

**James H. Martin**  
**Department of Computer Science and**  
**Institute of Cognitive Science**  
**University of Colorado**  
**Boulder, CO 80309-0430 USA**

**James.Martin@colorado.edu**  
**(303) 492-3552 (office)**  
**(303) 492-2844 (fax)**

## **EDUCATION**

Ph.D., Computer Science, University of California, Berkeley, California, 1988  
B.S., Computer Science, Columbia University, New York, New York, 1981

## **PROFESSIONAL EXPERIENCE**

Chair, Department of Computer Science, University of Colorado Boulder, 2011–2017  
Professor, Department of Computer Science, University of Colorado Boulder, 2007–present  
Associate Chair, Department of Computer Science, University of Colorado Boulder, 2006–  
2009  
Visiting Scientist, International Computer Science Institute, University of California at Berkeley,  
2004–2005  
Director Academic Programs, Institute of Cognitive Science, University of Colorado  
Boulder, 2002–2007  
Associate Professor, Department of Computer Science, University of Colorado Boulder,  
1995–2007  
Fellow, Institute of Cognitive Science, University of Colorado Boulder 1989–present  
Assistant Professor, Department of Computer Science, University of Colorado Boulder,  
1989–1995

## **RESEARCH INTERESTS**

Computational Linguistics, Cognitive Linguistics, Machine Learning, Medical Informatics

## **PUBLICATIONS**

### **Books**

Daniel Jurafsky and James H. Martin, *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition*, (2<sup>nd</sup> Ed.), Prentice-Hall, 2008, 988 pages.  
Daniel Jurafsky and James H. Martin, [*Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition*], (in Chinese, tr. by Zhiwei Feng), Publishing House of Electronics Industry, Beijing, China, 2004.

Daniel Jurafsky and James H. Martin, *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition*, Prentice-Hall, 2000, 934 pages.

James H. Martin, *A Computational Model of Metaphor Interpretation*, Academic Press, San Diego, CA, 1990, 229 pages.

### Journal Articles and Book Chapters

Jens E. L. Van Gysel, Meagan Vigus, Jayeol Chun, Kenneth Lai Sarah R. Moeller, Jiarui Yao, Tim O'Gorman, Andrew Cowell, William Croft, Chu-Ren Huang, Jan Hajic James H. Martin, Stephan Oepen, Martha Palmer, James Pustejovsky, Rosa Vallejos, Nianwen Xue, "Designing a Uniform Meaning Representation for Natural Language Processing", *Kunstliche Intelligenz*, **35** (3), 343--360, 2021.

Philipp Wetzler, Steven Bethard, Heather Leary, Kirsten Butcher, Soheil Danesh Bahreini, Jin Zhao, James H. Martin, Tamara Sumner. "Characterizing and Predicting the Multifaceted Nature of Quality in Educational Web Resources, *ACM Transactions on Interactive Intelligent Systems*, **3**(3), 2013.

Daniel Albright, Arrick Lanfranchi, Anwen Fredriksen, William F Styler, Colin Warner, Jena D Hwang, Jinho D Choi, Dmitriy Dligach, Rodney D Nielsen, James Martin, Wayne Ward, Martha Palmer, Guergana K Savova. "Towards comprehensive syntactic and semantic annotations of the clinical narrative", *Journal of the American Medical Informatics Association*, **20**: 922–930. doi:10.1136/amiajnl-2012-001317, 2013.

Rodney D. Nielsen, Wayne Ward and James H. Martin. "Recognizing Entailment in Intelligent Tutoring Systems", *Journal of Natural Language Engineering*, **15**(4): 479-501, 2009.

Kirsten Butcher, Sebastian de la Chica, Faisal Ahmad, Qianyi Gu, Tamara Sumner, and James H. Martin. "Conceptual Customization for Learning with Multimedia: Developing Individual Instructional Experiences to Support Science Understanding", In *Cognitive Effects of Multimedia Learning, Chapter XIV*, edited by R. Zheng, Information Science Reference, 2009.

Steven Bethard, Zhiyong Lu, James H. Martin and Lawrence Hunter, "Semantic Role Labeling for Protein Transport Predicates", *BMC-Bioinformatics*, **9**(1):277, 2008.

Sebastian de la Chica, Faisal Ahmad, Tamara Sumner, James H. Martin and Kirsten Butcher, "Computational foundations for personalizing instruction with digital libraries", *International Journal on Digital Libraries*, **9**(1), 2008.

Kirsten Butcher, Sebastian de la Chica, Faisal Ahmad, Qiani Gu, Tamara Sumner, and James H. Martin, "Conceptual Customization for Learning with Multimedia: Developing individual instructional experiences to support science understanding", In R. Zheng (Ed.), *Cognitive Effects of Multimedia Learning*. New York, NY: IGI Publishing, 2008.

Rodney D. Nielsen, Wayne Ward and James H. Martin, "Soft computing in intelligent tutoring systems and educational assessment", in *Soft Computing Applications in Business*, Bhanu Prasad (ed.), Springer-Verlag, Heidelberg, Germany, 201-230, 2008.

Steven Bethard, James H. Martin and Sara Klingenstein, "Finding Temporal Structure in Text: Machine Learning of Syntactic Temporal Relations", *International Journal of Semantic Computing*, **1**(4), 441-475, 2008.

