

Carolyn Jane Anderson

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Research Focus

My research focuses on context-sensitive expressions: words whose meanings change depending on who is speaking to whom, and where. These aspects of language are some of the most challenging for artificial intelligence to grasp, because they are situational, grounded, and interactive. Exploring these questions can help us understand general cognitive behavior such as theory of mind (our beliefs about other people's mental states), and help artificial intelligence learn to use language in a dynamic, responsive way.

Education

Ph.D. in Linguistics. University of Massachusetts, Amherst Dissertation: Shifting the Perspectival Landscape Advisors: Brian Dillon and Rajesh Bhatt	February 2021
M.A. in Linguistics. University of Massachusetts, Amherst	May 2019
B.A. in Linguistics and minor in Computer Science. Swarthmore College High Honors in Linguistics and Natural Language Models	June 2014

Positions

Wellesley College, Computer Science Department Assistant Professor	2021–present
BBN Technologies, Analytics and Machine Intelligence Group Research Intern	2018–2019
Fulbright Canada, University of Victoria and McGill University Fulbright Research Fellow, supervised by Leslie Saxon and Jessica Coon	2014–2015

Funding

BBN Technologies Research Fellowship	2019 and 2020
Selkirk Linguistics Outreach Fund Award	2016
University of Massachusetts Amherst Fellowship	2015–2016
Fulbright Canada Research Scholarship	2014–2015
Programming Languages Mentoring Workshop Scholarship	2013 and 2014
Marianne Durand Frey '57 Scholar	2011–2014
National Merit Scholar	2010

Publications

1. Masis, Tessa and Carolyn Jane Anderson. ProSPer: Probing Human and Neural Network Language Model Understanding of Spatial Perspective. *Proceedings of the BlackboxNLP workshop at the Conference on Empirical Methods in Natural Language Processing* 2021.
2. Phipps-Costin, Luna, Carolyn Jane Anderson, Michael Greenberg, and Arjun Guha. Solver-based Gradual Type Migration. *Proceedings of the ACM SIGPLAN Conference on Object Oriented Programming, Systems, Languages and Applications (OOPSLA)* 2021. **Selected for oral presentation.**
3. Anderson, Carolyn Jane. 2021. Tell Me Everything You Know: A Conversation Update System for the Rational Speech Acts Framework. *Proceedings of the Society for Computation in Linguistics (SCiL)* 4.
4. Anderson, Carolyn Jane. 2021. Coming in, or going out? Measuring the effect of discourse factors on perspective prominence. *Proceedings of Experiments in Linguistic Meanings (ELM)* 1.
5. Anderson, Carolyn Jane. 2019. *Tomorrow* is not always a day away. *Proceedings of Sinn und Bedeutung (SuB)* 23. **Selected for oral presentation.**
6. Anderson, Carolyn Jane and Brian Dillon. 2019. Guess who's coming (and who's going): bringing perspective to the Rational Speech Acts framework. *Proceedings of the Society for Computation in Linguistics (SCiL)* 2.
7. Anderson, Carolyn Jane and Brook Danielle Lillehaugen. 2016. Negation in Colonial Valley Zapotec. *Transactions of the Philological Society* 114(3).
8. Anderson, Carolyn Jane, Nate Foster, Arjun Guha, Jean-Baptiste Jeannin, Dexter Kozen, Cole Schlesinger, and David Walker. 2014. NetKAT: Semantic foundations for networks. *Proceedings of the ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)* 2014. **Selected for oral presentation.**

