

# 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 Yang, C. (2023). [Making Good on BADs](#). *Italian Journal of Linguistics*, 35(2).

Dressler, W. U. and **Payne, S.** (to appear). Self-Organization in Acquisition. In *Cambridge Handbook of Natural Linguistics*. Cambridge University Press.

## Conference & Workshop Proceedings

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.

**Payne, S.** (to appear). [Root Infinitives and the Acquisition of Morphological Marking](#). In *Penn Working Papers in Linguistics*, 30(1).

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). Title TBD. LingLunch, MIT.
- Payne, S.** (2024). Title TBD. Department of Brain & Cognitive Sciences, MIT.
- 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.** (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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### Stony Brook University

Summer Youth Camp in Computational Linguistics	Lead Instructor	2024
Summer Youth Camp in Computational Linguistics	Student Instructor	2023
North American Computational Linguistics Open Practice Session	Student Instructor	2022

### University of Pennsylvania

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

## Service, Conference Reviewing & Outreach

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### Conference Reviewing

Cognitive Science Conference	2021-present
Association of Computational Linguistics Conference (ACL)	2022-present
Conference on Empirical Methods in Natural Language Processing (EMNLP)	2023-present

<b>Asia-Pacific Association of Computational Linguistics Conference (AACL)</b>	2022
<b>European Association of Computational Linguistics Conference (EACL)</b>	2022
<b>Conference Session Chair</b>	
<b>Workshop on Model-Theoretic Representations in Phonology</b>	2022
<b>Service – Stony Brook University Department of Linguistics</b>	
<b>Justice, Equity, Diversity and Inclusion Committee Member</b>	2022-present
<b>Colloquium Series Student Organizer</b>	2022-23
<b>Service – Institute for Advanced Computational Science</b>	
<b>Student Association Social Media Manager</b>	2022-present
<b>Service – University of Pennsylvania</b>	
<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
<b>Invited Panels</b>	
<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