- Sameer Pradhan, Wayne Ward and James H. Martin, "Towards Robust Semantic Role Labeling", *Computational Linguistics*, **34**(2), 289–310, 2008.
- James H. Martin, "A Corpus-Based Analysis of the Context Effect on Metaphor Processing", in *Corpus-Based Approaches to Metaphor and Metonymy*, Stefan Th. Gries and Anatol Stefanowitsch (eds.), Mouton de Gruyter, 214–236, 2006.
- Sameer Pradhan, Kadri Hacioglu, Valerie Krugler, Wayne Ward, Daniel Jurafsky and James H. Martin, "Support Vector Learning for Semantic Argument Classification", *Machine Learning Journal*, **60**(1), 11–39, 2005.
- James H. Martin, "N-grams", in *Encyclopedia of Human-Computer Interaction*, William S. Bainbridge (ed.), Berkshire Publishing, 504–506, 2004.
- James H. Martin, "Natural Language Processing", in *Encyclopedia of Human-Computer Interaction*, William S. Bainbridge (ed.), Berkshire Publishing, 495–501, 2004.
- Elizabeth R. Jessup and James H. Martin, "Taking a New Look at the Latent Semantic Analysis Approach to Information Retrieval", in *Computational Information Retrieval*, Michael Berry (ed.), SIAM Press, 121–144, 2001.
- Robert Wilensky, David Chin, Marc Luria, James H. Martin, James Mayfield, and Dekai Wu, "The Berkeley UNIX Consultant Project: A Retrospective", *Artificial Intelligence Review*, **14**(1), 43–88, 2000.
- James H. Martin, "Representing UNIX Domain Metaphors", *Artificial Intelligence Review*, **14**(4), 377–401, 2000.
- Sergei Rodionov and James H. Martin, "An Expert System-Based Approach to the Prediction of Interannual Variations in the North Atlantic Region", *International Journal of Climatology*, **19**(9), 931–1047, 1999.
- Brad Calder, Dirk Grunwald, Michael Jones, Donald Lindsay, James H. Martin, Michael Mozer, and Benjamin Zorn, "Evidence-Based Static Branch Prediction using Machine Learning", *Transactions on Programming Languages and Systems*, **19**(1), 188–222, 1997.
- Sergei Rodionov and James H. Martin, "A Knowledge-Based System for the Diagnosis and Prediction of Short-Term Climatic Changes in the North Atlantic", *Journal of Climate*, **9**(8), 1816–1823, 1996.
- James H. Martin, "Computational Approaches to Figurative Language", *Journal of Metaphor and Symbolic Activity*, **11**(1), 85–100, 1996.
- James H. Martin and Karl Winklmann, "An Integrated Algorithm Analysis, Writing and Artificial Intelligence Course", *SIGART Bulletin*, **6**(2), 39–41, 1995.
- Keith Vander Linden and James H. Martin, "Expressing Rhetorical Relations in Instructional Text: A Case Study of the Purpose Relation", *Computational Linguistics*, **21**(1), 29–57, 1995.
- James H. Martin, "Metabank: A Knowledge-Base of Metaphoric Language Conventions", *Computational Intelligence*, **10**(2), 134–149, 1994.
- James H. Martin, "Computer Understanding of Conventional and Poetic Metaphor", in *Research in Humanities Computing*, N. Ide and S. Hockey (eds.), Oxford University Press, 163–175, 1994.
- Carl Block, Megan MacMillan, David Monarchi and James H. Martin, "A Prototype System for Extracting Objects and Relationships from Software Specifications", *Heuristics: The Journal of Knowledge Engineering*, **6**(1), 1993.
- Dan Fass, James H. Martin and Elizabeth Hinkelman, "Introduction to the Special Issue on Non-Literal Language", *Computational Intelligence*, **8**(3), 411–415, 1992.

- James H. Martin, Conventional Metaphor and the Lexicon, in *Lexical Semantics and Knowledge Representation*, J. Pustejovsky and S. Bergler (eds), Springer-Verlag, Lecture Notes in Artificial Intelligence, Berlin, 61–73, 1992.
- James H. Martin, “Computer Understanding of Conventional Metaphoric Language”, *Cognitive Science*, **16**(2), 233–270, 1992.
- James H. Martin, “Acquiring Metaphor-Based Polysemy”, in *Lexical Acquisition: Exploiting On-Line Resources to Build a Lexicon*, Uri Zernik, (ed), Lawrence Erlbaum Associates, Englewood, NJ, 389–415, 1991.
- Robert Wilensky, David Chin, Marc Luria, James H. Martin, James Mayfield, and Dekai Wu, “The Berkeley UNIX Consultant Project”, *Computational Linguistics*, **14**(4), 35–84, 1988.

### Refereed Conference and Workshop Proceedings

- Abhijit Suresh, Jennifer Jacobs, Margaret Perkoff, James H. Martin, and Tamara Sumner, “Fine-tuning Transformers with Additional Context to Classify Discursive Moves in Mathematics Classrooms.” In *Proceedings of the 17th Workshop on Innovative Use of NLP for Building Educational Applications (BEA 2022)*, pages 71–81, Seattle, Washington. Association for Computational Linguistics.
- Abhijit Suresh, Jennifer Jacobs, Charis Harty, Margaret Perkoff, James H. Martin, Tamara Sumner, “The TalkMoves Dataset: K-12 Mathematics Lesson Transcripts Annotated for Teacher and Student Discursive Moves”, *Language Resources and Evaluation Conference*, 2022, Marseille, France.
- Abhijit Suresh, Jennifer Jacobs, Charis Clevenger, Vivian Lai, Chenhao Tan, James H. Martin Tamara Sumner, “Using AI to Promote Equitable Classroom Discussions: The TalkMoves Application”, *Artificial Intelligence in Education - 22nd International Conference*, 2021, Utrecht, The Netherlands.
- Tamara Sumner, Abhijit Suresh, Jennifer Jacobs, Vivian Lai, Chenhao Tan, Wayne Ward, James H. Martin, “Using Transformers to Provide Teachers with Personalized Feedback on their Classroom Discourse: The TalkMoves Application”, *AAAI 2021 spring symposium on artificial intelligence for K-12 education*, 2021.
- Kristin Wright-Bettner, Chen Lin, Timothy A. Miller, Steven Bethard, Dmitriy Dligach, Martha Palmer, James H. Martin, Guergana Savova, “Defining and Learning Refined Temporal Relations in the Clinical Narrative” ,*Proceedings of the 11th International Workshop on Health Text Mining and Information Analysis*, 2020.
- William R. Foland and James H. Martin, “Abstract Meaning Representation Parsing using LSTM Recurrent Neural Networks”, in *Proceedings of the 55<sup>th</sup> Annual Meeting of the Association of Computational Linguistics*, Vancouver, British Columbia, 2017.
- William R. Foland and James H. Martin, “CU-NLP at SemEval-2016 Task 8: AMR Parsing Using LSTM-based Recurrent Neural Networks”, in *Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval 2016)*, San Diego, California, 2016.
- Franco Salvetti, John B. Lowe, and James H. Martin, “A Tangled Web: The Faint Signals of Deception in Text - Boulder Lies and Truth Corpus”, in *Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC 2016)*, Portoroz, Slovenia, 2016.
- William R. Foland and James H. Martin, “Dependency-based semantic role labeling using convolutional neural networks”, in *Proceedings of the Fourth Joint Conference on Lexical and Computational Semantics*, Denver, Colorado, 2015.