Conference Presentations

1. Carolyn Jane Anderson. Protagonist-Mediated Perspective. Talk to be given at the Narration in Context workshop at the Deutsche Gesellschaft für Sprachwissenschaft (DGfS), 2022.
2. Bolaños Lewen, Carina and Carolyn Jane Anderson. (Some) parentheses are focus-sensitive operators. Talk presented at Sinn und Bedeutung (SuB) 26, 2021.
3. Anderson, Carolyn Jane. Diagnosing the semantics of perspectival expressions. Poster presented at the Annual Meeting of the Linguistic Society of America (LSA), 2021.
4. Anderson, Carolyn Jane and Tessa Masis. Can neural network language models understand spatial perspective? Paper presented at the Bridging AI and Cognitive Science (BAICS) workshop, at the International Conference on Learning Representations (ICLR), 2020.
5. Anderson, Carolyn Jane and Brian Dillon. Taking other perspectives into account: an RSA model of perspectival reasoning. Talk given at Rational Approaches in Language Science (RAiLS), 2019.
6. Anderson, Carolyn Jane. Explaining the progressive motion verb puzzle in Zapotec. Talk given at the Texas Linguistics Society, 2019.
7. Anderson, Carolyn Jane. *Tomorrow* isn't always a day away. Poster presented at the 31st annual CUNY Human Sentence Processing Conference, 2018.
8. Anderson, Carolyn Jane. The San Lucas Quiaviní Zapotec andative and venitive. Talk presented at the Society for the Study of Indigenous Languages of the Americas (SSILA) annual meeting, 2018. **Honorable Mention, Best Student Paper Presentation**

9. Anderson, Carolyn Jane. The andative and venitive construction in San Lucas Quiaviní Zapotec. Talk presented at Multi-Verb Constructions: Semantic, Syntactic and Typological Perspectives (MVC), 2017.
10. Anderson, Carolyn Jane and Brook Danielle Lillehaugen. The morphosyntax of negation in Colonial Valley Zapotec. Talk presented at the Society for the Study of Indigenous Languages of the Americas (SSILA) annual meeting, 2015.
11. Anderson, Carolyn Jane and Brook Danielle Lillehaugen. La morfosintaxis de la negation en el zapoteco del Valle colonial. Talk presented at Coloquio sobre Lenguas Otomangues y Vecinas (COLOV) IV: Mario Molina Cruz, 2014.
12. Anderson, Carolyn Jane. Language ideology and human rights doctrine in Morocco. Talk presented at New Ways of Analyzing Variation (NWAY) 42, 2013.

Manuscripts

1. Anderson, Carolyn Jane and Brian Dillon. 2021. Grammatical perspective-taking in comprehension and production. Under revision.
2. Anderson, Carolyn Jane. 2021. Untangling classes of context-sensitivity: a closer look at the semantics of American English *tomorrow*.
3. Anderson, Carolyn Jane. 2021. Shifting the Perspectival Landscape: Methods for Encoding, Identifying, and Selecting Perspectives. Dissertation, University of Massachusetts, Amherst.
4. Anderson, Carolyn Jane. 2017. The andative and venitive construction in San Lucas Quiaviní Zapotec. Ms., University of Massachusetts, Amherst.
5. Anderson, Carolyn Jane. 2014. I talk it and I feel it: Language attitudes of Moroccan university students. Honors thesis, Swarthmore College.

Invited Talks

“A Bayesian approach to modeling grammatical perspective-taking.”

- Brandeis University, Department of Linguistics and Computational Linguistics. 2021.

“Guess Who’s Coming to Dinner: a Bayesian approach to modeling perspective.”

- Boston University, Department of Linguistics. 2020.
- Cornell Tech, Department of Computer Science. 2020.
- Colgate University, Department of Computer Science. 2019.
- Denison University, Department of Data Analytics. 2019.
- James Madison University, Department of Computer Science. 2019.
- Mount Holyoke College, Department of Computer Science. 2019.
- Occidental College, Department of Computer Science. 2019.
- University of Massachusetts, Amherst, Department of Computer Science. 2019.
- Wellesley College, Department of Computer Science. 2019.

Other Presentations

1. Anderson, Carolyn Jane. Reasoning about perspectives. Abstract selected for presentation at the Science Speed Geeking event at the XPrag Summer School, 2019.
2. Anderson, Carolyn Jane. Use your words (better): two projects on making better use of text for ASR. Intern presentation, BBN Technologies, 2019.
3. Anderson, Carolyn Jane. Neural networks for ASR: focusing on the text. Intern presentation, BBN Technologies, 2018.

