

# 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

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

## Positions

<b>Wellesley College, Computer Science Department</b> Assistant Professor	2021–present
<b>BBN Technologies, Analytics and Machine Intelligence Group</b> Research Intern	2018–2019
<b>Fulbright Canada, University of Victoria and McGill University</b> 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. Silva-Robles, Fe, Felipe H. Lopez, John Duff, and Carolyn Jane Anderson. 2022. Eliciting Associated Motion Constructions in Two Zapotec Languages. *Semantic Fieldwork Methods*.
2. Bolaños Lewen, Carina and Carolyn Jane Anderson. 2022. (Some) parentheses are focus-sensitive operators. *Proceedings of Sinn und Bedeutung* (SuB) 26.
3. Masis, Tessa and Carolyn Jane Anderson. ProSPer: Probing Human and Neural Network Language Model Understanding of Spatial Perspective. 2021. *Proceedings of the BlackboxNLP workshop at the Conference on Empirical Methods in Natural Language Processing* 2021.
4. Phipps-Costin, Luna, Carolyn Jane Anderson, Michael Greenberg, and Arjun Guha. 2021. 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.**
5. 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.
6. 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.
7. Anderson, Carolyn Jane. 2019. *Tomorrow* is not always a day away. *Proceedings of Sinn und Bedeutung* (SuB) 23. **Selected for oral presentation.**
8. 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.
9. Anderson, Carolyn Jane and Brook Danielle Lillehaugen. 2016. Negation in Colonial Valley Zapotec. *Transactions of the Philological Society* 114(3).
10. 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. Anderson, Carolyn Jane. Diagnosing the semantics of perspectival expressions. Poster presented at the Annual Meeting of the Linguistic Society of America (LSA), 2021.
3. 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.
4. 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.
5. Anderson, Carolyn Jane. Explaining the progressive motion verb puzzle in Zapotec. Talk given at the Texas Linguistics Society, 2019.
6. Anderson, Carolyn Jane. *Tomorrow* isn't always a day away. Poster presented at the 31st annual CUNY Human Sentence Processing Conference, 2018.

7. 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**
8. 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.
9. 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.
10. 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.
11. Anderson, Carolyn Jane. Language ideology and human rights doctrine in Morocco. Talk presented at New Ways of Analyzing Variation (NWAV) 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

1. Instructor, Wellesley College, Computer Science Department Spring 2022  
**CS232: Artificial Intelligence**
2. Instructor, Wellesley College, Computer Science Department Fall 2021, Spring 2022  
**CS111: Introduction to Computer Science**
3. Instructor, Wellesley College, Computer Science Department Fall 2021  
**CS251: Principles of Programming Languages**
4. Instructor, University of Massachusetts Amherst, Linguistics Department Fall 2019  
**First Year Seminar: Technology for Language Revitalization**
5. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department Fall 2019  
**Language Processing and the Brain** (Instructor: Brian Dillon)
6. Instructor, Mt. Holyoke College, Computer Science Department Fall 2018  
**Programming Languages**
7. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department Spring 2017  
**Introduction to Linguistic Theory** (Instructor: Seth Cable)
8. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department Fall 2017  
**Cognitive Modeling** (Instructor: Gaja Jarosz)

## Advising

### Wellesley College Research Projects

Abigail Kim, Aizah Rao, Alexandra Chin	2021-present
Quantifying word embedding bias from historical events	
Kiara Liu	2021-present
Inspector BERT: murder mysteries as a case study on language model narrative understanding	
Kiara Liu and Miranda Zhu	2022-present
Building an NLP pipeline for Chinese literature	
Angel Ding	2021-present
Machine learning tools for identifying and classifying marginalia in medieval manuscripts	
Rachelle Hu and Sydney Nguyen	2021-present
How do beginning programmers use code generation tools?	

## Wellesley College Honors Theses

Skylar Kolisko 2022-present  
Exploring Name Bias in NLP Models

Funing Yang 2021-2022  
An Extraction and Representation Pipeline for Literary Characters

## 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