- Soheil Danesh, Tamara Sumner, James H. Martin, “SGRank: Combining Statistical and Graphical Methods to Improve the State of the Art in Unsupervised Keyphrase Extraction”, in *Proceedings of the Fourth Joint Conference on Lexical and Computational Semantics*, Denver, Colorado, 2015.
- William J Corvey, Sudha Verma, Sarah Vieweg, Martha Palmer, James H Martin, “Foundations of a Multilayer Annotation Framework for Twitter Communications During Crisis Events”, in *Proceedings of the International Conference on Language Resources and Evaluation (LREC)*, Istanbul, Turkey, 2012.
- Gloria Mark, Mossaab Bagdouri, Leysia Palen, James Martin, Ban Al-Ani, Kenneth Anderson, “Blogs as a Collective War Diary”, in *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work (CSCW)*, Seattle, Washington, 2012.
- Steven Bethard, Ifeyinwa Okoye, Md Arafat Sultan, Haojie Hang, James H Martin, Tamara Sumner, “Identifying science concepts and student misconceptions in an interactive essay writing tutor”, in *Proceedings of the 7<sup>th</sup> Workshop on Innovative Use of NLP for Building Educational Applications*, Montreal, Canada, 2012.
- Brian Cairns, Rodney Nielsen, James Masanz, James H. Martin, Martha Palmer, Wayne Ward, and Guergana Savova, “The MiPACQ Clinical Question Answering System”, in *Proceedings of the American Medical Informatics Association (AMIA)*, Washington, DC, 2011.
- William Corvey, James H. Martin, Sarah Vieweg, Sudha Verma, Aaron Schram, Martha Palmer, Kenneth M Anderson and Leysia Palen, “NLP to the Rescue?: Extracting Situational Awareness Tweets During Mass Emergency”, in *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media (ICWSM 2011)*, Barcelona, 2011.
- Heather Leary, Mimi Recker, Andrew Walker, Philipp Wetzler, Tamara Sumner, James H. Martin, “Automating Open Educational Resources Assessments: A Machine Learning Generalization Study”, in *Proceedings of the Joint ACM/IEEE Conference on Digital Libraries (JCDL-2011)*, Ottawa, CA, 2011.
- Mimi Recker, Heather Leary, Andrew Walker, Anne Dickema, Philipp Wetzler, Tamara Sumner, and James H. Martin, “Modeling Teacher Ratings of Online Resources: A Human-Machine Approach to Quality”, *Proceedings of the American Educational Research Association (AERA 2011)*, New Orleans, LA, 2011.
- Rodney D. Nielsen, James Masanz, Philip V. Ogren, Wayne Ward, James H. Martin, Guergana K. Savova. “An Architecture for Complex Clinical Question Answering.” In *Proceedings of the First Annual ACM International Health Informatics Symposium (IHI 2010)*, 2010.
- Leysia Palen, Ken Anderson, Gloria Mark, James H. Martin, Douglas Sicker, Martha Palmer, Dirk Grunwald. “A Vision for Technology-Mediated Support for Public Participation & Assistance in Mass Emergencies & Disasters.” In *Proceedings of the Association of Computing Machinery and British Computing Society’s 2010 Conference on Visions of Computer Science*. Edinburgh, Scotland, 2010.
- Steven Bethard, Soumya Ghosh, James H. Martin, Tamara Sumner, “Topic Model Methods for Automatically Identifying Out-of-Scope Resources.” In *Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital Libraries*, pages 19-28, Austin, TX, USA, 2009.
- Steven Bethard, Philipp Wetzler, Kirsten Butcher, James H. Martin, Tamara Sumner, “Automatically Characterizing Resource Quality for Educational Digital Libraries”. In *Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital Libraries*, pages 221-230, Austin, TX, USA, 2009. Winner: **Vannevar Bush BEST PAPER Award**.

