

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. More broadly, I am interested in how conversation participants use their knowledge about each other's mental states. Do speakers accommodate their listeners' visual perspectives on the scene? Do listeners use their knowledge of a speaker's opinions to better interpret their sentences?

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 Summer 2020 (expected)
Thesis title: Modeling Perspective
Advisors: Brian Dillon and Rajesh Bhatt

M.A. in Linguistics. University of Massachusetts, Amherst May 2019

B.A. in Linguistics and minor in Computer Science. Swarthmore College June 2014
High Honors in Linguistics and Natural Language Models

Positions

BBN Technologies, Analytics and Machine Intelligence (Cambridge, MA) June 2018–present
Research Intern

Topics:

- Multi-dialect recurrent neural network language models for ASR
- Masked neural language model prediction for acoustic model rescoring
- Neural machine translation for post-processing numerical terms in ASR
- Statistical analysis of keyword search performance

University of Massachusetts Amherst, Linguistics Department Spring 2017

Research Assistant

Primary investigator: Seth Cable

Funder: NSF Project Grant BCS-1322770

Topic: Semantics of Endangered Languages in North America

University of Massachusetts Amherst, Linguistics Department Fall 2016

Research Assistant

Primary investigator: Gaja Jarosz

Topic: Computational phonology

Fulbright Canada, University of Victoria and McGill University September 2014–May 2015

Fulbright Research Fellow

Advisors: Leslie Saxon and Jessica Coon

Topic: Technology in First Nations Language Revitalization

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

June 2014–August 2014

Cornell University, Computer Science Department (Ithaca, NY)
Research Intern
Advisor: Nate Foster
Topic: NetKAT: a domain-specific language for networking

May 2013–August 2013

Publications

Journal Articles

1. Anderson, Carolyn Jane and Brook Danielle Lillehaugen. 2016. Negation in Colonial Valley Zapotec. *Transactions of the Philological Society* 114(3).

Peer-reviewed conference proceedings

1. Anderson, Carolyn Jane and Brian Dillon. 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)*, 2019.
2. Anderson, Carolyn Jane, Nate Foster, Arjun Guha, Jean-Baptiste Jeannin, Dexter Kozen, Cole Schlesinger, and David Walker. NetKAT: Semantic foundations for networks. *ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, 2014. **Selected for oral presentation.**

Conference proceedings (peer-reviewed abstract)

1. Anderson, Carolyn Jane. *Tomorrow* is not always a day away. *Proceedings of Sinn und Bedeutung (SuB)* 23, 2019. **Selected for oral presentation.**

Manuscripts

1. Anderson, Carolyn Jane. *Tomorrow* isn't always a day away: Non-utterance time readings of *tomorrow*. Under revision.

Conference Presentations

1. 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.
2. Anderson, Carolyn Jane. Explaining the progressive motion verb puzzle in Zapotec. Talk given at the Texas Linguistics Society, 2019.
3. Anderson, Carolyn Jane. *Tomorrow* isn't always a day away. Poster presented at the 31st annual CUNY Human Sentence Processing Conference, 2018.
4. 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**
5. 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.

6. 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.
7. 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.
8. Anderson, Carolyn Jane. Language ideology and human rights doctrine in Morocco. Talk presented at New Ways of Analyzing Variation (NWAV) 42, 2013.

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.

Grants and Awards

Selkirk Linguistics Outreach Fund Award Project title: <i>Perspective in Valley Zapotec</i>	2016
University of Massachusetts Amherst Fellowship	2015-2016
Fulbright Canada Research Scholarship Project title: <i>Old Languages, New Technologies: Youth Engaged in First Nations Language Revitalization</i>	2014-2015
Phi Beta Kappa Inductee	2014
The Linguistics Prize in Applications of Theory, Swarthmore College	2014
Computing Research Association Outstanding Undergraduate Researchers Award Finalist	2014
Programming Languages Mentoring Workshop Scholarship	2014
Programming Languages Mentoring Workshop Scholarship	2013
Philip M. Hicks Prize for Best Critical Essay Recipient	2013
Marianne Durand Frey '57 Scholar	2011-2014
National Merit Scholar	2010

Teaching

1. Instructor, University of Massachusetts Amherst, Linguistics Department
First Year Seminar: Technology for Language Revitalization Fall 2019
2. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department
Language Processing and the Brain (Instructor: Brian Dillon) Fall 2019

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| 3. Instructor, Mt. Holyoke College, Computer Science Department
Programming Languages | Fall 2018 |
| 4. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department
Introduction to Linguistic Theory (Instructor: Seth Cable) | Spring 2017 |
| 5. Teaching Assistant, University of Massachusetts Amherst, Linguistics Department
Cognitive Modeling (Instructor: Gaja Jarosz) | Fall 2017 |

Service

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| • Organizer: Neural Networks in Linguistics Reading Group | 2018-present |
| • Graduate Representative to Faculty Meetings | 2016–2017 |

Advising

- **Undergraduate Research Assistants**
 - Tessa Patapoutian
Project: Perspectival motion verbs in production
 - Alicia LeClair
Project: Perspectival motion verbs in Western Tlacolula Valley Zapotec

Skills

Natural Languages

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

Domain Specific Languages

- Tensorflow (intermediate)
- WebPPL (intermediate)

Programming Languages

- C++ (novice)
- Coq (intermediate)
- Figaro (intermediate)
- Haskell (novice)
- Java (intermediate)
- JavaScript (intermediate)
- Python (advanced)
- R (advanced)
- Racket (advanced)