Sarah Brogden Payne

Department of Linguistics and Institute for Advanced Computational Science

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Education

Degree-seeking programs

Stony Brook University — *Stony Brook, NY*

Ph.D., Linguistics — *Entered Fall 2022*

- Institute for Advanced Computational Science Graduate Research Fellow

University of Pennsylvania — *Philadelphia, PA*

B.A., Linguistics & Computer and Information Science, Summa Cum Laude — *May 2022*

- Minor: Cognitive Science
- Honors thesis: "When Collisions are a Good Thing: the Acquisition of Morphological Marking" advised by Dr. Charles Yang

Non-degree-seeking programs

Indiana University Bloomington — *Bloomington, IN*

Dual Enrollment, Math & Computational Linguistics — *2017-18*

- GPA: 4.0/4.0

Research Interests

Language Acquisition: phonological, morphological, and morphophonological acquisition; language in the mind & brain; syntax-semantics interface in acquisition; sparsity of the input; experimental methods; learnability

Computational Linguistics: algorithmic models of acquisition; word learning; computational and mathematical approaches to phonology, and morphology, and syntax

Natural Language Processing: robustness; bias, bias mitigation, and bias analysis in large-scale models

Awards & Fellowships

2022	**Paula Menyuk Travel Award**, Boston University Conference on Language Development
2022	**Graduate Fellow**, NSF Graduate Research Fellowships Program
2022	**Graduate Fellow**, Institute for Advanced Computational Science Graduate Research Fellowship
2022	**Dean's Scholar**, University of Pennsylvania
2022	**Henry Hoenigswald Thesis Prize in Linguistics**, University of Pennsylvania
2022	**Honorable Mention**, NDSEG Graduate Fellowship
2021	**Elected to Phi Beta Kappa**, University of Pennsylvania
2018-19, 2021-22	**Dean's List**, University of Pennsylvania (*Temporarily discontinued due to COVID-19*)

Publications

Articles

Sarah Payne and Charles Yang (to appear). *Making Good on BADS*. Italian Journal of Linguistics

Peer-Reviewed Conference Proceedings

Sarah Payne (to appear). *Contrast, Sufficiency, and the Acquisition of Morphological Marking*. Proceedings of the 47th annual Boston University Conference on Language Development.

Caleb Belth, **Sarah Payne**, Deniz Beser, Jordan Kodner, & Charles Yang (2021). *The Greedy and Recursive Search for Morphological Productivity.* Proceedings of the 43rd Annual Meeting of the Cognitive Science Society. 42(1):2869-2875.

Deniz Beser, Joe Cecil, Marjorie Freedman, Jacob Lichtefeld, Mitch Marcus, **Sarah Payne**, & Charles Yang (2021). *A Grounded Approach to Modeling Generic Knowledge Acquisition.* Proceedings of the 43rd Annual Meeting of the Cognitive Science Society. 42(1):2450-2456.

Sarah Payne, Jordan Kodner, & Charles Yang (2021). *Learning Morphological Productivity as Meaning-Form Mappings.* Proceedings of the Annual Meeting of the Society for Computation in Linguistics. 4(1):177-187.

Manuscripts

Sarah Payne (2022). *When Collisions are a Good Thing: the Acquisition of Morphological Marking*. Senior Thesis in Linguistics, University of Pennsylvania.

Ryan Gabbard, Deniz Beser, Jacob Lichtefeld, Joe Cecil, Mitch Marcus, **Sarah Payne**, Charles Yang, & Marjorie Freedman (2021). *ADAM: A Sandbox for Implementing Language Learning.* ArXiv, abs/2105.02263.

Presentations

Sarah Payne (2022). *Contrast, Sufficiency, and the Acquisition of Morphological Marking*. Talk given at the 47th annual Boston University Conference on Language Development.

Sarah Payne, Caleb Belth, Jordan Kodner, & Charles Yang (2022). *Searching for Morphological Productivity*. Talk given at the 96th Meeting of the Linguistics Society of America.

{Caleb Belth, **Sarah Payne**}, Jordan Kodner, & Charles Yang (2021). *Searching for Morphological Productivity*. Talk given at the 46th annual Boston University Conference on Language Development.

Sarah Payne, Caleb Belth, Jordan Kodner, & Charles Yang (2021). *The Recursive Search for Morphological Productivity*. Poster presented at the 5th Annual American International Morphological Meeting.

