

LOGAN SWANSON

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Research Interests

I investigate language learning from a computational perspective in order to understand how both humans and AI systems learn. I design formal learning algorithms, create efficient software implementations, and run experiments to determine how different learning strategies and data properties impact learning behavior.

Education

Ph.D., Stony Brook University, Linguistics Ph.D. expected Spring 2027
GPA: 4.0
Advisors: Thomas Graf and Jefferey Heinz
Selected Coursework: Computational Linguistics II, Learnability, Computational Syntax

B.A., Smith College, Dual major in Computer Science and Engineering 2019
GPA: 3.85
Selected Coursework: Data Structures, Algorithms, CS Theory, Natural Language Processing, Assembly

Publications

PEER-REVIEWED JOURNAL ARTICLES

Syntactic Learning over Tree Tiers 2026
Logan Swanson. *Logics*, 4(2), 5.

Phonotactic Learning with Structure, not Statistics 2026
Logan Swanson, Jonathan Rawski, and Jeffrey Heinz. *Linguistic Inquiry*, 1-24.

PEER-REVIEWED CONFERENCE PUBLICATIONS

The Long and Short of It: An experimental investigation into the role of shorter strings in learning regular languages 2026
Logan Swanson, Sarah Payne, Sam van der Poel, Adil Soubki, and Jeffrey Heinz. *Proceedings of The 17th Annual Conference on Grammatical Inference*. To appear.

Learning Multi Tier-Based Strictly 2-Local Languages 2025
Logan Swanson. *Proceedings of the 18th Meeting on the Mathematics of Language* (pp. 33-43).

Are syntactic categories ISL-2 inferrable? A corpus study 2025
Logan Swanson, Kenneth Hanson, and Thomas Graf. *Proceedings of the Society for Computation in Linguistics 2025* (pp. 211-221).

Syntactic Learning over Tree Tiers 2024
Logan Swanson. *Proceedings of 35th European Summer School in Logic, Language, and Information Student Session*.

Presentations

EXTERNAL CONFERENCE AND INVITED TALKS

The Long and Short of It: An experimental investigation into the role of shorter strings in learning regular languages 2026
Logan Swanson and Jeffrey Heinz. *The 17th Annual Conference on Grammatical Inference*. TU Delft, Netherlands.

Learning over Multiple Tiers 2025
Logan Swanson. *The 2025 Rutgers Subregular Phonology Workshop*. Rutgers University, NJ.

Learning Multi Tier-Based Strictly 2-Local Languages 2025
Logan Swanson. *Mathematics of Language 2025*. Stony Brook University, NY.

Are syntactic categories ISL-2 inferrable? A corpus study 2025
Logan Swanson. *Society for Computation in Linguistics 2025*. University of Oregon, OR.

The Bottom-Up Factor Inference Algorithm and Applications 2024
Logan Swanson. *The 2024 Rutgers Subregular Phonology Workshop*. Rutgers University, NJ.

Syntactic Learning over Tree Tiers 2024
Logan Swanson. *35th European Summer School in Logic, Language, and Information*. KU Leuven, Belgium.

Phonotactic Learning with Abductive Principles 2024
Logan Swanson. MIT's [Phonology Circle](#) group. Massachusetts Institute of Technology, MA. (invited talk)

It's 🍌: Queer Identity and Emoji Use Online 2023
John David Storment, Logan Swanson, and Daniel Greeson. *Lavender Languages and Linguistics #29*. Boise State University, ID.

EXTERNAL POSTER PRESENTATIONS

Phonotactic Learning and Constraint Selection Without Statistics 2024
Logan Swanson, Jonathan Rawski, and Jeffrey Heinz. *Annual Meeting on Phonology 2024*. Rutgers University, NJ.

Expression or Identity?: Exploring Online Discussion of Pronouns 2024
Logan Swanson. *Lavender Languages and Linguistics #30*. University of Brighton, England.

INTERNAL TALKS, LECTURES, AND POSTERS

The Long and Short of Learning Regular Languages 2026

Logan Swanson. Lightning Talk at *IACS Research Day 2026*; Stony Brook University, NY

Phonotactic Learning with Structure, not Statistics 2025

Logan Swanson. Guest lecture for Learnability (LIN 629). Stony Brook University, NY.

Learning Phonotactics Using Structure: A Case Study on Bolivian Quechua 2025

Logan Swanson. Lightning talk at *IACS Research Day 2025*; Stony Brook University, NY.

Learning Syntax over Tree Tiers 2024

Logan Swanson. Seminar Talk at the Institute for Advanced Computational Science; Stony Brook University, NY.

