

# Annika Heuser

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Department of Linguistics, 3401 Walnut Street, Philadelphia, PA, 19104

## Education

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### University of Pennsylvania

*Expected: May 2027*

PhD Candidate in Linguistics

Advisor: Charles Yang

GPA: 3.97/4.0

### Massachusetts Institute of Technology

2022

MEng in Computation & Cognition (Computer Science & Brain and Cognitive Sciences; 6-9)

Thesis: [Transformer-Maze](#)

GPA: 5.0/5.0

BS in in Computation & Cognition (Computer Science & Brain and Cognitive Sciences; 6-9)

MIT EECS | CS+HASS Undergraduate Research and Innovation Scholar

GPA: 4.7/5.0

## Research and Teaching Interests

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Child Language Acquisition, Computational Linguistics, Phonetics, Experimental and Corpus Linguistics, Phonology, Psycholinguistics, Natural Language Processing

## Publications

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Le Xuan Chan & **Annika Heuser** (To appear). Relative cue weighting in multilingual stop voicing production. *Proceedings of Interspeech 2025*.

**Annika Heuser** (To appear). Discovering Phonological Representations: The Case of French Liaison. In *Proceedings of the 49th annual Boston University Conference on Language Development (BUCLD 49)*. Somerville, MA: Cascadia Press.

Héctor Javier Vázquez Martínez, **Annika Heuser**, Charles Yang, Jordan Kodner (Under review). Evaluating the existence proof. LLMs as cognitive models. In Jose-Luis Mendivil (Ed.), *Artificial Knowledge of Language: A Linguists' Perspective on its Nature, Origins and Use* (Chapter 7, pp. 110-135). Vernon Press.

**Annika Heuser** & Jianjing Kuang (2024). Information-theoretic hypothesis generation of relative cue weighting for the voicing contrast. *Proceedings of Interspeech 2024*. [\[Link\]](#)

**Annika Heuser**, Tyler Kendall, Migual Del Rio, Quinten McNamara, Nischal Bhandari, Corey Miller, & Migüel Jetté (2024). Quantification of stylistic differences in human- and ASR-produced transcripts of African American English. *Proceedings of Interspeech 2024*. [\[Link\]](#)

Héctor Javier Vázquez Martínez, **Annika Heuser**, Charles Yang, Jordan Kodner (2023). Evaluating Neural Language Models as Cognitive Models of Language Acquisition. In *Proceedings of the 1st GenBench Workshop on (Benchmarking) Generalisation in NLP*. [\[Link\]](#)

**Annika Heuser** & Edward Gibson (2023). Transformer-Maze: An Accessible Incremental Processing Measurement Tool. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 45, No. 45). [\[Link\]](#)

**Annika Heuser** (2022). Transformer-Maze. *Master's of Engineering Thesis, Massachusetts Institute of Technology*. [\[Link\]](#)

**Annika Heuser** & Polina Tsvilodub (2021). Modeling German Word Order Acquisition via Bayesian Inference. In *Proceedings of the Society for Computation in Linguistics 2021*. [\[Link\]](#)

**Annika Heuser** & Polina Tsvilodub (2021). Comparing Symbolic Models of Language via Bayesian Inference (Student Abstract). In *Proceedings of the AAAI Conference on Artificial Intelligence*. [\[Link\]](#)

## Presentations

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- 2025     Le Xuan Chan and **Annika Heuser**. Relative cue weighting in multilingual stop voicing production. To be presented at Interspeech 2025, 17-21 August, 2025, Rotterdam, the Netherlands.
  
- 2025     **Annika Heuser**. Discovering Phonological Representations: The Case of French Liaison. Paper presented at the 2025 Annual Meeting of the Linguistic Society of America (LSA 2025), 9-12 January, 2025, Philadelphia, PA, USA.
  
- 2024     **Annika Heuser** and Charles Yang. Discovering Phonological Representations: The Case of French Liaison. Poster presented at the 49<sup>th</sup> Annual Boston University Conference on Language Development (BUCLD), 7-10 November, 2024, Boston, MA, USA.
  
- 2024     **Annika Heuser** and Jianjing Kuang. Information-theoretic hypothesis generation of relative cue weighting for the voicing contrast. Poster presented at Interspeech 2024, 1-5 September, 2024. Kos Island, Greece.
  
- 2024     **Annika Heuser**, Tyler Kendall, Migual Del Rio, Quinten McNamara, Nischal Bhandari, Corey Miller, & Migüel Jetté. Quantification of stylistic differences in human- and ASR-produced transcripts of African American English. Poster presented at Interspeech 2024, 1-5 September, 2024. Kos Island, Greece.

- 2024 **Annika Heuser**, Héctor Javier Vázquez Martínez, and Charles Yang. The Learnability of Syntactic Islands. Co-presented at the 54<sup>th</sup> Annual Meeting of the North East Linguistics Society (NELS), 26-27 January, 2024, Cambridge, MA, USA.
- 2023 Héctor Javier Vázquez Martínez, **Annika Heuser**, Charles Yang, and Jordan Kodner. Evaluating Neural Language Models as Cognitive Models of Language Acquisition. Paper co-presented at the 1st GenBench Workshop on (Benchmarking) Generalisation in NLP at the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP). 6-10 December 2023, Singapore.
- 2023 **Annika Heuser** and Edward Gibson. Transformer-Maze: An Accessible Incremental Processing Measurement Tool. Poster presented at the 44<sup>th</sup> Annual Meeting of the Cognitive Science Society, 26-29 July, 2023, Sydney, Australia. (Virtual)
- 2023 **Annika Heuser** and Edward Gibson. Transformer-Maze: An Accessible Incremental Processing Measurement Tool. Poster presented at 36th Annual Conference on Human Sentence Processing, 9-11 March, 2023, Pittsburgh, PA, USA.
- 2021 **Annika Heuser** and Polina Tsvilodub. Modeling German Word Order Acquisition via Bayesian Inference. Paper presented at Society for Computation in Linguistics conference, 15 February 2021. (Virtual)
- 2021 **Annika Heuser** and Polina Tsvilodub. Comparing Symbolic Models of Language via Bayesian Inference. Poster presented at Association for the Advancement of Artificial Intelligence (AAAI) Conference Student Abstract and Poster Program, 4-7 February 2021. (Virtual)