Sarah Payne, Peng Qian, Ethan Wilcox, & Roger Levy (2021). *Particle Filtering with Neural Language Models: Modelling the Effects of Memory on Incremental Sentence Processing* . Poster presented at the MIT Center for Brains, Minds and Machines Summer Research Poster Session.

Ryan Gabbard, Jacob Lichtefeld, Deniz Beser, Joe Cecil, Mitch Marcus, **Sarah Payne,** Charles Yang, & Marjorie Freedman (2021). *Grounding Word Learning Across Situations*. Poster presented at the 43rd Annual Meeting of the Cognitive Science Society.

Sarah Payne (2019). *Categorization of Novel Referents by a Seeing Eye Dog*. Talk given at the University of California Berkeley Undergraduate Linguistics Symposium.

Sarah Payne & Chris Callison-Burch (2019). *From Word Meaning to Phrase Meaning: Compositionality*. Poster presented at the University of Pennsylvania Center for Undergraduate Research Poster Session.

Projects

Center for Brains, Minds, and Machines Summer Research Fellow, MIT *Cambridge, MA*

Advisor: Dr. Roger Levy *2021*

- Modeled working memory limitations on incremental processing of garden-path sentences with surprisal

Research Assistant Intern, Information Sciences Institute (ISI) *Waltham, MA*

Advisors: Dr. Ryan Gabbard & Dr. Marjorie Freedman *2020*

- Helped develop a cognitively-plausible learner that learns from concrete situations and syntactic bootstrapping and implemented this model in Mandarin Chinese

Visiting Research Assistant *College Park, MD*

Advisor: Dr. Dan Swingley, Dr. Thomas Schatz, & Dr. Naomi Feldman *2020*

- Used bottleneck features in Kaldi to develop phone embeddings that can be tested against human judgement

Research Assistant, Infant Language Center *Philadelphia, PA*
Advisor: Dr. Dan Swingley *2019-20*
- Created phoneme embeddings based on Bottleneck Features that are optimized to mimic the perception of an infant

Penn Undergraduate Research Mentoring Program (PURM) *Philadelphia, PA*
Advisor: Dr. Chris Callison-Burch *2019*
- Developed multimodal phrase embeddings by incorporating visual and syntactic for a 20% improvement on test accuracy.

Research Assistant, Multimodal Embeddings *Philadelphia, PA*
Advisor: Dr. Chris Callison-Burch *2018-19*
- Created multi-modal word embeddings by imagining mappings from words to images

Teaching Experience

Fall 2021 **CIS 380: Operating Systems**, Teaching Assistant, *University of Pennsylvania*
Spring 2021 **CIS 240: Intro to Computer Architecture**, Teaching Assistant, *University of Pennsylvania*
Fall 2020 **NETS 212: Scalable and Cloud Computing**, Teaching Assistant, *University of Pennsylvania*
Spring 2019 **CIS 192: Intro to Python**, Teaching Assistant, *University of Pennsylvania*

Service and Outreach

Academic Service

Reviewing
Conferences: *2021-present*
- Cognitive Science Conference
- Conference on Empirical Methods in Natural Language Processing (EMNLP)
- Asia-Pacific Association of Computational Linguistics Conference (AACL)

Session Chair
Conferences:
- Workshop on Model Theoretic Representations in Phonology (Stony Brook, NY, 2022)

Social Media Manager, Institute for Advanced Computational Science Student Association
Student Member, Justice, Equity, Diversity, and Inclusion Committee in Linguistics, Stony Brook University

Other Service

Elected Member, University Council *Philadelphia, PA*
University of Pennsylvania *2021-22*
- Elected to represent the concerns and voices of the anti-violence community and survivors to university administrators

Chair, Abuse and Sexual Assault Prevention (ASAP) *Philadelphia, PA*
University of Pennsylvania *2021-2022*
- Lead board and general meetings and collaborations; co-host Take Back the Night with other universities in Philadelphia

Other

Memberships

Linguistic Society of America, Student Member

Languages

Native: British and American English
Intermediate: Spanish, Latin

Technical Skills

Proficient: Python, C, C++, Git, Bash, Linux
Intermediate: Java, R, LaTex, Amazon Web Services
Beginner: JavaScript, HTML/CSS