Teaching

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| 1. Instructor, Wellesley College, Computer Science Department
CS111: Introduction to Computer Science | Fall 2021 |
| 2. Instructor, Wellesley College, Computer Science Department
CS251: Principles of Programming Languages | Fall 2021 |
| 3. Instructor, University of Massachusetts Amherst, Linguistics Department
First Year Seminar: Technology for Language Revitalization | Fall 2019 |
| 4. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department
Language Processing and the Brain (Instructor: Brian Dillon) | Fall 2019 |
| 5. Instructor, Mt. Holyoke College, Computer Science Department
Programming Languages | Fall 2018 |
| 6. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department
Introduction to Linguistic Theory (Instructor: Seth Cable) | Spring 2017 |
| 7. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department
Cognitive Modeling (Instructor: Gaja Jarosz) | Fall 2017 |

Advising

Wellesley College

Funing Yang	2021-present
Senior thesis: A Representation Pipeline for Literary Characters	
Abigail Kim	2021-present
Project: Quantifying word embedding bias from historical events	
Aizah Rao	2021-present
Project: Quantifying word embedding bias from historical events	
Alexandra Chin	2021-present
Project: Quantifying word embedding bias from historical events	
Kiara Liu	2021-present
Project: Inspector BERT: murder mysteries as a case study on large language model understanding of character	
Angel Ding	2021-present
Project: Machine learning tools for identifying and classifying marginalia in medieval manuscripts	

Rachelle Hu	2021-present
Project: How do beginning programmers use code generation tools?	

University of Massachusetts, Amherst

Tessa Masis	2019-2020
Project: Experimental and computational modeling of perspectival motion verbs	

Alicia LeClair	2017
Project: Perspectival motion verbs in Western Tlacolula Valley Zapotec	

Other

Carina Bolaños Lewen	2020-present
Project: Semantics and pragmatics of perspectival motion verbs and parentheticals	

Awards

Computing Research Association Outstanding Undergraduate Researchers Award Finalist	2014
The Linguistics Prize in Applications of Theory, Swarthmore College	2014
Phi Beta Kappa Inductee	2014
Philip M. Hicks Prize for Best Critical Essay	2013

Research Assistantships

University of Massachusetts Amherst, Linguistics Department	2017
Research Assistant	
Primary investigator: Seth Cable	
Topic: Semantics of Endangered Languages in North America	

University of Massachusetts Amherst, Linguistics Department	2016
Research Assistant	
Primary investigator: Gaja Jarosz	
Topic: Computational phonology	

Haverford College, Ticha Digital Humanities Project	2014
Research Intern	
Advisor: Brook Lillehaugen	
Topic: Web-based preservation and presentation of Colonial Valley Zapotec texts	

Cornell University, Computer Science Department	2013
Research Intern, supervised by Nate Foster	
Topic: NetKAT: a domain-specific language for networking	

Service

Volunteer, Skype A Scientist	2020
Organizer, Neural Networks in Linguistics Reading Group	2018-2020
Graduate Representative to Faculty Meetings	2016-2017

Reviewing

Program committee, <i>Society for Computation in Linguistics</i>	2022
Ad hoc reviewer, ACL Rolling Review	2021
Ad hoc reviewer, <i>Psychological Review</i>	2021
Ad hoc reviewer, <i>Language</i>	2020

Skills

Natural Languages

- Bangla (novice)
- French (advanced)
- German (intermediate)
- Modern Standard Arabic (intermediate)
- Spanish (intermediate)
- Western Tlacolula Valley Zapotec (fieldwork)

Domain Specific Languages

PyTorch, TensorFlow, WebPPL

Programming Languages

C++, Coq, Figaro, Haskell, Java, JavaScript, Python, R, Racket