- Philipp Wetzler, Steven Bethard, Kirsten Butcher, James H. Martin, Tamara Sumner, “Automatically Assessing Resource Quality for Educational Digital Libraries”, In *Proceedings of the 3rd workshop on Information Credibility on the Web*, pages 3-10, Madrid, Spain, 2009.
- Guergana Savova, Steven Bethard, Will Styler, James H. Martin, Martha Palmer, James Masanz, and Wayne Ward, “Towards Temporal Relation Discovery from the Clinical Narrative”. In *Proceedings of the American Medical Informatics Association, (AMIA 2009)*, San Francisco, CA, 2009.
- Steven Bethard, Vicky Tzuyin Lai, and James H. Martin. “Topic model analysis of metaphor frequency for psycholinguistic stimuli”. In *Proceedings of the NAACL Workshop on Computational Approaches to Linguistic Creativity*, Boulder, CO, 2009.
- Rodney D. Nielsen, Wayne Ward and James H. Martin, “Automatic Generation of Fine-grained Representations of Learner Response Semantics”, in *Proceedings of the Ninth International Conference on Intelligent Tutoring Systems, (ITS 2008)*, 173-183, ,2008.
- Sebastian de la Chica, Faisal Ahmad, James H. Martin and Tamara Sumner, “Pedagogically Useful Extractive Summaries for Science Education, in *Proceedings of the 22nd Meeting of the International Committee for Computational Linguistics (COLING 2008)*, Manchester, UK, 2008.
- Sebastian de la Chica, Faisal Ahmad, James H. Martin and Tamara Sumner, “Extractive Summaries for Educational Science Content”, in *Proceedings of the 46th Annual Meeting of the Association for Computational Linguistics (ACL): Human Language Technologies (HLT)*, 2008.
- Rodney D. Nielsen, Wayne Ward, James H. Martin and Martha Palmer, “Extracting a Representation from Text for Semantic Analysis”, in *Proceedings of the Annual Meeting of the Association for Computational Linguistics: Human Language Technologies Conference*, 241-244, 2008.
- Steven Bethard and James H. Martin, “Learning Semantic Links from a Corpus of Parallel Temporal and Causal Relations. In *Proceedings of the Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-HLT)*, 2008.
- Steven Bethard, William Corvey, Sara Klingenstein, and James H. Martin, “Building a Corpus of Temporal-Causal Structure”. In *Proceedings of the 6<sup>th</sup> Language Resources and Evaluation Conference (LREC)*, 2008.
- Rodney D. Nielsen, Wayne Ward and James H. Martin, “Classification Errors in a Domain-Independent Assessment System”, in *Proceedings of the Third Workshop on Innovative Use of Natural Language Processing for Building Educational Applications*, at the Forty-Sixth annual meeting of the Association for Computational Linguistics, pp 10-18, 2008.
- Rodney D. Nielsen, Wayne Ward, James H. Martin and Martha Palmer, “Annotating Students' Understanding of Science Concepts, in *Proceedings of the Sixth International Language Resources and Evaluation Conference, (LREC'08)*, 2008.
- Rodney D. Nielsen, Wayne Ward and James H. Martin, “Learning to Assess Low-Level Conceptual Understanding”, in *Proceedings of the Twenty-First International Artificial Intelligence Researchers Society Conference, (FLAIRS-08)*, pp 427-432, Coconut Grove, Florida, May 15-17, 2008.
- Steven Bethard, James H. Martin and Sara Klingenstein. Timelines from Text: Identification of Syntactic Temporal Relations. In *Proceedings of the First IEEE International Conference on Semantic Computing*, Irvine, 8 pages, 2007.

- Ying Chen and James H. Martin, "CU-COMSEM: Exploring Rich Features for Unsupervised Web Personal Name Disambiguation", in *Proceedings of the 4<sup>th</sup> International Workshop on Semantic Evaluations (SemEval-2007)*, Prague, 4 pages, 2007.
- Steven Bethard and James H. Martin, CU-TMP: Temporal Relation Classification Using Syntactic and Semantic Features. In *Proceedings of 4<sup>th</sup> International Workshop on Semantic Evaluations (SemEval-2007)*, Prague, 4 pages, 2007 (acc rate: 27%).
- Ying Chen and James H. Martin, "Towards Robust Unsupervised Personal Name Disambiguation", in *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-07)*, Prague, 8 pages, 2007.
- Faisal Ahmad, Sebastian de la Chica, Kirsten Butcher, Tamara Sumner and James H. Martin, "Towards Automatic Conceptual Personalization Tools", in *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL 2007)*, 10 pages, 2007.
- Sameer Pradhan, Wayne Ward and James H. Martin, "Towards Robust Semantic Role Labeling", in *Proceedings of the Human Language Technology/North American Association for Computational Linguistics (HLT/NAACL 2007)*, 2007, 8 pages, (acc rate: 24%).
- Steven Bethard, Rodney Nielsen, Wayne Ward and James H. Martin, "Semantic Integration in Learning from Text", in *Proceedings of the AAAI 2007 Spring Symposium on Machine Reading*, 6 pages, 2007.
- Steven Bethard and James H. Martin, "Identification of Event Mentions and their Semantic Class", in *Proceedings the 2006 Conference on Empirical Methods in Natural Language Processing (EMNLP-06)*, Sydney, Australia, 2006, 9 pages, (acc rate: 31%).
- Rodney Nielsen, Wayne Ward, and James H. Martin, "Toward Dependency Path-Based Entailment", in *Proceedings of the Second PASCAL Challenges Workshop on Recognizing Textual Entailment*, Venice, Italy, 6 pages, 2006.
- Sebastian de la Chica, Faisal Ahmed, James H. Martin, and Tamara Sumner, "Supporting Science Understanding through a Customized Learning Service for Concept Knowledge", in *Proceedings of the ECAI 2006 Workshop on Language-Enabled Educational Technology*, Trentino, Italy, 8 pages, 2006.
- Sameer Pradhan, Wayne Ward, Kadri Hacioglu, James H. Martin, and Daniel Jurafsky, "Semantic Role Labeling Using Different Syntactic Views", in *Proceedings of the Association for Computational Linguistics 43rd annual meeting (ACL-2005)*, Ann Arbor, MI, 8 pages, 2005 (acc. rate 18%).
- Sameer Pradhan, Kadri Hacioglu, Wayne Ward, James H. Martin, and Daniel Jurafsky, "Semantic Role Chunking Combining Complementary Syntactic Views", in *Proceedings of the 9<sup>th</sup> Conference on Natural Language Learning (CoNLL 2005)*, Ann Arbor, MI, 4 pages, 2005.
- Sameer Pradhan, Honglin Sun, Wayne Ward, James H. Martin, and Daniel Jurafsky, "Parsing Arguments of Nominalizations in English and Chinese", in the *Proceedings of the Human Language Technology/North American Association for Computational Linguistics (HLT/NAACL-2004)*, Boston, MA, May 2-7, 4 pages, 2004 (acc. rate: 26%).
- Sameer Pradhan, Wayne Ward, Kadri Hacioglu, James H. Martin, and Daniel Jurafsky, "Shallow Semantic Parsing Using Support Vector Machines", in the *Proceedings of the Human Language Technology/North American Association for Computational Linguistics (HLT/NAACL-2004)*, Boston, MA, May 2-7, 8 pages, 2004 (acc. Rate, 26%).
- Kadri Hacioglu, Sameer Pradhan, Wayne Ward, James H. Martin and Daniel Jurafsky, "Semantic Role Labeling by Tagging Syntactic Chunks", in the *Proceedings of the Eighth*

