer Science

GPA: 6.0/6.0

*1997*

**University College London, Computer Science**

One semester study

## RESEARCH INTERESTS

Machine Learning, Natural Language Processing (Parsing, Question Answering, Information Extraction, Machine Translation), AI

## OTHER RESEARCH EXPERIENCE

*2001 summer*

**Microsoft Research, Redmond**

Research Intern

Implemented a statistical model for automatic spelling correction, which combines letter-based and phone-based knowledge.

Mentor: Robert C. Moore

*2000 summer*

**Xerox Palo Alto Research Center**

Research Intern

Built hierarchical probabilistic models for document topic analysis.

Mentors: Francine Chen and Kris Popat

*1998*

**Hamburg University, Computer Science**

Visiting Research Student

*1996-1999*

**Bulgarian Academy of Sciences (BAS), Linguistic Modeling Laboratory**

Research Programmer

## TEACHING EXPERIENCE

- 2003 **Teaching Assistant for CS224n, Natural Language Processing, Stanford University**  
Responsibilities included giving one course lecture, holding sections and office hours, designing homework problems, and grading student homework.
- 2002 **Teaching Assistant for CS221, Artificial Intelligence, Stanford University**  
Held televised sections and weekly office hours, designed exam problems, graded student work.
- 2001 **Teaching Assistant for CS121, Artificial Intelligence, Stanford University**  
Responsibilities included sections and office hours, homework problems, and grading.
- 1997 **Demonstrator for Mathematics for Economics Students, University College London**

## AWARDS AND HONORS

- 2003 Best student paper runner up award at ECML-2003 “Optimizing Local Probability Models for Statistical Parsing”
- 1999-2000 School of Engineering Fellowship, Stanford University
- 1994-1999 Ministry of Education scholarship for excellence in academics, Sofia University

## REFERENCES

Christopher D. Manning  
Computer Science Department  
353 Serra Mall, Room 158  
Stanford, CA 94305-9010  
manning@cs.stanford.edu  
(650) 723-7683

Andrew Y. Ng  
Computer Science Department  
353 Serra Mall, Room 156  
Stanford, CA 94305-9010  
ang@cs.stanford.edu  
(650) 725-2593

Robert C. Moore  
Microsoft Research  
Redmond, WA 98052  
bobmoore@microsoft.com  
(425) 705-3743

Daniel Jurafsky  
Linguistics Dept, Bldg 460  
450 Serra Mall, Stanford University  
Stanford CA 94305-2150  
jurafsky@stanford.edu  
(650) 723-0924

Francine Chen  
Palo Alto Research Center  
3333 Coyote Hill Road  
Palo Alto, CA 94304  
fchen@parc.xerox.com  
(650) 812-4354

## **PUBLICATIONS**

### **Statistical Parsing of Rich Natural Language Representations**

Kristina Toutanova, Christopher D. Manning, Dan Flickinger, Stephan Oepen. 2005 “Stochastic HPSG Parse Disambiguation using the Redwoods Corpus”. *Journal of Logic and Computation*, 2005.

Kristina Toutanova, Penka Markova, and Christopher D. Manning. 2004. “The Leaf Projection Path View of Parse Trees: Exploring String Kernels for HPSG Parse Selection”. *Proceedings of the Conference of Empirical Methods in Natural Language Processing*, 2004.

Kristina Toutanova, Mark Mitchell and Christopher D. Manning. 2003. “Optimizing Local Probability Models for Statistical Parsing”. *Proceedings of the European Conference on Machine Learning*, 2003. [Best student paper runner-up award]

Stephan Oepen, Kristina Toutanova, Stuart Shieber, Christopher D. Manning, Dan Flickinger, and Thorsten Brants. 2002. “The LinGO Redwoods Treebank: Motivation and Preliminary Applications”. *Proceedings of the 19th International Conference on Computational Linguistics*, 2002.

Kristina Toutanova and Christopher D. Manning. 2002. “Feature Selection for a Rich HPSG Grammar Using Decision Trees”. *Proceedings of the Sixth Conference on Natural Language Learning*, 2002.

### **Submitted**

Kristina Toutanova, Aria Haghighi, and Christopher D. Manning. 2005. “Joint Learning Improves Semantic Role Labeling”. Submitted to the 43<sup>rd</sup> Meeting of the Association of Computational Linguistics, 2005.

### **Machine Learning for Natural Language Processing**

Kristina Toutanova, Christopher D. Manning, and Andrew Y. Ng. 2004. “Learning Random Walk Models for Inducing Word Dependency Distributions”. *Proceedings of the 21<sup>st</sup> International Conference on Machine Learning*, 2004.

Kristina Toutanova, Dan Klein, Christopher D. Manning, and Yoram Singer. 2003. “Feature-Rich Part-of-Speech Tagging with a Cyclic Dependency Network”. *Proceedings of the North American Chapter of the Association for Computational Linguistics*, 2003.

Kristina Toutanova and Robert C. Moore. 2002. “Pronunciation Modeling for Improved Spelling Correction”. *Proceedings of the 40<sup>th</sup> Meeting of the Association for Computational Linguistics*, 2002.

Kristina Toutanova, H. Tolga Ilhan, and Christopher D. Manning. 2002. “Extensions to HMM-based Statistical Word Alignment Models”. *Proceedings of the Conference on Empirical Methods in Natural Language Processing*, 2002.

Dan Klein, Kristina Toutanova, Husrev Tolga Ilhan, S. D. Kamvar, and Christopher D. Manning. 2002. “Combining Heterogeneous Classifiers for Word-Sense Disambiguation”. *Workshop on Word Sense Disambiguation: Recent Successes and Future Directions at ACL 40*, 2002.

Kristina Toutanova, Francine Chen, Kris Pogat, and Thomas Hofmann. 2001. "Text Classification in a Hierarchical Mixture Model for Small Training Sets". *Proceedings of the Tenth International Conference on Information and Knowledge Management*, 2001.

Kristina Toutanova and Christopher D. Manning. "Enriching the Knowledge Sources Used in a Maximum Entropy Part-of-Speech Tagger". *Proceedings of the Joint SIGDAT Conference on Empirical Methods in Natural Language Processing and Very Large Corpora*, 2000.

### **Other Topics**

Pavlin Dobrev and Kristina Toutanova. 2001. "CGWorld – Architecture and Features". *Proceedings of the International Conference on Conceptual Structures*, 2001.

Kristina Toutanova. 1999. "Generation of Bulgarian Natural Language Explanations from Conceptual Graphs". Masters Thesis, Sofia University, Faculty of Mathematics and Computer Science, 1999.

Svetlana Damianova and Kristina Toutanova. 1999. "Using Conceptual Graphs to Solve a Resource Allocation Task". *Proceedings of the International Conference on Conceptual Structures*, 1999.

Galia Angelova, Svetlana Damianova, Kristina Toutanova and Kalina Bontcheva. 1997. "Menu-Based Interfaces to Conceptual Graphs – the CGLex Approach". *Proceedings of the International Conference on Conceptual Structures*, 1997.

### **PROFESSIONAL SERVICE**

**Conference Reviewing:** RANLP, ACL Student Workshop, NAACL Student Workshop.

**Journal Reviewing:** Journal of Natural Language Engineering

**Program Committee:** RANLP, CGTools Workshop at ICCS 2001

**Software:** Part-of-speech tagger available at: <http://nlp.stanford.edu/software/tagger.shtml>

### **LANGUAGES**

*Bulgarian:* native, *English:* fluent, *Russian:* good

### **PERSONAL INFORMATION**

**Citizenship:** Bulgarian **visa status:** F1 student