Learning Linguistic Patterns 2024

Logan Swanson. Poster at *IACS Research Day 2024*; Stony Brook University, NY.

Fellowships, Grants, and Awards

IACS Junior Researcher Award 2024 - 2026

Stony Brook's [Institute for Advanced Computational Science](#) gives this award to Ph.D. students in their third year or later who are recognized as outstanding junior researchers by institute faculty or affiliates.

Ookami Project, Research Assistant 2023 - 2024

[Ookami](#) is a computer technology testbed supported by the NSF which provides researchers with access to the A64FX processor. This grant provided funds for initial research projects to be developed on Ookami and subsequently used to benchmark the system's performance. As a research assistant, I adapted the [Bottom-Up Factor Inference Algorithm](#) (BUFIA) to run over 10x faster and on larger datasets using the Ookami testbed and employed this implementation to analyze phonotactic learning of Bolivian Quechua.

SUNY GREAT Award 2025

The SUNY [Graduate Research Empowering and Accelerating Talent](#) Award is given to SUNY graduate students performing cutting-edge research who receive recognition from federal agencies such as the NSF, NIH, or Department of Energy.

NSF GRFP, Honorable Mention 2024

The NSF [Graduate Research Fellowship Program](#) recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics (STEM) disciplines.

Bert Mendelson Prize for Excellence in Computer Science 2017 and 2019

The Bert Mendelson Prize is awarded yearly by Smith College's department of computer science to sophomore and senior students who demonstrate excellence in their coursework, service, or other contributions to the department.

Teaching Experience

Writing in Linguistics, Primary Instructor – Stony Brook, NY Spring 2026

LIN 405 helps students refine their writing skills for the discipline through exercises, examples, and successive revisions of prior work

- Designed syllabus, course schedule, and assignments for semester-long undergraduate course
- Adapted course materials from multiple prior instructors to create a cohesive course experience
- Instructed class of 12 students weekly
- Graded assignments and met individually with students to discuss progress and feedback

Computational Linguistics 1, Assistant Instructor – Stony Brook, NY Fall 2026

LIN 537/334 provides an introduction to Python programming and basic NLP techniques for humanities students at both the undergraduate and graduate level

- Led one of two weekly course sessions for a class of 15 students, focusing on hands-on programming activities
- Worked with lead instructor to develop syllabus and course schedule
- Met regularly with lead instructor to discuss course progress and ensure a cohesive teaching experience
- Graded weekly assignments

SYCCL, Lead Instructor – Stony Brook University Summer 2024, 2025

Stony Brook's [Summer Youth Camp in Computational Linguistics](#) (SYCCL) is a 2-week camp for high-school students interested in computational linguistics. The curriculum covers python programming skills, an introduction to computational topics like formal language theory and machine learning, and formal linguistics, including phonology, morphology, syntax, and semantics.

- Collaborated with one co-instructor to develop and run a 2-week program of lessons
- Reviewed student applications and issued admission decisions
- Organized schedule to accommodate icebreaker games, lessons, final project work, and guest lectures from several faculty members and students
- Had primary responsibility, along with co-instructor, for all course materials and teaching

SYCCL, Assistant Instructor – Stony Brook University Summer 2023

- Worked with instructor team to develop curriculum and schedule
- Created course materials for intro python and morphology modules
- Led several days of lessons
- Worked individually with students to help them design and create final projects

Language Disorders, Teaching Assistant – Stony Brook University Fall 2025

LIN 381 introduces students to developmental and acquired communication disorders across the lifespan

- Met regularly with primary instructor to discuss course structure, assignments, and student progress
- Assisted in facilitating in-class activities for a 20-student lecture biweekly
- Met with students in weekly office hours to answer questions on assignments and concepts
- Graded weekly assignments and exams

Syntax, Teaching Assistant – Stony Brook University

Spring 2025

LIN 311 introduces students to formal theories of syntax and generative grammar

- Assisted in facilitating in-class activities for a 50-student lecture biweekly
- Hosted office hours to answer students' questions on assignments and concepts
- Designed and graded weekly assignments

Language and Technology, Teaching Assistant – Stony Brook University

Fall 2022

LIN 120 introduces students with no computational or programming background to Python programming and computational linguistics topics

- Ran two recitation sections of 10-20 students weekly
- Hosted office hours to answer students' questions on assignments and concepts
- Graded 35 programming assignments weekly

Google in Residence, Computer Science Teaching Assistant – Remote

Fall 2021

Intro To Programming at California State University Fullerton

The [Google in Residence](#) (GIR) program is a partnership between Google and computer science departments at various Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs) which sends software engineers from Google to these campuses to teach intro CS courses.