- Conference on Natural Language Learning (CoNLL-2004)*, Boston, MA, May 6-7, 4 pages, 2004.
- Sameer Pradhan, Kadri Hacioglu, Wayne Ward, James H. Martin and Daniel Jurafsky, “Semantic Role Parsing: Adding Semantic Structure to Unstructured Text”, in *Proceedings of the IEEE International Conference on Data Mining*, 4 pages, 2003, (acc. rate 24%).
- Sameer Pradhan, Valerie Krugler, Wayne Ward, Daniel Jurafsky, James H. Martin, Kathy McKeown, and Vasilis Hatzivassiloglou, “Using Semantic Representations in Question Answering”, in the *Proceedings of the International Conference on Natural Language Processing (ICON)*, Bombay, 8 pages, 2002.
- Elizabeth R. Jessup and James H. Martin, “Applications of Orthogonal Decomposition in Information Retrieval”, in the *Proceedings of the Seventh SIAM Conference on Applied Linear Algebra*, 1 page, 2000.
- Carlos Maltzhan, Kathy Richardson, Dirk Grunwald, and James H. Martin, “On Bandwidth Smoothing”, in the *Proceedings of the 4th International Web Caching Workshop*, San Diego, CA, 12 pages, 1999.
- Michael P. Jones and James H. Martin, “Contextual Spelling Correction using Latent Semantic Analysis”, in the *Proceedings of the 5th Conference on Applied Natural Language Processing*, 8 pages, 1997.
- Brad Calder, Dirk Grunwald, Donald Lindsay, James H. Martin, Michael Mozer and Benjamin Zorn, “Corpus-Based Static Branch Prediction”, in *Proceedings of the Programming Language Design and Implementation (PLDI) Conference*, 13 pages, 1995, (acc rate: 27%).
- Keith Vander Linden, Susanna Cumming and James H. Martin, “Using System Networks to Build Rhetorical Structures”, in *Proceedings of the Sixth International Workshop on Natural Language Generation*, Castel Ivano, Trento, Italy, 15 pages, 1992.
- James H. Martin, “MetaBank: A Knowledge-Based Approach to Non-Literal Language”, in *Proceedings of the Workshop on Computational Approaches to Non-Literal Language*, IJCAI-91, Sydney, Australia, 9 pages, 1991.
- Zhi-Hua Long and James H. Martin, “The Role of Conventionality in the Real-Time Processing of Metaphor”, in *Proceedings of the 13th Annual Conference of the Cognitive Science Society*, Chicago, IL, 5 pages, 1991.
- James H. Martin, “Conventional Metaphor and the Lexicon”, in *Proceedings of SIGLEX Workshop on Lexical Semantics and Knowledge Representation*, Berkeley, CA, 11 pages, 1991.
- James H. Martin, “A Unified Approach to Conventional Non-Literal Language”, in *Proceedings of the Fifth Rocky Mountain Conference on Artificial Intelligence: Pragmatics in Artificial Intelligence*, New Mexico State University, Las Cruces, NM, 1990.
- Carl Block, Megan MacMillan, James H. Martin and David Monarchi, “A Prototype System for Extracting Objects and Relationships from Natural Text”, in *Proceedings of the 1990 International Conference of ACM-SIGBDP-Trends in Expert Systems*, 10 pages, 1990.
- James H. Martin, “Representing Regularities in the Metaphoric Lexicon”, in *Proceedings of the 12th International Conference on Computational Linguistics*, Budapest, Hungary, 6 pages, 1988 (acc rate, 29%).
- James H. Martin, “Understanding New Metaphors”, in *Proceedings of the Tenth International Joint Conference on Artificial Intelligence*, Milan, Italy, 3 pages, 1987, (acc rate, 24%).
- James H. Martin, “The Acquisition of Polysemy”, in *Proceedings of the Fourth International Workshop on Machine Learning*, Irvine, CA, 7 pages, 1987, (Acc rate: 32%).



James H. Martin, "Views From a Kill", in *Proceedings of the Seventh Annual Meeting of the Cognitive Science Society*, Amherst, MA, 6 pages, 1986.

James H. Martin, "Knowledge Acquisition Through Natural Language Dialog", in *Proceedings of the Second Annual Conference on Artificial Intelligence Applications*, Miami, FL, 5 pages, 1985.

### **Non-Refereed Conference Proceedings**

Ruth Duerr, Skatje Myers, Martha Palmer, Chris Jenkins, Anne Thessen, James H. Martin, "Natural Language Processing and Machine Learning: Applying Advances in BioMedicine to Earth Science", in *Proceedings of American Geophysical Union*, San Francisco, CA, 2015.

Sameer Pradhan, Illouz, G., Blair-Goldensohn, S., Schlaikjer, A., Krugler, V., Filatova, E., Duboue, P., Yu, H., Passonneau, R., Bethard, S., Hatzivassiloglou, V., Ward, W., Jurafsky, D., McKeown, K., Martin, J., "Building a Foundation System for Producing Short Answers to Factual Questions", In *Proceedings of the Text REtrieval Conference (TREC)*, Gaithersburg, MD, 12 pages, 2002.

Sergei Rodionov and James H. Martin, "CESNA: A Climatic Expert System for the North Atlantic", in the *Proceedings of the 12th International Conference on IIPS*, January 28 - February 2 1996, Atlanta, Georgia.

