

# Daniel Matthew Cer

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## CONTACT INFORMATION

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## RESEARCH INTERESTS

Natural language processing (NLP), statistical machine translation (SMT/MT), machine learning (ML), applied natural language systems, language processing tool efficiency vs. accuracy, and natural language parsing.

## EDUCATION

**University of Colorado**, Boulder, Colorado, USA  
*Doctor of Philosophy in Computer Science* **May 2011**  
Diss.: *Parameterizing Phrase-Based Statistical Machine Translation Models: An Analytic Study*

- Advisors: Daniel Jurafsky and James H. Martin
- Committee: Daniel Jurafsky, James H. Martin, Christopher D. Manning, Wayne Ward, and Richard Byrd

**University of Colorado**, Boulder, Colorado, USA  
*Bachelor of Science in Computer Science with Certificate in Cognitive Science* **May 2002**

## PUBLICATIONS

*Phrasal: A Toolkit for Statistical Machine Translation with Facilities for Extraction and Incorporation of Arbitrary Model Features.* [Daniel Cer](#), Michel Galley, Daniel Jurafsky and Christopher Manning. In Proceedings of the North American Association of Computational Linguistics - Demo Session (NAACL-10). 2010

*The Best Lexical Metric for Phrase-Based Statistical MT System Optimization.* [Daniel Cer](#), Daniel Jurafsky and Christopher D. Manning. In Proceedings of the North American Association of Computational Linguistics (NAACL-10). 2010

*Parsing to Stanford Dependencies: Trade-offs between speed and accuracy.* [Daniel Cer](#), Marie-Catherine de Marneffe, Dan Jurafsky and Christopher D. Manning. In Proceedings of Language Resources Evaluation Conference (LREC-10). 2010

*Measuring Machine Translation Quality as Semantic Equivalence: A Metric Based on Entailment Features.* Sebastian Padó, [Daniel Cer](#), Michel Galley, Dan Jurafsky, Christopher D. Manning. Machine Translation. Nov 2009

*Stanford University's Arabic-to-English Statistical Machine Translation System for the 2009 NIST Evaluation.* Michel Galley, Spence Green, [Daniel Cer](#), Pi-Chuan Chang, Christopher D. Manning. The 2009 NIST Open Machine Translation Evaluation Meeting. 2009

*Regularization and Search for Minimum Error Rate Training.* [Daniel Cer](#), Daniel Jurafsky, and Christopher D. Manning. Proceedings of the Third Workshop on Statistical Machine Translation. 2008

*Stanford University's Chinese-to-English Statistical Machine Translation System for the 2008 NIST Evaluation.* Michel Galley, Pi-Chuan Chang, [Daniel Cer](#), Jenny R. Finkel, and Christopher D. Manning. Proceedings of the 2008 NIST Open Machine Translation Evaluation Workshop.

*Aligning semantic graphs for textual inference and machine reading.* Marie-Catherine de Marneffe, Trond Grenager, Bill MacCartney, [Daniel Cer](#), Daniel Ramage, Chloe Kiddon and Christopher D. Manning. In AAAI Spring Symposium at Stanford. 2007

*Learning Alignments and Leveraging Natural Logic.* Nathanael Chambers, [Daniel Cer](#), Trond Grenager, David Hall, Chloe Kiddon, Bill MacCartney, Marie-Catherine de Marneffe, Daniel Ramage, Eric Yeh and Christopher D. Manning. In ACL-PASCAL Workshop on Textual Entailment and Paraphrasing. 2007

*Neural mechanisms of binding in the hippocampus and neocortex: Insights from computational models.* [Daniel Cer](#) & Randall C. O'Reilly. In H.D. Zimmer & A. Mecklinger & U. Lindenberger (Eds) Handbook of Binding and Memory, Oxford: Oxford University Press. 2006

*Learning to recognize features of valid textual entailments.* Bill MacCartney, Trond Grenager, Marie-Catherine de Marneffe, Daniel Cer and Christopher D. Manning. In Proceedings of the North American Association of Computational Linguistics (NAACL-06). 2006

*Learning to distinguish valid textual entailments.* Marie-Catherine de Marneffe, Bill MacCartney, Trond Grenager, Daniel Cer, Anna Rafferty and Christopher D. Manning. In Proceedings of the Second PASCAL Challenges Workshop. 2006

*The Detection of Emphatic Words Using Acoustic and Lexical Features.* Jason M. Brenier, Daniel Cer and Daniel Jurafsky. In Proceedings of EUROSPEECH. 2005

*Effectiveness of Neural Network Learning Rules Generated by a Biophysical Model of Synaptic Plasticity.* Dave Jilk, Daniel M. Cer, & Randall C. O'Reilly. In Proceedings of the Computational Neuroscience Conference. 2003

*Issues in Recognition of Spanish-Accented Spontaneous English.* Ayako Ikeno, Bryan Pellom, Dan Cer, Ashley Thornton, Jason Brenier, Dan Jurafsky, Wayne Ward, William Byrne. In IEEE ISCA & IEEE Workshop on Spontaneous Speech Processing and Recognition. 2003

PRESENTATIONS *Brief Introduction to Natural Language Processing.* Daniel Cer. Silicon Valley Code Camp. 2010

*Emphasis detection in speech using acoustic & lexical features.* Jason M. Brenier, Daniel Cer, & Dan Jurafsky. Presented at Linguistic Society of America annual meeting. 2005

*Supervised and unsupervised models for propositional analysis.* Simon Dennis, Dan Jurafsky, & Dan Cer. Presented at Workshop on Syntax, Semantics and Statistics at the Neural Information Processing Society Conference. 2003

PROFESSIONAL  
EXPERIENCE

**Stanford University - NLP Group**, Stanford, CA, USA

*Postdoctoral Researcher*

**March 2011 – present**

Research on using richer decoding models and training criteria for machine translation.

**Stanford University - NLP Group**, Stanford, CA, USA

*Research Assistant*

**Aug 2005 – March 2011**

Research on machine learning for phrase-based machine translation systems, and primary authorship of the state-of-the-art Phrasal machine translation package.

**Google, Inc.**, Mountain View, CA, USA

*Intern - Machine translation group*

**Jun 2005 – Dec 2005**

Implementation of language modeling data structures for use in a statistical machine translation decoder.

**CSLR (now CLEAR) at the University of Colorado**, Boulder, CO, USA

*Research Assistant*

**Sept 2002 – May 2004**

**Jan 2005 – Aug 2005**

Machine learning for speech recognition tasks, and development of a parallel/distributed acoustic model trainer for the Sonic speech recognition system.

**Computational Cognitive Neuroscience Lab, University of Colorado**, Boulder, CO, USA

*Research Assistant*

**May 2001 - May 2004**

Modeling of human language processing and symbolic binding using biologically motivated neural networks with Prof. Randall C. O'Reilly.

**US West (now Qwest)**, Denver, CO, USA

*Intern - Market Intelligence and Decision Support (MIDS)*

**May 1999 - December 1999**

Development of an internal knowledge management system and other collaboration tools for US West's intelligence analysts.

PROFESSIONAL  
SOCIETIES

Association for Computational Linguistics (ACL)

Association for Computing Machinery (ACM)  
Institute of Electrical and Electronics Engineers (IEEE)

PROGRAMMING    Java, Perl, Python, C, C++, Shell Scripting, SQL, Hadoop/MapReduce, JavaScript, Django