Marisa Ferrara Boston

Education

2008–2012	**PhD, Linguistics**, *Cornell University*, *Ithaca, NY*. Concentrations in computational linguistics and cognitive science.
2005–2008	**Graduate Study, Linguistics and Cognitive Science**, *Michigan State University, East Lansing, MI*.
2002–2005	**MA, Linguistics**, *Eastern Michigan University*, *Ypsilanti, MI*.
2004–2005	**Certificate in Language Technology**, *Eastern Michigan University*, *Ypsilanti, MI*.
1999–2001	**BA with Honors, Individualized Studies**, *Eastern Michigan University*, *Ypsilanti, MI*. Concentrations in cultural diversity, languages, and TESOL.

Dissertation

Title	*A computational model of cognitive constraints in syntactic locality.*
Advisors	John T. Hale, Mats Rooth, and Claire Cardie.

Experience

Research Experience

2014-present	**Principal Research Scientist**, *Nuance Communications*, Burlington, MA. Building natural language inference components for question answering and computer-assisted clinical coding.
2011-2013	**Senior Research Engineer**, *Nuance Communications*, Burlington, MA. Applied various NLP techniques to IBM Watson to advance clinical language understanding.
2009-2011	**Sage Research Fellow**, *Cornell University*, Ithaca, NY. Implemented locality in a dependency parser to evaluate grammatical and processing effects of islands (in preparation for dissertation). Supervised by Dr. John T. Hale.
2008-2009	**Graduate Research Assistant**, *Cornell University*, Ithaca, NY. Evaluated probabilistic and working memory syntactic complexity metrics on human behavioral data. Supervised by Dr. John T. Hale.
2005-2008	**IGERT Interdisciplinary Cognitive Science Research Fellow**, *Michigan State University*, East Lansing, MI. Developed a dependency parser suitable for modeling human sentence processing data. Supervised by Dr. John T. Hale.
2005-2006	**Cognitive Science Research Assistant**, *Michigan State University*, East Lansing, MI. Implemented a human sentence processing model of garden path phenomena. Supervised by Dr. John T. Hale.

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| 2002-2005 | **LINGUIST List Research Assistant**, *Eastern Michigan University*, Ypsilanti, MI. |

Managed publications and designed interfaces for the LINGUIST List website.
Supervised by Dr. Helen Aristar-Dry and Dr. Anthony Aristar.

2001 **Undergraduate Research Assistant**, *Eastern Michigan University*, Ypsilanti, MI.

Assisted the coordinator of the national conference, "Integrity and inclusion: Diversity in the academic curriculum and beyond.".
Supervised by Dr. Liza Cerroni-Long.

Teaching Experience

2010 **Guest Lecturer, Minimal Structure and Rational Behavior: Competence and Performance in Linguistic Theory**, *University of Michigan*, Ann Arbor, MI.

Lectured in interdisciplinary graduate seminar taught by Dr. Sam Epstein (linguistics) and Dr. Richard Lewis (psychology).

2008 **Guest Lecturer, LING 4424 Intro to Computational Linguistics**, *Cornell University*, Ithaca, NY.

Lectured in undergraduate course taught by Dr. John Hale.

2007 **Course Assistant, LIN 401 Intro to Linguistics**, *Michigan State University*, East Lansing, MI.

Created and graded assignments, examinations, and lectures.

2001 **Classroom teacher**, *St. Mary's Adult ESL Program*, Painesville, OH.

Instructed adult immigrants of varying skill levels in English conversation and grammar.

2000–2001 **ESL, Spanish, and French tutor**, *Eastern Michigan University*, Ypsilanti, MI.

Tutored individual university students.

Additional Experience

2004–2005 **Programmer**, *The LINGUIST List*, Ypsilanti, MI.

Implemented and designed interfaces for the LINGUIST List website and the E-MELD project.

2002–2004 **Publications Manager**, *The LINGUIST List*, Ypsilanti, MI.

Managed publications finances and support; maintained the website publications area.