Sergei Rodionov and James H. Martin, "The Use of an Expert System for the Analysis and Prediction of Climatic Variability on an Interannual Time Scale", in the *Proceedings of the Symposium on Global Ocean-Atmosphere-Land System (GOALS)*, January 28 - February 2 1996, Atlanta, Georgia.

Sergei Rodionov and James H. Martin, "On Developing a Knowledge-Based Expert System for Short-Term Climatic Prediction", in the *Proceedings of the 13th Conference on Probability and Statistics in the Atmospheric Sciences*, February 23-21 1996, San Francisco, California.

James H. Martin, "Representing and Acquiring Knowledge about Metaphors", in *Proceedings of the Third Workshop on Theoretical Issues in Conceptual Information Processing*, Philadelphia, PA, 4 pages, 1986.

### **Edited Volumes**

Nicolas Nicolov, Franco Salvetti, Mark Liberman, and James H. Martin (eds), *Computational Approaches to Analyzing Weblogs: Papers from 2006 AAAI Spring Symposium*, AAAI Technical Report SS-06-03, 252 pages, 2006.

Dan Fass, Elizabeth Hinkelman and James H. Martin (eds), *Computational Intelligence: Special Issue on Non-Literal Language*, **8**(2), 188 pages, 1992.

Dan Fass, James H. Martin and Elizabeth Hinkelman (eds), *Proceedings of the IJCAI Workshop on Computational Approaches to Non-Literal Language*, IJCAI-91, Sydney, Australia, 1991, 1969 pages, 1991.

### **Book Reviews**

James H. Martin, Review of *Paradigms of Artificial Intelligence Programming: Case Studies in Common Lisp*, by Peter Norvig, in *Artificial Intelligence*, **64**(1), 1993.

James H. Martin, Review of *Knowledge Representation and Metaphor*, by Eileen Way, in

*Computational Linguistics*, **18**(1), 1992.

## **EXTERNAL GRANTS AND AWARDS**

- National Science Foundation, “Human Tutoring Augmented by Artificial Intelligence (AI): A Tutoring Analytics and Performance Support Model to Improve the Work and Professional Growth of Future Tutors”, PI Tamara Sumner, co-PIs, James H. Martin, Jennifer Jacobs, \$1.8M, 2022-2025.
- National Science Foundation, “Collaborative Research: CCRI: Building a Broad Infrastructure for Uniform Meaning Representations”, PI Alexis Palmer, co-PIs, James H. Martin, Martha Palmer, James Cowell, \$1M, 2022-2025.
- DARPA, “RAMFIS: Representations of vectors and Abstract Meanings for Information Synthesis.” PI Martha Palmer, Co-PIs James H. Martin and Christoffer Heckman, \$2.7M, 2018-2022.
- National Science Foundation, BIGDATA: IA: Automating Analysis and Feedback to Improve Mathematics Teachers' Classroom Discourse. PI Tamara Sumner, Co-PIs Jennifer Jacobs, Wayne Ward, Chenhao Tan, James H. Martin, \$1.9M, 2018-2022.
- National Science Foundation, RI: Medium: “Collaborative Research: Developing a Uniform Meaning Representation for Natural Language Processing”. PI Martha Palmer, Co-PI James H. Martin, 2018-2021.
- National Institutes of Health, R01 (first renewal), “Temporal Relation Discovery for Clinical Notes”, PI Martha Palmer, Co-PI James H. Martin, 2015-2018.
- National Science Foundation, C1F21 DIBBS: Porting Practical Natural Language Processing and Machine Learning from BioMedicine to the Earth, Ice, and Life Sciences, PI Chris Jenkins, co-PIs Martha Palmer and James H. Martin, \$1.4M, 2014-2017.
- National Science Foundation, Hazards/SEES Type 2: Hazard Prediction and Communication Dynamics in the Modern Information Environment, PI Leysia Palen, Co-PIs, Kenneth Anderson, James H. Martin, Martha Palmer, \$788K, 2013-2017.
- National Institutes of Health, R01, “Temporal Relation Discovery for Clinical Notes”, PI Martha Palmer, Co-PI James H. Martin, \$1.5M, 2010-2014.
- Health and Human Services Administration, SHARP Area 4: “Secondary Uses of Electronic Health Records”, PI Martha Palmer, Co-PI James H. Martin, Co-Pi Wayne Ward, \$1.4M, 2010-2014
- National Institutes of Health, RC1, “Multi-source Integrated Platform for Answering Clinical Questions”, James H. Martin (PI), M. Palmer and W. Ward, Co-PIs, 2009-2011, \$500,000.
- National Science Foundation, CISE/RI, “Richer Representations for Machine Translation”, PI Palmer, Co-PI Martin, 2009-2013, \$2.4M.
- National Science Foundation, ALT, “Enabling Learning with Conceptual Personalization Technologies”. Tamara Sumner (PI), James Martin (Co-PI), 2009-2012, \$394,000.
- National Science Foundation, CISE/HCC, “Widescale Computer-Mediated Communication in Crisis Response: Roles, Trust & Accuracy in the Social Distribution of Information”, PI L. Palen, Co-PIs, Martin, Palmer, Sicker, Grunwald. 2009-2013, \$2.5M.
- National Science Foundation, “Developing a Computational Model of Quality for Educational Digital Libraries”, \$444,000, 2007-2009, Co-PI with T. Sumner, (Martin share: \$74,000 per year)

Google Inc., Award to support research on “Text Simplification to Improve Web Access for those with Cognitive Disabilities”, \$55,000, 2005, with Clayton Lewis, (Martin share: \$27,500)

National Science Foundation, “Supporting Science Understanding through a Customized Learning Service for Concept Knowledge”, \$504,000, 2005-2008, Co-PI with T. Sumner, (Martin share: \$84,000 per year).

