

# Sarah Brogden Payne

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## Education

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### PhD – Stony Brook University

2022-present

Doctor of Philosophy in Linguistics

Institute for Advanced Computational Science Graduate Research Fellow

**Co-Advisors:** Dr. Jordan Kodner & Dr. Jeffrey Heinz

### BA – University of Pennsylvania

May 2022

Bachelor of Arts in Linguistics & Computer and Information Science, *summa cum laude*

**Minor:** Cognitive Science

**Thesis:** "[When Collisions are a Good Thing: The Acquisition of Morphological Marking](#)"

**Advisor:** Dr. Charles Yang

## Non-Degree-Seeking Programs

### Dual Enrollment – Indiana University Bloomington

2017-18

Mathematics & Computational Linguistics

## Employment

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### Research Positions

#### Summer Research Fellow – MIT Center for Brains, Minds and Machines

2021

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

**Advisor:** Dr. Roger Levy

#### Research Assistant Intern – Information Sciences Institute (USC)

2020

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

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

#### Visiting Research Assistant – University of Maryland College Park

2020

Used bottleneck features in Kaldi to develop phone embeddings that can be tested against human judgements.

**Advisors:** Dr. Dan Swingley (Penn), Dr. Thomas Schatz, & Dr. Naomi Feldman

#### Research Assistant – University of Pennsylvania Infant Language Center

2019-20

Created phoneme embeddings using Bottleneck Features that are optimized to mimic the perception of an infant.

**Advisor:** Dr. Dan Swingley

#### Research Assistant – Penn Undergraduate Research Mentoring Program

2019

Developed multimodal phrase embeddings by incorporating visual and syntactic information for a 20% improvement on test accuracy.

**Advisor:** Dr. Chris Callison-Burch

**Research Assistant – University of Pennsylvania Natural Language Processing Group** 2018-19  
Created multi-modal word embeddings by imagining mappings from words to images.  
**Advisor:** Dr. Chris Callison-Burch

## **Other Relevant Employment**

**Teaching Assistant Trainer – University of Pennsylvania School of Engineering** 2021-22  
Nominated to lead training sessions for new teaching assistants with other experienced TAs.

**Peer Writing Tutor – University of Pennsylvania Marks Family Writing Center** 2019-20  
Nominated position based on performance in Penn's writing seminar; helped students grow as writers by holding weekly appointments and offering drop-in assistance.

**Cloud Technology Support Intern – Indiana University Bloomington** 2017-18  
Planned and helped execute the rollout of Adobe Sign for secure, campus-wide E-signature services; created training materials and trained users on AWS, Box, and Adobe products to help improve user experience.

## **Awards & Fellowships**

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**Fellow – National Science Foundation Graduate Research Fellowship Program (GRFP)** 2022-25  
3-year fellowship providing full financial support (\$37,000/year stipend and \$4,000/year research allowance), approximately 15% award rate.

**Fellow – Institute for Advanced Computational Science Graduate Research Fellow** 2022-27  
5-year fellowship providing full financial support at NSF GRFP rate.

**Graduate Research Empowering and Accelerating Talent (GREAT) Award** 2023  
\$5,000 in flexible funding for winners and honorable mentions of the National Science Foundation's Graduate Research Fellowship Program award, provided by the State University of New York.

**Paula Menyuk Travel Award** 2022  
\$350 in travel funding provided to student authors with top-rated abstracts by the Boston University Conference on Language Development.

**Honorable Mention – National Defense Science & Engineering Graduate Fellowship (NDSEG)** 2022  
U.S. Dept of Defense (Army Research Office) fellowship for basic research.

**University of Pennsylvania Dean's Scholar** 2022  
One of 9 students from Penn's College of Arts and Sciences recognized annually for academic achievement.

**Henry Hoenigswald Thesis Prize in Linguistics** 2022  
Annual award of \$150 given to a Linguistics major at the University of Pennsylvania whose thesis is deemed to have made a significant scientific contribution to the field.