Grants and Awards

2009–2011 **Sage Fellowship**, *Cornell University*.

2010 **Best Student Paper Award**, *Cognitive Modeling and Computational Linguistics ACL Workshop*.

2008–2009 **Graduate Research Assistantship**, *Cornell University*.

2008 **Summer Research Fellowship**, *Michigan State University*.

2008 **Graduate School Travel Award**, *Michigan State University*.

Association for Computational Linguistics Annual Meeting. Columbus, OH.

2008 **Department Travel Award**, *Michigan State University*.

CUNY Human Sentence Processing Conference 2008. Chapel Hill, NC.

2007 **Graduate School International Travel Award**, *Michigan State University*.

AMLaP 2007 Psycholinguistics Conference. Turku, Finland.

2007 **Research Enhancement Award**, *Michigan State University*.

2005–2008 **NSF-funded IGERT Cognitive Science Fellowship**, *Michigan State University*.

2003–2004 **Distinguished Graduate Student in Linguistics**, *Eastern Michigan University*.

2001 **Graduated Summa Cum Laude with Departmental Honors**, *Eastern Michigan University*.

Publications

Marisa Ferrara Boston, John T. Hale, Shravan Vasishth, and Reinhold Kliegl. Parallel processing and sentence comprehension difficulty. *Language and Cognitive Processes*, 26:301–349, 2011.

Marisa Ferrara Boston. The role of memory in superiority violation gradience. In *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics, ACL 2010*, pages 36–44, 2010. **Best Student Paper Award.*

Marisa Ferrara Boston, John T. Hale, and Marco Kuhlmann. Dependency structures derived from Minimalist Grammars. In Christian Ebert, Gerhard Jäger, and Jens Michaelis, editors, *MOL 10/11*, volume 6149 of *Lecture Notes in Computer Science*, pages 1–12. Springer-Verlag, Berlin Heidelberg, 2010.

Marisa Ferrara Boston, John T. Hale, and Marco Kuhlmann. Dependency structures derived from Minimalist Grammars. In *Proceedings of Mathematics of Language 11*, pages 11–20, 2009.

Marisa Ferrara Boston, John T. Hale, Reinhold Kliegl, and Shravan Vasishth. Surprising parser actions and reading difficulty. In *Proceedings of ACL-08: HLT Short Papers*, pages 5–8, 2008.

Marisa Ferrara Boston and Zhong Chen. Multilingual feature selection for a human sentence processing model. In *Proceedings of the Midwest Computational Linguistics Colloquium*, East Lansing, MI, 2008. Midwest Computational Linguistics Colloquium.

Marisa Ferrara Boston, John T. Hale, Umesh Patil, Reinhold Kliegl, and Shravan Vasishth. Parsing costs as predictors of reading difficulty: An evaluation using the Potsdam Sentence Corpus. *Journal of Eye Movement Research*, 2(1):1–12, 2008.

Marisa Ferrara Boston and John T. Hale. Garden-pathing in a statistical dependency parser. In *Proceedings of the Midwest Computational Linguistics Colloquium*, West Lafayette, IN, 2007. Midwest Computational Linguistics Colloquium.

Marisa A. Ferrara. Metaphors for love in Standard Italian. Master's thesis, Eastern Michigan University, 2005.

Marisa Ferrara and Steven Moran. A review of DBMS for linguistic purposes. In *E-MELD 2004 Proceedings*, 2004.

Marisa A. Ferrara. Barely understood: A qualitative ethnic analysis of midwestern women's opinions regarding nudity in advertising. Undergraduate Thesis, Eastern Michigan University, 2001.

Patents

Pending   **Four patents**, *Marisa Ferrara Boston, Dick Crouch, Erdem Ozcan, and Peter Stubley*, Nuance Communications.
Please contact me for more information.

Conference Presentations

2011   **A processing model of the strong and weak island distinction**, *Marisa Ferrara Boston.*
Poster, CUNY Human Sentence Processing Conference. March 24-26, 2011. Palo Alto, CA.