Advanced Research Development Activity, AQUAINT Program, “Fusing Rich Information Extracted from Multiple Media and Languages to Generate Contextualized Complex Answers”, \$900,000, 2005-2006, Co-PI with W. Ward at Colorado, subcontract from Columbia Univ. K. McKeown PI, (Martin share: \$225,000 per year).

National Science Foundation, “Domain Independent Semantic Interpretation”, \$3,000,000, 2003-2007, Senior Personnel, with W. Ward PI, D. Jurafsky (Stanford), C. Fillmore (Berkeley), D. Gildea (Rochester), and M. Palmer (Penn) Co-PIs. (Martin share: \$70,000 per year).

Advanced Research Development Activity, AQUAINT Program, “Providing Answers to Complex Questions: An Integration of Information Fusion, Event Tracking, and Statistical Semantics”, 2002-2004, \$900,000, Co-PI with W. Ward PI and D. Jurafsky Co-PY, subcontract from Columbia Univ., K. McKeown PI. (Martin share: \$100,000 per year).

National Science Foundation, “An Interactive Curriculum in Human Language Technology for Undergraduate and Graduate Education Research”, \$400,000, 1999-2002, Co-PI with R. Cole PI, J. Hansen, D. Jurafsky Co-PIs, (Martin share: \$25,000 per year).

National Science Foundation, “A Knowledge-Based Approach to Climate Analysis and Forecasting”, \$100,000, 1996-1997 PI.

Mars Inc., Corporate gift to support research on “Knowledge-Based Climate Modeling”, \$25,000, 1997.

Predicting Program Behavior to Support Instruction Level Parallelism, Hewlett-Packard University Grants Program, \$179,799, 1996-1998, Co-PI with D. Grunwald PI, W. Waite, B. Zorn Co-PIs, (Martin share: \$15,000 per year)

Colorado Advanced Software Institute, “Predicting Program Behavior to Support Instruction Level Parallelism”, \$120,000, Co-PI with D. Grunwald PI, W. Waite, B. Zorn Co-PIs, 1996-1998, (Martin share: \$10,000 per year).

USWest Advanced Technologies, “Using Intelligent Agents for Efficient Resource Discovery on the Internet”, \$50,000, PI, 1995-1996.

National Science Foundation, “A Knowledge-Based System for the Prediction and Detection of Northern Hemisphere Climate Change”, \$213,349, PI, 1994-1996..

National Science Foundation, “A Knowledge-Base of Metaphoric Language Conventions”, \$57,000, PI, 1991-1993

Boeing Corporation, “A Knowledge-Based System for Quality Control and Analysis”, \$84,000, PI, 1990-1992.

## THESIS AND POSTDOCTORAL RESEARCH SUPERVISION

### Current Postdoctoral Researchers

Jie Cao

### Current PhD Advisees

Shafiuddin Rehan Ahmed, Jon Cai, Elizabeth Spaulding, Margaret Perkoff

### Past Thesis Supervision

Chelsea Kendall Chandler, *Methods for Multimodal Assessment of Cognitive and Mental State*, PhD, Computer Science, 2022.

Abhijit Suresh, *Automating Feedback to Improve Teachers Effective Use of Instructional Discourse in K-12 Mathematics Classrooms*, PhD, Computer 2022.

Vivian Lai, *Empowering Humans in Human-AI Decision Making*, PhD, Computer Science, co-advised by Chenhao Tan, 2022.

Zijiao Yang, *Multimodal Semantic Understanding: Semantic Role Labeling with Vision and Language*, MS, Computer Science, 2020.

Maxwell, Wenzel, *Named Entity Recognition and Normalization in the Biological Domain*, BS, Senior Thesis, Computer Science, 2020.

Ian Wilkins, *Adaptive Image Transformation for Improved Optical Character Recognition*, BS, Senior Thesis, Computer Science, 2020.

Shubha Swamy, *Using Language Models to Quantify Gender Bias in Recent American Election Journalism*, BS, Senior Thesis, Computer Science, 2020.

William R. Foland, *Natural Language Understanding: Deep Learning for Abstract Meaning Representation*, PhD, Computer Science, 2017.

Nicholas Dronen, *Correcting Writing Errors with Convolutional Neural Networks*, PhD, Computer Science, 2016.

Adeeb Noor, *Characterization of Drug Drug Interactions through Statistical Inference and Semantic Web Technologies*, PhD, Computer Science, 2015.

Ifeyinwa Okoye, *Building an Educational Recommender System based on Conceptual Change Learning Theory to Improve Students' Understanding of Science Concepts*, PhD, Computer Science, 2013.

Franco Salvetti, *Deception Detection in Text: A Corpus-Based Approach*, PhD, Computer Science, 2012. Principal Architect, Microsoft Bing.

Chih-How Bong, *Exploring the semantic meaning of constructs that lead to human decisions*, PhD, Computer Science, 2011, (co-advised with Kai Larsen), Lecturer, University of Malaysia, Sarawak.

Greg Brown, *Relation Extraction on the J.D. Power and Associates Sentiment Corpus*, MS, Computer Science, 2011, now at WordPress Inc.

Daniel Cer, *Parameterizing Phrase-Based Statistical Machine Translation Models: An Analytic Study*, PhD, Computer Science, 2011, (co-advised with D. Jurafsky) now Postdoctoral Researcher, Stanford.

Philipp Wetzler, *Computational Models of Quality for Educational Digital Resource Assessment*, PhD, Computer Science, 2010, now at Google.

Praful Mangalath, *The construction of meaning - the role of context in corpus based approaches to language modeling*, PhD, Computer Science, 2010 (co-advised with W. Kintsch), now at TrapIt Inc.

Kirill Kireyev, *Applications of Distributional Vector Space Models to Modeling of Psycholinguistic Phenomena*, PhD, Computer Science, 2010, now at InstaGrok Inc.

Adam Bates, *Automated software license and copyright analysis*, MS, Computer Science, 2010, now at iRobot Inc.

Donghun Shin, *Maximum entropy model for Korean word sense disambiguation*, MS, Computer Science, 2010.