**Phi Beta Kappa** 2021  
Delta Chapter, University of Pennsylvania.

## Publications

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**Note:** Proceedings in the Association for Computational Linguistics Anthologies (ACL, NAACL, EMNLP, SCiL) are peer-reviewed and archival. Proceedings in CogSci are peer-reviewed but non-archival. Proceedings in other venues are abstract-reviewed and non-archival.

**Note:** {Brackets indicate equal contribution and alphabetical author ordering}.

## Articles & Book Chapters

- Payne, S.** and Kodner, J. (*accepted*). Some Innate Characteristics of Neural Models of Morphological Inflection. In *Linguistics Vanguard*. De Gruyter.
- Kodner, J., **Payne, S.**, Khalifa, S., and Liu, Z. (*accepted*). Evaluating Learning Trajectories of Neural Morphology Acquisition Models. In *Linguistics Vanguard*. De Gruyter.
- Dressler, W. U. and **Payne, S.** (*to appear*). Self-Organization in Acquisition. In *Cambridge Handbook of Natural Linguistics*. Cambridge University Press.
- Payne, S.** and Yang, C. (2023). *Making Good on BADs*. *Italian Journal of Linguistics*, 35(1):215–230.

## Conference & Workshop Proceedings

- Payne, S.** (2024). *A Generalized Algorithm for Learning Positive and Negative Grammars with Unconventional String Models*. *Proceedings of the Society for Computation in Linguistics (SCiL)*, pages 75–85.
- Payne, S.** (2024). *Root Infinitives and the Acquisition of Morphological Marking*. In *Penn Working Papers in Linguistics*, 30(1):117–126.
- Kodner, J. and {Khalifa, S. and **Payne, S.**} (2023). *Exploring Linguistic Probes for Morphological Generalization*. In Bouamor, H., Pino, J., and Bali, K., editors, *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing*, pages 8933–8941.
- Kodner, J., {**Payne, S.** and Khalifa, S.}, and Liu, Z. (2023). *Morphological Inflection: A Reality Check*. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL; Volume 1: Long Papers)*, pages 6082–6101.
- Khalifa, S., **Payne, S.**, Kodner, J., Broselow, E., and Rambow, O. (2023). *A Cautious Generalization Goes a Long Way: Learning Morphophonological Rules*. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL; Volume 1: Long Papers)*, pages 1793–1805.
- Kodner, J., {Khalifa, S. and **Payne, S.**}, and Liu, Z. (2023). *Re-Evaluating the Evaluation of Neural Morphological Inflection Models*. In *Proceedings of the 45th Annual Meeting of the Cognitive Science Society (CogSci)*, 45:3259–3267.
- Payne, S.** (2023). *Contrast, Sufficiency, and the Acquisition of Morphological Marking*. In *Proceedings of the 47th Boston University Conference on Language Development*, 47(1):604–617.
- Belth, C., **Payne, S.**, Beser, D., Kodner, J., and Yang, C. (2021). *The Greedy and Recursive Search for Morphological Productivity*. In *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society (CogSci)*, 43:2869–2875.
- Beser, D., Cecil, J., Freedman, M., Lichtefeld, J., Marcus, M., **Payne, S.**, and Yang, C. (2021). *A Grounded Approach to Modeling Generic Knowledge Acquisition*. 42(1):2450–2456.
- Payne, S.**, Kodner, J., and Yang, C. (2021). *Learning Morphological Productivity as Meaning-Form Mappings*. In *Proceedings of the Society for Computation in Linguistics 2021 (SCiL)*, pages 177–187.

## Manuscripts

- Kodner, J., **Payne, S.**, and Heinz, J. (2023). [Why Linguistics Will Thrive in the 21st Century: A Reply to Piantadosi \(2023\)](#). *Preprint on Lingbuzz*.
- Payne, S.** (2022). [When Collisions are a Good Thing: the Acquisition of Morphological Marking](#). Bachelor's thesis, University of Pennsylvania.
- Gabbard, R., Beser, D., Lichtefeld, J., Cecil, J., Marcus, M., **Payne, S.**, Yang, C., and Freedman, M. (2021). [ADAM: A Sandbox for Implementing Language Learning](#).