- Met with students at virtual office hours to provide tutoring on assignments and topics
- Met biweekly with a student mentee to discuss topics like schoolwork, career plans, and interview preparation
- Completed weekly grading of student homework assignments
- Met biweekly with instructional team to coordinate on assignments and student progress

Smith College, Computer Science Teaching Assistant – Northampton, MA

2016 - 2019

Intro to Programming, Data Structures

- Worked with instructor and other TAs to provide a positive learning experience for students studying basic CS topics and data structures in Python and Java
- Assisted in lab sessions to provide help to students completing hands-on assignments
- Attended weekly meetings with instructor to provide feedback on students' progress
- Facilitated TA hours to answer students' questions on assignments and concepts
- Instructed supplemental tutorial sessions in topics like version control and command line usage
- Rehired for five semesters in TA role

Smith College, CS with Android Teaching Assistant – Northampton, MA

Jan 2018

- Assisted instructor from Google in teaching a two-week course covering the basics of Android app development, including the user-centered design process, git, and test-driven development
- Helped students complete and present their own original Android projects

Industry Experience

Google Inc, Software Engineer III – Mountain View, CA

2020 - 2022

Data Wizardry:

2020 - 2022

The Data Wizardry team built data-related tools and features to drive meaningful improvements in natural language understanding for the Google Assistant AI product. I worked closely with machine

learning (ML) teams and linguists to form a tight data quality loop from data mining, through data annotation, to ML model training and analysis.

- Designed experiment for simplifying data annotation task, implemented UI and backend components necessary to conduct experiment with live annotators, and worked with linguists to analyze results and propose areas for further experimentation
- Designed and implemented data pipelines
- Participated in redesigning data format and migrating database of 100k+ data points to new format
- Met regularly with members of multiple client teams to better understand their work and data needs

Google Inc, *Software Engineer II* – Mountain View, CA

2019 - 2020

Lingua (Engineering Residency, rotation 2):

April - September 2020

The Lingua team built models for text prediction in conversations between human users.

- Created evaluation system for a new BERT-style dual-encoder model
- Conducted experiments on how to optimize runtime of evaluation pipeline
- Proactively proposed and implemented a solution to improve the runtime of the evaluation pipeline by over 10x
- Designed an experiment with adding personalization to models, including details of the technical implementation as well as procedure and metrics for measuring effectiveness

Endpoint Management (Engineering Residency, rotation 1):

Nov 2019 - April 2020

The Endpoint Management team builds tools to allow administrators to configure device policies using the Google Admin console.

- Completed end-to-end implementation of a new search feature, including both UI and server code

Epic Systems, *Software Development Intern* – Verona, WI

Summer 2018

- Designed and developed a voice interface feature for an existing product using Android Studio and Dialogflow
- Wrote templates to parse spoken user requests and fulfill them using the product's existing APIs
- Received offer for full-time software engineering role due to strong performance

Service

ESSLLI Student Session Language and Computation track Co-Chair

2025

The [European Summer School in Logic Language and Information](#) is a interdisciplinary setting in which courses and workshops are offered in logic, linguistics and computer science. PhD students have the opportunity to present their work at ESSLLI's daily student session. ESSLLI 2205 was held in Bochum, Germany.

- Worked with one other co-chair in the Language and Computation track to recruit reviewers, collect paper submissions, oversee the review process, and formulate a final list of accepted papers

SYNC Conference Organizer

Fall 2023

[SYNC](#) is a linguistics conference by and for graduate students that serves as a platform for students from Stony Brook, Yale, NYU, and CUNY to disseminate research results, exchange ideas, and more broadly foster a sense of community. In 2023, it was [held at Stony Brook University](#).

- Worked with one co-organizer to complete all planning and logistical work necessary to host a conference, including securing funding, venue, and food, managing abstract submissions and registration, designing a program, and ensuring a positive experience for attendees
- The conference featured 10 student presentations, a faculty keynote, and over 30 attendees

Linguistics Department GSO Senator

Spring 2024 - Spring 2025

Graduate Student Organization (GSO) senators are responsible for attending GSO meetings, voting on proposals, and assisting students in their department with navigating GSO resources and policies.

MLRG Student Organizer

Fall 2023

[Mathematical Linguistics Recreation Group](#) (MLRG) provides an informal venue at Stony Brook for all types of computational and mathematical linguistics talks. The student organizer is responsible for managing the website and scheduling faculty, student, and guest presenters for each weekly meeting.