2010   **Memory activation and interference model syntactic locality gradience differently**, *Marisa Ferrara Boston.*
Poster, 16th Annual Conference of Architectures and Mechanisms for Language Processing (AMLaP). September 6-8, 2010. York, England.

2010   **The role of memory in superiority violation gradience**, *Marisa Ferrara Boston.*
ACL workshop on Cognitive Modeling and Computational Linguistics. July 15, 2010. Uppsala, Sweden.

2010   **Predicting differences in sentence processing difficulty with an implemented complexity metric**, *Sabrina Gerth, Marisa Ferrara Boston, John T. Hale, and Shravan Vasishth.*
Poster, CUNY Human Sentence Processing Conference. March 16-20, 2010. New York, NY.

2009   **Dependency structures derived from Minimalist Grammars**, *Marisa Ferrara Boston, John T. Hale, and Marco Kuhlmann.*
Mathematics of Language conference. August 20-21, 2009. Bielefeld, Germany.

2009   **Examining syntactic factors in eye fixation durations**, *Marisa Ferrara Boston, John T. Hale, Shravan Vasishth, and Reinhold Kliegl.*
Poster, CUNY Human Sentence Processing Conference. March 26-28, 2009. Davis, CA.

2009   **The interaction of surprisal and working memory cost during reading**, *Umesh Patil, Marisa Ferrara Boston, Shravan Vasishth, John Hale, and Reinhold Kliegl.*
Poster, CUNY Human Sentence Processing Conference. March 26-28, 2009. Davis, CA.

2009   **Using entropy to evaluate child language performance**, *Zhong Chen, Marisa Ferrara Boston, and John T. Hale.*
Poster, CUNY Human Sentence Processing Conference. March 26-28, 2009. Davis, CA.

2008   **Surprising parser actions and reading difficulty**, *Marisa Ferrara Boston, John T. Hale, Reinhold Kliegl, and Shravan Vasishth.*
Poster, ACL08:HLT. June 15-18, 2008. Columbus, OH.

2008   **Multilingual feature selection in a human sentence processing model**, *Marisa Ferrara Boston and Zhong Chen.*
Midwest Computational Linguistics Conference (MCLC) 5. May 10-11, 2008. East Lansing, MI.

2008   **Surprisal is useful for modeling gaze duration and regression probability**, *Shravan Vasishth, Marisa Ferrara Boston, Umesh Patil, Reinhold Kliegl, and John T. Hale.*
Poster, 21st Annual CUNY Conference on Human Sentence Processing. March 13-15, 2008. Chapel Hill, NC.

2008   **Modeling garden paths in a statistical dependency parser: Chinese, German, and English**, *Marisa Ferrara Boston and Zhong Chen and John T. Hale.*
Poster, 21st Annual CUNY Conference on Human Sentence Processing. March 13-15, 2008. Chapel Hill, NC.

2007   **Italian long distance anaphors in Dynamic Predicate Logic**, *Marisa Ferrara Boston.*
2nd Annual Midwestern Workshop on Semantics. October 6, 2007. East Lansing, MI.

2007 **Garden-pathing in a statistical dependency parser**, *Marisa Ferrara Boston and John T. Hale.*
Poster, 13th Annual Conference of Architectures and Mechanisms for Language Processing (AMLaP). August 24-28, 2007. Turku, Finland.

2007 **Integrating sentence processing theory with eye-movement control models**, *Shravan Vasishth, Marisa Ferrara Boston, Umesh Patil, John T. Hale, and Reinhold Kliegl.*
Poster, 13th Annual Conference of Architectures and Mechanisms for Language Processing (AMLaP). August 24-28, 2007. Turku, Finland.

2007 **Integrating sentence processing theory with eye-movement control models**, *Shravan Vasishth, Marisa Ferrara Boston, Umesh Patil, John T. Hale, and Reinhold Kliegl.*
Poster, 14th European Conference on Eye Movements (ECEM). August 19-23, 2007. Potsdam, Germany.