Brian Locke, *Named entity recognition: adapting to microblogging*, BS Senior Thesis, Computer Science, 2009.

Faisal Ahmad, *Generating conceptually personalized interactions for educational digital libraries using concept maps*, PhD, Computer Science, 2008, (co-advised with T. Sumner), now at Google.

Ying Chen, *Unsupervised Named-entity Disambiguation with Applications to Question Answering*, PhD, Computer Science, 2008, now Asst. Professor at Chinese Agricultural University, Beijing.

Rodney Nielsen, *Learner Answer Assessment in Intelligent Tutoring Systems*, PhD, Computer Science, 2008 (co-advised with W. Ward) now at Boulder Language Technologies.

Steven Bethard, *Finding Event, Temporal and Causal Structure in Text: A Machine Learning Approach*, PhD, Computer Science, 2007, now at Stanford University.

Sameer Pradhan, *Automatic Semantic Role Labeling*, PhD, Computer Science, 2006, now at BBN Inc.

Noah Coccaro, *Latent Semantic Analysis as a Tool to Improve Automatic Speech Recognition Performance*, PhD, Computer Science, 2005, (co-advised with D. Jurafsky), now at Google.

Benjamin Douglas, *Improving Question Answering with Semantic Analysis*, MS, Computer Science, 2005, now at Basis Technology Inc.

Mona Diab, *Arabic Semantic Analysis*, Postdoctoral Research Associate, 2003-2004, now at Columbia University.

Patrick Schone, *Toward Knowledge-Free Induction of Machine-Readable Dictionaries*, PhD, Computer Science, 2001, (co-advised with D. Jurafsky), now at DoD.

Sergei Rodionov, *Knowledge-Based Modeling of Northern Hemispheric Climate Change*, Postdoctoral Research Associate, 1994-2000, now at NOAA.

Laura Mather, *Improving Cluster-Based Document Retrieval through Linear Algebra*, PhD, Computer Science, 1998, now at eBay.

Michael P. Jones, *Spoken Language Help for High Functionality Computer Systems*, PhD, Computer Science, 1997.

Jeanine Ponzini Cook, *Augmentative and Alternative Communication: Solutions to the Rate Enhancement Problem*, MS, Computer Science, 1996, now Assoc. Professor at New Mexico State University.

Patrick Juola, *METLA: Example-Based Induction of Transfer Functions for Machine Translation*, PhD Computer Science, 1995, now Assoc. Prof. at Duquesne Univ.

Keith Vander Linden, *Speaking of Actions: Choosing Rhetorical Status and Grammatical Form in Instructional Text Generation*, PhD Computer Science, 1993, now Full Prof. at Calvin College.

Jairo Munoz, *Analysis of Process Variation in the Presence of Uncertainty and Categorical Data*, PhD, Mechanical Engineering, 1993 (co-advised with P. Ostwald).

Jeffrey Hampton, *Question Answering in Library Information Systems*, MS, Computer Science, 1993, now at Sandia National Labs.

## External PhD Committee Membership

External Opponent for Mathias Creutz, Helsinki University of Technology, PhD, Computer Science, 2006. Krista Lagus and Mikko Kurimo advisors.

External examiner for Sasha Blair-Goldensohn, Columbia University, PhD, Computer Science, 2007. Kathy McKeown advisor.

## COURSES TAUGHT

- Artificial Intelligence (Graduate and Undergraduate)
- Natural Language Processing (Graduate and Undergraduate)
- Introduction to Information Retrieval (Graduate)
- Lexical Semantics (Graduate)
- Introduction to Cognitive Science (Graduate)

## EXTERNAL PROFESSIONAL SERVICE

- Review Panelist: NSF, NASA, Austrian Science Fund
- Reviewer for: *Cognitive Science*, *Computational Linguistics*, *Computational Intelligence*, *Language and Cognition*
- Program Committees: ACM/IEEE Joint Conference on Digital Libraries (JCDL 2006); Empirical Methods in Natural Language Processing (EMNLP 2006, 2010,2011); ACM/IEEE Joint Conference on Digital Libraries (JCDL 2005); International Conference on Spoken Language Processing (ICSLP, 2002); International Conference on Weblogs and Social Media (ICWSM, 2011)
- Organizing Committees: AAAI Spring Symposium on Computational Approaches to Analyzing Weblogs, March 2006; Symposium on Situated Action and Cognition, at Cognitive Science Conference, Boulder, Colorado 1993; Cognitive Science Conference (Cogsci, 1993); Workshop on Computational Approaches to Figurative Language, IJCAI 1991, Sydney, Australia
- Conference local organizer North American Association for Computational Linguistics/Human Language Technologies (NAACL/HLT, 2009), Boulder, CO.
- External Chair Search Committee, University of North Texas, Department of Linguistics 2017-18.

## UNIVERSITY SERVICE

- **Department of Computer Science:** Chair (2011-2017), Executive committee (1989-1991, 1993-1995, 1996-1998, 2003-2004, 2005-2006), Search committee (same years), Program Review committee (1990, 1997), Undergraduate committee (1993-1998), Undergraduate Program Director (1996-1998), Promotion and Tenure committee (various years), Graduate Committee (2018-present)
- **Institute of Cognitive Science:** Executive committee (1993-1994, 1997-1998, 2001-2003, 2006-2008, 2019-2021), Search committee (2003-2004), Director's Search

committee (2002-2004), Academic programs committee, Director Academic Programs (2000-2007), Acting Director (2007), Search Committee (2019)

- **College of Engineering:** Undergraduate Academic Council (1996-2000), First Level Review Committee (2017-2018), First Level Review Committee Vice-Chair, 2018-2019, First Level Review Committee Chair, 2020-2022
- **Boulder Campus:** Administrative Review Committee for ITS (2011).
- **Department of Linguistics:** Self-Study Committee, Search committee (1995), Master's Comprehensive committee (2004), Search Committee (2019)