## Industry Experience

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Speech Science Intern June, 2023 - March, 2024

**Rev.com**, Research & Development Team, remote

- Investigated sources of bias in ASR development
- Published and presented findings at Interspeech 2024

Natural Language Processing Intern June, 2021 - August, 2021

**Virtualitics**, Research & Development Team, remote

- Improved natural language querying system of data analytics and 3D visualization platform
- Customer-facing product updated with these changes in the next release cycle

Bioinformatics Intern June, 2019 - August, 2019

**Hummingbird Diagnostics**, Heidelberg, Germany

- Built pipeline with cox survival regression, leave one-out cross validation, and parallel processing to determine whether patients' miRNA expression levels can predict medication efficacy

Siri Team Intern

June, 2018 - August, 2018

*Apple, Inc., Cupertino, CA, USA*

- Wrote engineering documentation for the Siri team
- Finalist in Apple's annual intern innovation contest, iContest

## Awards, Scholarships, and Funding

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2024	<b>Interspeech 2024 ISCA Student Travel Grant</b>
2024	<b>President Gutmann Leadership Award</b> , University of Pennsylvania
2023-2024	<b>Language and Communication Sciences (LCS) Program</b> , University of Pennsylvania
2023-2024	<b>SAS Dean's Travel Subvention</b> , University of Pennsylvania
2023	<b>GAPSA Research Student Individual Grant for Fall 2022</b> , University of Pennsylvania
2022-2027	<b>Benjamin Franklin Fellowship</b> , University of Pennsylvania
2020	<b>Walle Nauta Award for Excellence in Undergraduate Teaching</b> , Massachusetts Institute of Technology
2017-2021	<b>CRCA Scholar Athlete &amp; Patriot League Academic Honor Roll</b> , Massachusetts Institute of Technology

## Teaching Experience

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<b>Formal Linguistics</b> (LING 0500)	Spring 2025
Teaching Assistant for Professor Florian Schwarz	
Department of Linguistics, University of Pennsylvania	
<b>Language Acquisition</b> (LING 2700)	Fall 2024
Teaching Assistant for Dr. Aletheia Cui	
Department of Linguistics, University of Pennsylvania	
<b>Introduction to Linguistics</b> (LING 0001)	Spring 2024
Teaching Assistant for Dr. Aletheia Cui	
Department of Linguistics, University of Pennsylvania	
<b>Tutorial in Linguistics</b> (LING 4000)	Fall 2023
Teaching Assistant for Dr. Aletheia Cui	
Department of Linguistics, University of Pennsylvania	
<b>Mentor and Curriculum Team Executive Board Member</b>	June, 2022 - August, 2023
<u>Momentum</u>	
<ul style="list-style-type: none"> <li>• Taught underserved high school students about AI and the college application process during summer capstone program</li> <li>• Revised next summer's curriculum based on teaching experience</li> </ul>	

**Introduction to EECS via Interconnected Embedded Systems (6.08)** Spring 2021, 2022

Teaching Assistant for Dr. Joe Steinmeyer

Department of Electrical Engineering and Computer Science, MIT

**Artificial Intelligence (6.034/6.844)** Fall, 2021

Teaching Assistant for Dr. Kimberle Koile

Department of Electrical Engineering and Computer Science, MIT

**Computational Psycholinguistics (9.19/9.190)** Fall, 2020

Teaching Assistant for Professor Roger Levy

Department of Brain and Cognitive Sciences, MIT

## Other Research Experience

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**Undergraduate Research Opportunity Program** Summer, 2020

Massachusetts Institute of Technology, Computational Linguistics Lab

Department of Electrical Engineering and Computer Science

PI: Professor Robert Berwick

**SuperUROP** (Advanced Undergraduate Research Opportunities Program) Fall, 2019 - Spring, 2020

Title: Modeling German Language Acquisition

Department of Electrical Engineering and Computer Science

Advisors: Professor Robert Berwick and Professor Suzanne Flynn

## Service and Leadership Experience

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### University of Pennsylvania

2024 - Present Penn Graduate Student Committee (GradLings) President

2024 Penn Linguistics Conference 48 – Invited Speakers Chair

2023 - 2025 Integrated Language Science and Technology (ILST) Seminar Organizer

2023 - 2025 Linguistics Department Representative to SASGov

2023 - Present Penn Working Papers in Linguistics Copy Editor

2023 Penn Linguistics Conference 47 – Co-Chair & Content Committee Chair

2022 - 2024 GradLings Prospective Student Liaison

2022 - 2023 GradLings Social Chair

### Massachusetts Institute of Technology

2020 - 2022 MIT Casino Rueda (Cuban-style salsa) Club President

2019 - 2020 Captain of NCAA Division 1 Varsity Rowing Team

### Other Organizations

2022 [Momentum](#) Ukraine Executive Board Member

**Peer-Reviewer**

2023 - Present      Annual Meeting of the Cognitive Science Society (CogSci)  
2023 - Present      Penn Linguistics Conference

**Skills**

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**Languages:** English (Native), German (Fluent/C1), Spanish (Fluent/C1), Japanese (Beginner/A1)

**Programming Languages:** Python, C#, C++, R