2007 **Garden-pathing in a statistical dependency parser**, *Marisa Ferrara Boston and John T. Hale.*
Midwest Computational Linguistics Conference (MCLC) 4. April 28, 2007. West Lafayette, IN.

2005 **Metaphors for love in Standard Italian**, *Marisa Ferrara.*
Eastern Michigan University Graduate Research Fair. March 28, 2005. Ypsilanti, MI.

2005 **Metaphors for love in Standard Italian**, *Marisa Ferrara.*
Michigan Academy of Sciences, Arts, and Letters Annual Meeting. March 4-5, 2005. Ypsilanti, MI.

2005 **Review of DBMS for linguistic purposes**, *Marisa Ferrara and Steven Moran.*
Poster, Linguistics Society of America Annual Meeting 2005. January 6-9, 2005. San Francisco, CA.

2004 **Review of DBMS for linguistic purposes**, *Marisa Ferrara and Steven Moran.*
E-MELD 2004 Workshop. July 15-18, 2004. Detroit, MI.

2004 **Collecting linguistic data: The case of Tigrinya**, *Marisa Ferrara.*
Eastern Michigan University Graduate Research Fair. March 25, 2004. Ypsilanti, MI.

2002 **Barely understood: A qualitative ethnic analysis of Midwestern women's opinions regarding nudity in advertising**, *Marisa Ferrara.*
Michigan Academy of Sciences, Arts, and Letters Annual Meeting. March 1-2, 2002. Mt. Pleasant, MI.

Invited Presentations

2012 **Syntax and semantics in WatsonMD**, University of Michigan.
October 26, 2012. Ann Arbor, Michigan.

2011 **Memory constraints model superiority violation gradience**, Eastern Michigan University.
January 25, 2011. Ypsilanti, Michigan.

2010 **Grammatical and cognitive constraints in *wh*-island processing**, University of Michigan.
March 23, 2010. Ann Arbor, Michigan.

2010 **Parallel processing and sentence comprehension difficulty**, University of Maryland College Park.
February 4, 2010. College Park, Maryland.

2009	**Ranked parallel dependency parsing and human comprehension difficulty**, University of Potsdam.
	January 14, 2009. Potsdam, Germany.
2008	**Ranked parallel dependency parsing and human comprehension difficulty**, University of Uppsala.
	December 10, 2008. Uppsala, Sweden.
2008	**Garden-pathing and suprisal in a statistical dependency parser**, *Open-source dependency toolkit workshop*, Copenhagen Business School.
	July 14, 2008. Copenhagen, Denmark.
2007	**Garden-pathing and suprisal in a statistical dependency parser**, *University of Potsdam*.
	June 28, 2007. Potsdam, Germany.
2007	**Garden-pathing and suprisal in a statistical dependency parser**, *The LINGUIST List*, Eastern Michigan University.
	June 22, 2007. Ypsilanti, MI.

Software

HumDep	An incremental dependency parser developed to model human sentence processing. Current stable version: 3.0.
DepPrint	A dependency grammar visualizer that outputs SVG files. Current stable version: 1.1.
NegraToConfig	A conversion tool from Negra treebank format to dependencies to Nivre parser configurations.
CTBToConfig	A conversion tool from Chinese Penn Treebank format to dependencies to Nivre parser configurations.

Skills

Natural languages

Bilingual in English and Novarese (a Gallo-siculo Sicilian dialect), near fluent in Italian, formal study in French, conversational in Spanish.

Programming languages

Java, ML, ColdFusion, AWK, XML, XSLT.

Technical skills

R, Unix, UIMA, RDF, SQL, Emacs, LaTeX.

Memberships and Service

Association for Computational Linguistics (ACL)

Linguistics Society of America (LSA)

Reviewer for the International Conference on Computational Linguistics (COLING) and the European Chapter of the Association for Computational Linguistics (EACL)

Other Interests

Certified private pilot (Single Engine Land)

Avid runner