## Presentations

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### Invited Talks

- Payne, S.** (2024). [Marginal Sequences as a Window into Phonotactic Acquisition](#). LingLunch, MIT.
- Payne, S.** (2024). [Morphological Generalization by Children & Computers](#). Department of Brain & Cognitive Sciences, MIT.
- Payne, S.** (2023). [Possible and Probable Errors in Child Language](#). 52nd Annual Poznań Linguistics Meeting.
- Payne, S.** (2023). [Getting the Right Stuff Wrong: Modeling the Acquisition of Inflectional Morphology](#). Computational Linguistics Speaker Series, City University of New York.
- Payne, S.** (2022). [Contrast, Sufficiency, and the Acquisition of Morphological Marking](#). Berwick Lab, MIT.

### Conference & Workshop Presentations

- Payne, S.** (2025). [An Adequate Theory of Morphological Blind Alley Developments](#). Talk given at the 2025 Meeting of the Linguistic Society of America.
- Kodner, J. and **Payne, S.** (2025). [Formally Defining the Learning Setting for Child Language Acquisition](#). Talk given at the "Computational Models of Learnability and Acquisition of Morphology and Phonology" special session at the 2025 Meeting of the Linguistic Society of America.
- Payne, S.** (2024). [A Generalized Algorithm for Learning Positive and Negative Grammars with Unconventional String Models](#). Talk given at the 2024 Meeting of the Society for Computation in Linguistics.
- Payne, S.** (2024). [Marginal Sequences are Licit but Unproductive](#). Poster presented at the 2024 Meeting of the Linguistic Society of America.
- Payne, S.** (2023). [Marginal Sequences are Licit but Unproductive](#). Poster presented at the 2023 Annual Meeting of Phonology.
- Payne, S.** (2023). [Licit and Marginal Phonotactics: A Difference in Productivity](#). Poster presented at the Morris Halle Centenary Conference.
- Kodner, J., {Khalifa, S. and **Payne, S.**}, and Liu, Z. (2023). [Re-Evaluating Neural Models of Morphological Inflection](#). Poster presented at the 45th Annual Meeting of the Cognitive Science Society.
- Payne, S.** (2023). [Root Infinitives and the Acquisition of Morphological Marking](#). Talk given at the 47th Penn Linguistics Conference.
- Payne, S.** (2023). [Spheres and Spaghetti: Generalization and Exceptionality in Phonotactic Acquisition](#). Talk given at the 23rd Stony Brook, Yale, NYU, and CUNY Linguistics Conference.
- Payne, S.** (2022). [Contrast, Sufficiency, and the Acquisition of Morphological Marking](#). Talk given at the 47th Boston University Conference on Language Development.

- Payne, S.**, Belth, C., Kodner, J., and Yang, C. (2022). [Searching for Morphological Productivity](#). Talk given at the 2022 Meeting of the Linguistic Society of America.
- {Belth, C. and **Payne, S.**}, Kodner, J., and Yang, C. (2021). [Searching for Morphological Productivity](#). Talk given at the 46th annual Boston University Conference on Language Development.
- {**Payne, S.** and Belth, C.}, Kodner, J., and Yang, C. (2021). [The Recursive Search for Morphological Productivity](#). Poster presented at the 5th Annual American International Morphological Meeting.
- Belth, C., **Payne, S.**, Beser, D., and Yang, C. (2021). [The Greedy and Recursive Search for Morphological Productivity](#). Poster presented at the 43rd Annual Meeting of the Cognitive Science Society.
- Gabbard, R., Lichtefeld, J., Beser, D., Cecil, J., Marcus, M., **Payne, S.**, Yang, C., and Freedman, M. (2021). [Grounding Word Learning Across Situations](#). Poster presented at the 43rd Annual Meeting of the Cognitive Science Society.
- Payne, S.**, Kodner, J., and Yang, C. (2021). [Learning Morphological Productivity as Meaning-Form Mappings](#). Talk given at the Annual Meeting of the Society for Computation in Linguistics.
- Payne, S.** (2019). Categorization of novel referents by a seeing eye dog. Talk given at the University of California Berkeley Undergraduate Linguistics Symposium.

