Mei Rose Connor

Wir müssen wissen, wir werden wissen. —David Hilbert

Education

2018–2022 **B.Sc.**, *Stony Brook University*, Stony Brook, New York, *3.67/4.00*
Mathematics and Linguistics majors

2023-2025 **MA-FAS**, *University of Wisconsin-Madison*, Madison, Wisconsin
Mathematics

Research Interests

Mathematics

- Algebraic Geometry
- Discrete Mathematics

Linguistics

- Cross-linguistic Semantics
- Monotonicity of Syntactic Phenomena

Logic

- Proof Theory, especially Natural Deduction systems
- Many–valued Logic, particularly Seven–valued Modal Logic

Work Experience

Spring 2022 **Department Intern**, *Dept. of Linguistics, Stony Brook University*, Stony Brook, New York

- Read all lecture notes for Mathematical Methods for Linguistics, including new ones
- Provided detailed feedback on the lecture notes; the feedback should discuss content as well as presentation
- Wrote up detailed solutions (including discussion of incorrect solutions) for hand-crafted exercises in the lecture notes
- Tested a procedural generator for exercises with solutions

Summer 2021 **Academic Affiliate**, *Institute for Computational and Experimental Research Mathematics (ICERM), Brown University*, Providence, Rhode Island

- Conducted research at ICERM offices for 8 weeks on periodic trajectories of polygonal billiards dynamics
- Worked with undergraduates, TAs, and faculty mentors to prove results making connections between existing theorems and approaches
- Used SageMath (a package for Python) to test hypotheses and run simulations

515 Tennis Avenue – Ambler, PA, 19002 – United States
+1 (267) 966 7200 • *meirconnor@gmail.com*
www.meiroseconnor.com • *MeiRoseConnor1* • *RossignolD*

Spring 2021 **Lecturer's Assistant**, *Dept. of Mathematics, Stony Brook University*, Stony Brook, New York
- Responded promptly to students' questions in virtual calculus class
- Participated in classroom management

Winter 2020 **Undergraduate Teaching Assistant**, *Dept. of Philosophy, Stony Brook University*, Stony Brook, New York

2019–2022 **Student Software Coder**, *Teaching and Learning Lab, Center for Excellence in Learning and Teaching*, Stony Brook, New York
- Collaborated with faculty of Biology, Biomedical Engineering, and Philosophy to produce unique and specialized educational software
- Designed and implemented interactive theorem prover to improve upon existing programs (Logic 2010, Logic 2000) to teach Łukasieviczian propositional logic
- Improved upon the Virtual Reality game *Tarski's Truth Machine*, making it accessible from desktop and a wide range of VR devices
- Integrated the skills (graphics, video editing) of other members of the lab to improve user interfaces of software tools

2017–2018 **Lead Conference Organizer**, *Sonya Kovalevskaya Day of Math for Girls*, Ambler, Pennsylvania

Conferences with Participation

Summer 2022 **Mei Rose Connor supervised by Paul St. Denis**, *(Drag and) Drop It Like It's Hot: Comparison of Educational Software for Teaching Natural Deduction and Axiomatic Derivation*, MathFest 2022, Philadelphia, Pennsylvania
- Presented a poster highlighting a product, DragLogic, developed in the Student Software Coder position
- Compared and contrasted features and interface of DragLogic with competing products including Logic 2010, ∃Logic, and QED.

Winter 2022 **Mei Rose Connor, P. Michael Kielstra, Zachary Steinberg, Chenyang Sun**, *Hyperbolic Staircases: Periodic Paths on* $2g + 1$*–gons*, Joint Mathematics Meetings, Seattle, Washington
- Presented poster on work done at ICERM with 3 undergraduate collaborators

Spring 2020 **Mei Rose Connor**, *JainaSyadLogic*, Gathering 4 Gardner 14, Atlanta, Georgia: Cancelled due to COVID
- Invited to give a 6–minute lecture on work in seven–valued logic
- Prepared a unique giveaway for all conference participants related to work in logic and teaching logic

Fall 2019 **Mei Rose Connor**, *Opening Statement*, Heidelberg Laureate Forum, Heidelberg, Germany
- Produced a 1-minute long Opening Statement shown to all participants and laureates at Opening Ceremonies
- Engaged daily with mathematics and computer science laureates as well as young researchers from around the world
- Attended professional development Q&A led by Fields medallist Efim Zelmanov

Extracurricular Activities

Winter 2023 **Worlds Beyond Worlds: An Introduction to the Logic of Possibilities**, *Stony Brook University Math Club*, Stony Brook University
- Discussed Modal Logic and Kripke Semantics of Kripke models
- Demonstrated the usefulness of various interpretations of the box and diamond operators
- Led a question–and–answer session about Modal Logic, its applications to philosophy, and its use in mathematics

Spring 2021–Spring 2022 **President of Stony Brook University Math Club**, *Stony Brook University*, Stony Brook, New York
- Planned and organized events ranging from faculty and student lectures to statistics–themed craft night
- Held meeting of executive board every week during which previous week's and future events are discussed
- Designed posters and mailings sent to a 400+ person mailing list to raise awareness and attendance at events

Spring 2021 **Math With Words: An Introduction to Formal Semantics**, *Stony Brook University Math Club*, Virtual
- Introduced the idea of analyzing the meaning of sentences based on the meaning of constituent parts (compositionality)
- Stepped through the process of deriving truth conditions for a sentence from lexical, phrasal, and substitution rules applied to it
- Part of a series of Quarantined Undergraduate End–of–Semester Talks (QUEST) with various speakers (Spring Semester series)
- Presented in under 20 minutes, as is the constraint for QUEST

Winter 2020 **Bombelli and the History of Complex Numbers**, *Stony Brook University Math Club*, Virtual
- Discussed the history of complex numbers, building from the ideas of Diophantos and Mahavira to the problem of the solutions of cubics in the XVI century
- Part of QUEST (Fall Semester series) and presented in under 20 minutes

Spring 2020 **From True and False to JSL: An Adventure in Logic**, *Stony Brook University Math Club*, Virtual
- Introduced the ideas of the propositional logic connectives, their syntax, and their semantics in terms of truth tables
- Discussed modal logic operators, $\Box$ and $\Diamond$ as well as modal axioms
- Showed history, motivation, and syntax of JainaSyadLogic, the presenter's own 7–valued modal logic system

Winter 2019 **Joint Mathematics Meetings**, Baltimore, Maryland

Languages

English Native

Latin Intermediate — *Achieved a perfect score on the National Latin Exams 2014*

German Novice

515 Tennis Avenue – Ambler, PA, 19002 – United States
+1 (267) 966 7200 • meirconnor@gmail.com
www.meiroseconnor.com • MeiRoseConnor1 • RossignolD

Computer skills

Proficient LaTeX 2_ε, Desmos Graphing Calculator, LEGO Mindstorms EV3, JavaScript/jQuery, HTML/CSS, Python 3

Familiar with Maple, Sage/CoCalc, Mathematica

Publications

Papers

[1] Mei Rose Connor, Diana Davis, Paige Helms, Samuel Lelièvre, Michael Kielstra, Zachary Steinberg, and Chenyang Sun. Hyperbolic staircases: Periodic paths on $2g + 1$–gons. `https://arxiv.org/abs/2111.13971`, 2021.