## Internal Presentations

- Payne, S.** (2024). A learning-theoretic account of blind alley developments. Lightning Talk, Institute for Advanced Computational Science Research Day.
- Payne, S.** (2024). Licit and marginal phonotactics: A difference in productivity. Poster presented at the Institute for Advanced Computational Science Advisory Board Meeting.
- {**Payne, S.** and Khalifa, Salam}, Kodner, J., and Liu, Z. (2023). [Re-Evaluating the Evaluation of Neural Morphological Inflection Models](#). Poster presented at the Institute for Advanced Computational Science Research Day.
- Kodner, J., Khalifa, S., **Payne, S.**, and Liu, Z. (2023). [The Language or the Task Design? Re-Evaluating Morphological Inflection Tasks](#). All Things Language and Computation Seminar, Stony Brook University.
- Payne, S.** (2022). [Contrast, Sufficiency, and the Acquisition of Morphological Marking](#). Brown Bag Presentation, Stony Brook Department of Linguistics.
- Payne, S.**, Qian, P., Wilcox, E., and Levy, R. (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.
- Payne, S.** and Callison-Burch, C. (2019). From word meaning to phrase meaning: Compositionality. Poster presented at the University of Pennsylvania Center for Undergraduate Research Poster Session.

## Teaching

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### Invited Guest Lectures

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| <a href="#">Child Errors as a Window into Morphological Acquisition</a> <i>University of Delaware</i>    | Fall 2024 |
| LIN 444: Child Language Development (instructor: Dr. Andrea Beltrama)                                    |           |
| <a href="#">Morphological Inflection: A Reality Check</a> (with Salam Khalifa) <i>University of Utah</i> | Fall 2024 |
| LING 5981/6080: Topics in Computational Linguistics (instructor: Dr. Caleb Belth)                        |           |

## Stony Brook University

<b>Summer Youth Camp in Computational Linguistics</b> <i>Lead Instructor</i>	Summer 2025
<b>LIN 201: Phonetics</b> <i>Teaching Assistant with Recitations</i>	Spring 2025
<b>Summer Youth Camp in Computational Linguistics</b> <i>Lead Instructor</i>	Summer 2024
<b>Summer Youth Camp in Computational Linguistics</b> <i>Student Instructor</i>	Summer 2023
<b>North American Computational Linguistics Open Practice Session</b> <i>Student Instructor</i>	2022

## University of Pennsylvania

<b>CIS 380: Operating Systems</b> <i>Teaching Assistant</i>	Fall 2021
<b>CIS 240: Introduction to Computer Architecture</b> <i>Teaching Assistant</i>	Spring 2021
<b>NETS 212: Scalable and Cloud Computing</b> <i>Teaching Assistant</i>	Fall 2020
<b>CIS 192: Introduction to Python</b> <i>Teaching Assistant</i>	Spring 2019

## Service, Conference Reviewing & Outreach

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### Conference Reviewing

<b>Cognitive Science Conference</b>	2021-present
<b>Association of Computational Linguistics Conference (ACL)</b>	2022-present
<b>Conference on Empirical Methods in Natural Language Processing (EMNLP)</b>	2023-present
<b>Asia-Pacific Association of Computational Linguistics Conference (AACL)</b>	2022
<b>European Association of Computational Linguistics Conference (EACL)</b>	2022

### Conference Session Chair

<b>Workshop on Model-Theoretic Representations in Phonology</b>	2022
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### Service – Stony Brook University Department of Linguistics

<b>Student Representative</b>	2024-present
<b>Justice, Equity, Diversity and Inclusion Committee Member</b>	2022-present
<b>Colloquium Series Student Organizer</b>	2022-23

### Service – Institute for Advanced Computational Science

<b>Student Association Social Media Manager</b>	2022-2024
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### Service – University of Pennsylvania

<b>Alumna Interviewer</b> Suffolk County, NY	2022-present
<b>University Council</b> Elected member	2021-22
<b>Chair</b> Abuse and Sexual Assault Prevention Group	2021-22

### Invited Panels

<b>University of Pennsylvania:</b> Journey Through Graduate Admissions	2023
<b>Arizona State University:</b> Navigating the Grad School Application Process	2022
<b>San Diego State University:</b> Undergraduate Research Panel	2021